
Appendix G

Social impact assessment

Clarence Colliery - Modification 11

Social impact assessment

Prepared for Centennial Coal Company Pty Limited

December 2025

Clarence Colliery - Modification 11

Social impact assessment

Centennial Coal Company Pty Limited

E250102 RP6

December 2025

Version	Date	Prepared by	Reviewed by	Comments
1	18 November 2025	Caroline Wilkins	Sam McCrea	Draft for review
2	17 December 2025	Caroline Wilkins	Sam McCrea	Final

Approved by



Sam McCrea

Associate Director

17 November 2025

Level 3 175 Scott Street

Newcastle NSW 2300

ABN: 28 141 736 558

This report has been prepared in accordance with the brief provided by Centennial Coal Company Pty Limited and, in its preparation, EMM has relied upon the information collected at the times and under the conditions specified in this report. All findings, conclusions or recommendations contained in this report are based on those aforementioned circumstances. This report is to only be used for the purpose for which it has been provided. Except as permitted by the Copyright Act 1968 (Cth) and only to the extent incapable of exclusion, any other use (including use or reproduction of this report for resale or other commercial purposes) is prohibited without EMM's prior written consent. Except where expressly agreed to by EMM in writing, and to the extent permitted by law, EMM will have no liability (and assumes no duty of care) to any person in relation to this document, other than to Centennial Coal Company Pty Limited (and subject to the terms of EMM's agreement with Centennial Coal Company Pty Limited).

© EMM Consulting Pty Ltd, Level 10, 201 Pacific Highway, St Leonards NSW 2065. 2025.

ABN: 28 141 736 558

Executive Summary

ES1 Introduction

EMM Consulting Pty Limited (EMM) has prepared this social impact assessment (SIA) for the Modification of Clarence Colliery for Centennial Coal Company Limited (Centennial).

Clarence Colliery is an existing underground coal mine approximately 10 kilometres (km) east of Lithgow, within the Lithgow City local government area (LGA). The mine is operated by Clarence Colliery Pty Limited, which is a subsidiary of Centennial Coal Company Limited.

Mining activities at Clarence Colliery are authorised by three development consents:

- IRM.GE.76 – a development consent issued in 1976 by the then Blaxland Shire Council
- DA 174/93 – a development consent issued in 1994 by Lithgow City Council (LCC)
- DA 504-00 – issued in 2005 by the then Minister for Planning.

Development consent DA 504-00 authorises:

- coal extraction at a rate of up to 3 million tonnes per annum (Mtpa) until the 31 December 2026
- underground coal mining using bord and pillar with both first workings and extraction of coal by partial extraction methods (second workings)
- operation of the existing Clarence Colliery pit top surface infrastructure
- coal processing and handling plant (CHPP)
- coal transport via rail and road for domestic and export sales including supply to Vales Point power station (VPPS) and Mt Piper power station (MPPS).

Centennial is seeking to modify Development Application (DA) 540-00 under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify the following conditions in Schedule 2 of DA 504-00:

- Condition 5 to extend the life of mining from 31 December 2026 for a further five years to 31 December 2031.
- Condition 7AA to align the transport of coal by road with the proposed extension of the life of mining, thus allowing for the transport of up to 300,000 tonnes (t) of coal by road until 31 December 2031.

No further changes are proposed to what is approved under DA 504-00, including no changes to mining methods, annual coal extraction rates, coal processing and handling activities, surface infrastructure and hours of operation. The proposed modification will not result in any additional surface disturbance activities.

ES2 Existing environment

The local study area includes Newnes Plateau, State Mine Gully, Newnes Junction and Clarence, the area where Clarence Colliery is situated. Key urban areas were identified including Clarence, Lithgow city, Wallerawang and Mount Victoria which include service centres and towns along project transport routes. The regional area consists of Lithgow LGA and Blue Mountains LGA.

There is potential for communities of the local study area to experience a continuation of direct social impacts associated with the modification. Ongoing operations of Clarence Colliery is considered the baseline environment for this assessment.

ES3 Approach

This study assesses potential social impacts and benefits generated by the proposed modification utilising the methodology outlined in SIA Guideline (DPHI, 2025).

The modification involves a five-year extension to the time that mining activities can be conducted. All other activities that are currently approved under DA 504-00, are intended to continue under the modification. As the original environmental approval was provided in 1979, data to evidence the development for which the consent was originally granted is not available. This SIA therefore assesses Clarence Colliery as approved in DA 504-00 (last modified in May 2025). The SIA conducts an initial assessment of social impacts of the continuation of mining operations before assessing the social change due to the modification.

The methodology includes review of documentation, preparation of a social baseline study, direct SIA engagement and review of engagement data from the operations phase, previous modifications (and updated technical studies), and further engagement undertaken by the proponent to understand the effects of the modification. Complaints data and environmental monitoring reports from ongoing operations were also analysed.

Social impacts and benefits relevant to the modification were identified through analysis of social impacts and benefits identified in previous modifications, technical studies, SIA reports of similar projects, the proposed changes to the nature of project activities, baseline characteristics of potentially affected communities and feedback generated through engagement processes. The risk of identified impacts and benefits was re-assessed without mitigation or enhancement using the risk framework provided in the SIA Guideline Technical Supplement (DPHI, 2025). Changes to mitigation and enhancement measures were identified, where required, and impacts were re-assessed after applying mitigation measures. Assessment of cumulative impacts was also prepared.

ES4 Assessment of social impacts and benefits

Ten social impacts and four social benefits were identified as a result of the assessment. It was assessed that the modification will not result in any change to the majority of the social impacts and benefits. Social impacts relate to amenity including traffic, generation of dust, noise and vibration, impacts relating to community cohesion, and potential water quality impacts. Health and wellbeing impacts relate to concerns regarding potential noise, air quality, and water quality and availability impacts.

Potential social benefits relate to ongoing employment and procurement opportunities improving the viability of local businesses, contribution to the provision of public goods and services that benefit local and regional communities and contribution of personnel to support identified community groups and local services.

Social impacts assessed for the modification are summarised in Table ES1. Detailed assessment is provided in Section 7.

Table ES1 Social impacts summary

Impact category	Modification 11		
	Impact	Unmitigated significance	Mitigated significance
Way of life	Potential impact of continued traffic congestion and road delays – operations	Low	Low
	Potential impacts due to continued generation of dust and diminished air quality	Medium	Medium
Community	Reduced community cohesion due to divergent opinions on the modification with regard to climate change impacts	Medium	Medium
	Reduced community cohesion due to perceived inequitable distribution project benefits	Medium	Medium
Culture	Disturbance or displacement of Aboriginal and non-Aboriginal heritage sites and/or items, and changes to cultural landscapes	Low	Low
	Diminishment of First Nations cultural values due to disturbance or displacement of Aboriginal heritage sites and/or artefacts and changes to visual landscape	Low	Low
Health and wellbeing	Impacts from noise and vibration	Low	Low
	Impact of continued anxiety about potential effects on water quality and availability	High	Medium
	Impacts of continued exposure to dust and decreased air quality	Medium	Medium
Livelihood	Impact on perceived decreased groundwater water quantity and quality impacting groundwater supplied water supply for domestic water supply agriculture	Medium	Medium

Social benefits assessed for the modification are summarised in Table ES2. Detailed assessment is provided in Section 7.

Table ES2 Social benefits summary

Benefit category	Modification 11		
	Impact	Unenhanced significance	Enhanced significance
Livelihood	Local and regional employment contributing to population retention and expenditure in the local economy	High	High
	Contribution to the viability and profitability of local businesses	Medium	Medium
Livelihood	Contribution to the provision of public goods and services that benefit local and regional communities	Medium	Medium
	Contribution of personnel to support identified community groups and local services	Medium	Medium

TABLE OF CONTENTS

Executive Summary	ES.1	
1 Introduction	1	
1.1 Development consents	1	
1.2 Existing mining operations	1	
1.3 Proposed modification	3	
1.4 Assessment approach and requirements	6	
1.5 Authorship and SIA declarations	6	
2 Project description	7	
2.1 Overview	7	
3 Methodology	9	
3.1 Methodological phases	9	
3.2 Research limitations	13	
4 SIA context and scope	15	
4.1 State strategies, plans, and guidelines	15	
4.2 Centennial’s approach to social responsibility	17	
4.3 SIA study area	17	
4.4 The surrounding area	20	
5 Social baseline	22	
5.1 Community profile	22	
6 Community and stakeholder engagement	26	
7 Assessment of social impacts and benefits	31	
8 Conclusion	38	
References	39	
Annexures		
Annexure A	Social baseline study	A.1
Annexure B	Curriculum vitae	B.1
Tables		
Table ES1	Social impacts summary	3
Table ES2	Social benefits summary	3
Table 1.1	Clarence Colliery approved activities	1

Table 2.1	Summary of modification	7
Table 4.1	Regional and local plans	15
Table 4.2	Project social locality mapped to Australian Statistical Geography Standard (ASGS)	17
Table 4.3	Mines in the Western Coalfield	20
Table 6.1	Key stakeholders	27
Table 6.2	Agency consultation	28
Table 7.1	Social impacts	32
Table 7.2	Social benefits	37
Table A.1	Population and socio-cultural characteristics, 2021	A.1
Table A.2	Indicators of potentially vulnerable groups in SIA study area, 2021	A.2
Table A.3	Type of long-term health condition, 2021	A.5
Table A.4	Summary of relevant health indicators, 2024 per 100,000 people	A.5
Table A.5	Crime rates, sub-regional area, 2025	A.6
Table A.6	Labour force characteristics, 2021	A.6
Table A.7	Top five industries of employment, 2024	A.8
Table A.8	Top five industries of employment, 2021	A.8
Table A.9	Median income, 2021	A.10
Table A.10	Dwelling type and ownership, 2021	A.11
Table A.11	Housing affordability indicators in SIA study area, 2021	A.11

Figures

Figure 1.1	Regional context	4
Figure 1.2	Local context	5
Figure 3.1	Social impact significance matrix	13
Figure 4.1	SIA study area	19
Figure A.1	Rates of homelessness per 10,000 people, 2021	A.2
Figure A.2	SEIFA decile rankings, 2021	A.3
Figure A.3	Volunteering rates, 2021	A.4
Figure A.4	Quarterly unemployment, June 2020 to June 2025	A.7
Figure A.5	Quarterly labour force participation, June 2020 to June 2025	A.7
Figure A.6	Residential distribution of project workforce, 2023	A.9
Figure A.7	Total number of businesses by industry	A.13
Figure A.8	Total business turnover	A.14

1 Introduction

EMM Consulting Pty Limited (EMM) has prepared this social impact assessment (SIA) for the Modification of Clarence Colliery for Centennial Coal Company Limited (Centennial).

Clarence Colliery is an underground coal mine located approximately 10 kilometres (km) east of Lithgow, within the Lithgow City local government area (LGA) (refer to Figure 1.1), which has been in operation since 1979. Clarence Colliery is managed by Clarence Colliery Pty Limited, which is a wholly owned subsidiary of Centennial Coal Company Limited.

Coal from Clarence Colliery is high quality, low ash thermal coal for both domestic and export markets. It is approved to extract up to 3 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal and mine this coal using bord and pillar mining methods with both first workings and partial extraction methods (second workings), until 31 December 2026. The mine currently employs approximately 300 full-time equivalent (FTE) personnel and authorised under DA 504-00 to employ up to 400 FTE.

This SIA will inform part of an overarching modification report (EMM, 2025) being prepared to evaluate the economic, environmental and social impacts of the modification.

1.1 Development consents

Clarence Colliery operates under three separate development consents:

- IRM.GE.76 – a development consent issued in 1976 by Blaxland Shire Council (now Lithgow City Council (LCC)) for underground coal mining and the construction of surface facilities
- DA 174/93 – a development consent issued in 1994 by LCC for the extension of underground coal mining, surface reject emplacement areas (REAs) and water management and ancillary structures
- DA 504-00 – development consent issued in 2005 by the NSW Department of Infrastructure, Planning and Natural Resources (now the NSW Department of Planning, Housing and Infrastructure (DPHI)) to expand into Mining Lease (ML) 1583.

1.2 Existing mining operations

The approved operations at Clarence Colliery are summarised in Table 1.1 and shown in Figure 1.1 and Figure 1.2.

Table 1.1 Clarence Colliery approved activities

Activity	Detail
Mine life	Mining operations are allowed to be carried out until 31 December 2026.
Target coal seam	Katoomba Seam within the Illawarra Coal measures.
Mining method	Clarence Colliery extracts coal using bord and pillar mining methods with both first workings and extraction of coal by partial extraction methods (second workings).
Coal production rate	Up to 3 Mtpa of run of mine (ROM) coal.
Coal handling and processing	Clarence Colliery utilises on-site facilities to wash ROM coal. Coal from the underground operations is transferred to the surface via the ROM underground conveyor. A rotary breaker and crusher reduces the size of the coal to 50 millimetres (mm) or less. Following sizing, the ROM coal is conveyed to the ROM stockpile, which has capacity to store approximately 300,000 tonnes (t) of ROM coal. ROM coal is either processed through the coal preparation plant (washery) or crushed for use as product coal.

Activity	Detail
Coal transport	<p>Product coal from Clarence Colliery is mostly transported by rail via the electrified rail loop and the Main Western Railway to domestic markets and either the port of Newcastle or Port Kembla Port Terminal for overseas sales.</p> <p>Clarence Colliery has approval to transport up to 300,000 t of coal by road per calendar year in total, including up to 200,000 t of coal by road per calendar year to the Mt Piper power station (MPPS) or to the Lidsdale Siding, and up to 200,000 t of coal by road per calendar year to locations north of Sydney or eastern NSW. The approved haulage routes are shown in DA 504-00 Appendix 5.</p> <p>Other than the approved haulage route, coal from Clarence Colliery must not be transported through the City of Lithgow without the prior approval of LCC.</p>
Reject management	<p>Rejects are emplaced on site in dedicated reject emplacement areas. Clarence Colliery may transport up to 350,000 t of coarse coal reject material per calendar year to Charbon Colliery by rail.</p>
Water management	<p>The Clarence Colliery water management system manages clean, dirty, coal-contact and leachate water:</p> <ul style="list-style-type: none"> • Clean water is surface water runoff from areas where there is no coal storage, transportation, handling or processing or any disturbance. Runoff is diverted around dirty water and coal-contact catchments. • Dirty water is runoff from disturbed areas and areas likely to contain suspended sediment, oils, grease and hydrocarbons. This typically includes workshop and fuel storage areas. • Coal-contact water is runoff from catchments where coal storage, transportation, handling or processing occurs. Coal-contact water is managed within the dirty water management systems. • Leachate water includes any water associated with the operational reject emplacement areas either at the surface or as exfiltration into the water management system. <p>Water is discharged from Clarence Colliery in accordance with Environment Protection Licence (EPL) 726, with water currently licensed to be discharged from the site through the following licenced discharge points (LDPs):</p> <ul style="list-style-type: none"> • LDP002 – Discharge from the WTP and Polishing Lagoon to Main Dam • LDP003 – Discharge from Leachate Dam 1 to Main Dam • LDP004 – Discharge from Leachate Dam 2 to the Wollangambe River downstream of Main Dam. <p>A discharge limit of 25 megalitres per day (ML/d) is specified by EPL 726 for LDP002, with no volumetric limits specified for any other LDPs. Discharge volumes from LDP002 are monitored daily. Water quality at discharge locations are monitored in accordance with the requirements in EPL 726.</p> <p>The Clarence Colliery water treatment plant (WTP) employs aeration, chemical dosing and dissolved air flotation treatment processes to primarily reduce concentrations of dissolved manganese and iron and has a maximum capacity of approximately 25 megalitres per day (ML/d). Raw minewater and leachate water is pumped from the 203 panel area from the bores to an aeration tank, where it is treated. Treated water is dosed with acid to reduce the pH and is supplied to the fire tanks and bathhouse tanks, with the remaining water transferred to the settlement dam to discharge via LDP002.</p>
Mining leases and exploration licences	<p>Clarence Colliery's mining operations are within multiple mining leases, with the majority of underground mining areas within CCL 705. Most of the surface facilities at Clarence Colliery are within CCL 705, with a small proportion within ML 1721. Underground mining activities within ML 1583 are approved by DA 504-00.</p> <p>Clarence Colliery undertakes exploration activities in accordance with AUTH 3071. The Clarence Colliery holding and relevant mining tenements are shown on Figure 1.2.</p>

Activity	Detail
Hours of operation	<p>Clarence Colliery is approved to operate 24 hours per day, seven days per week and has approval to transport coal 24 hours per day, seven days per week via rail.</p> <p>Coal transport to the west by road is allowed between 7:00 am to 10:00 pm Monday to Saturday and 8:00 am to 10:00 pm on Sundays and public holidays.</p> <p>Excavation and stockpiling of coarse coal reject from reject emplacement area 6 must only take place between the hours of 7:00 am to 6:00 pm Monday to Saturday and 8:00 am to 6:00 pm on Sunday and public holidays.</p>
Workforce	Up to 400 full-time equivalent (FTE) personnel.

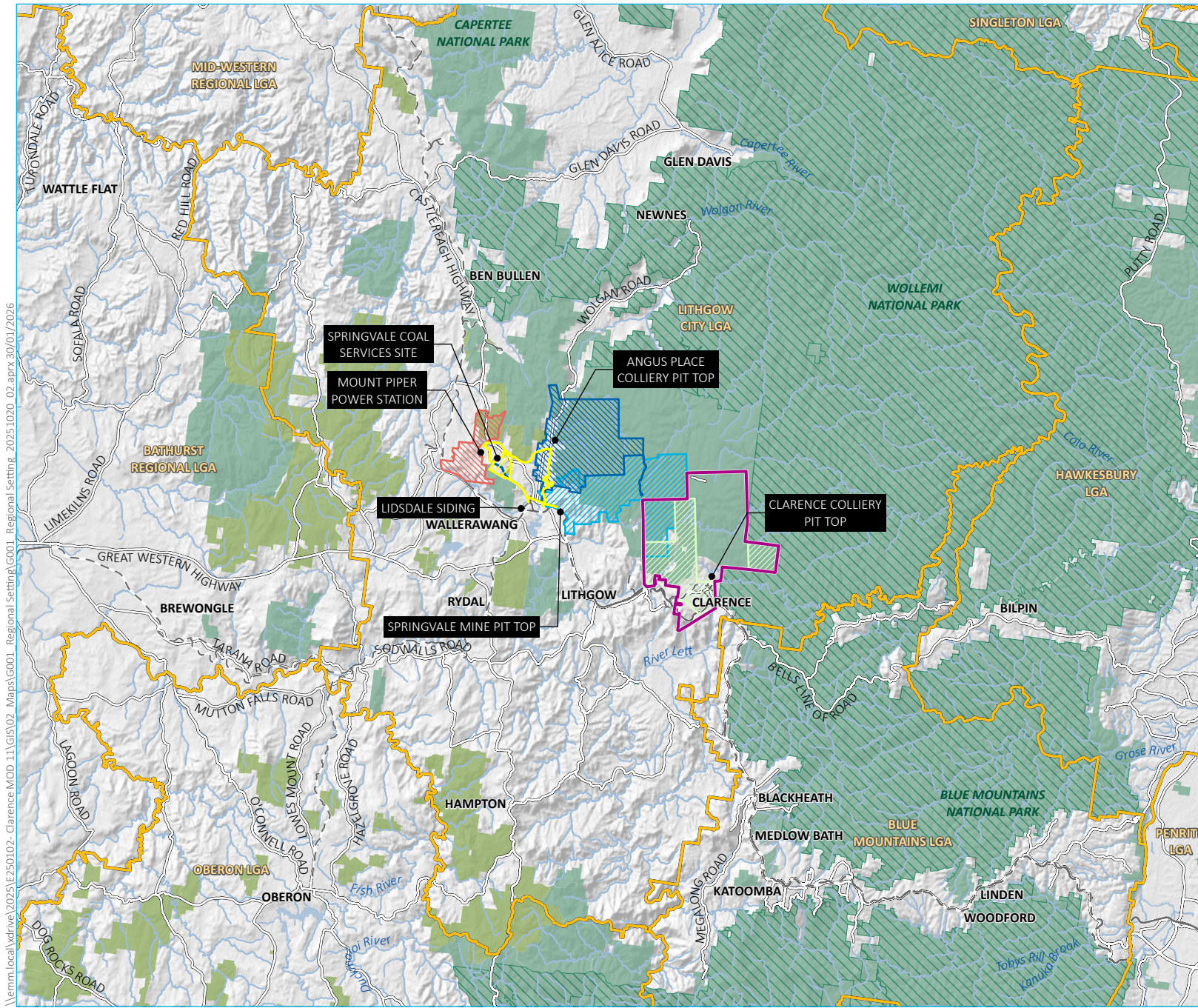
1.3 Proposed modification

Centennial is seeking to modify DA 540-00 under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify the following conditions in Schedule 2 of DA 504-00:

- Condition 5 to extend the life of mining within from 31 December 2026 for a further five years, to 31 December 2031
- Condition 7AA to align the transport of coal by road with the proposed extension of the life of mining, thus allowing for the transport of up to 300,000 t of coal by road until 31 December 2031.

All other activities approved under DA 504-00 would remain as approved.

Figure 1.1 displays the regional context of the approved operations at Clarence Colliery; and Figure 1.2 displays the local context of the approved operations at Clarence Colliery.



- KEY**
- Clarence Colliery Holdings Area
 - DA504-00 consent boundary
 - Angus Place
 - Ivanhoe
 - Springvale
 - Western Coal Services
 - Existing environment
 - Rail line
 - Major road
 - Named watercourse
 - Named waterbody
 - Greater Blue Mountains World Heritage Area
 - NPWS reserve
 - State forest
 - Local government area

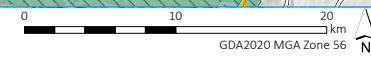
Regional context

Clarence Colliery- Modification 11
Social Impact Assessment
Figure 1.1

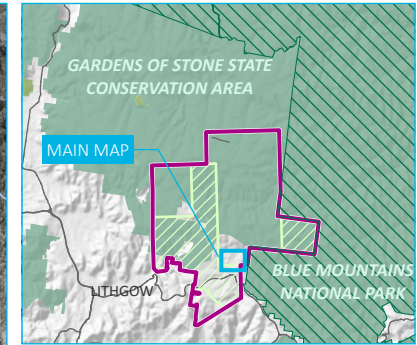
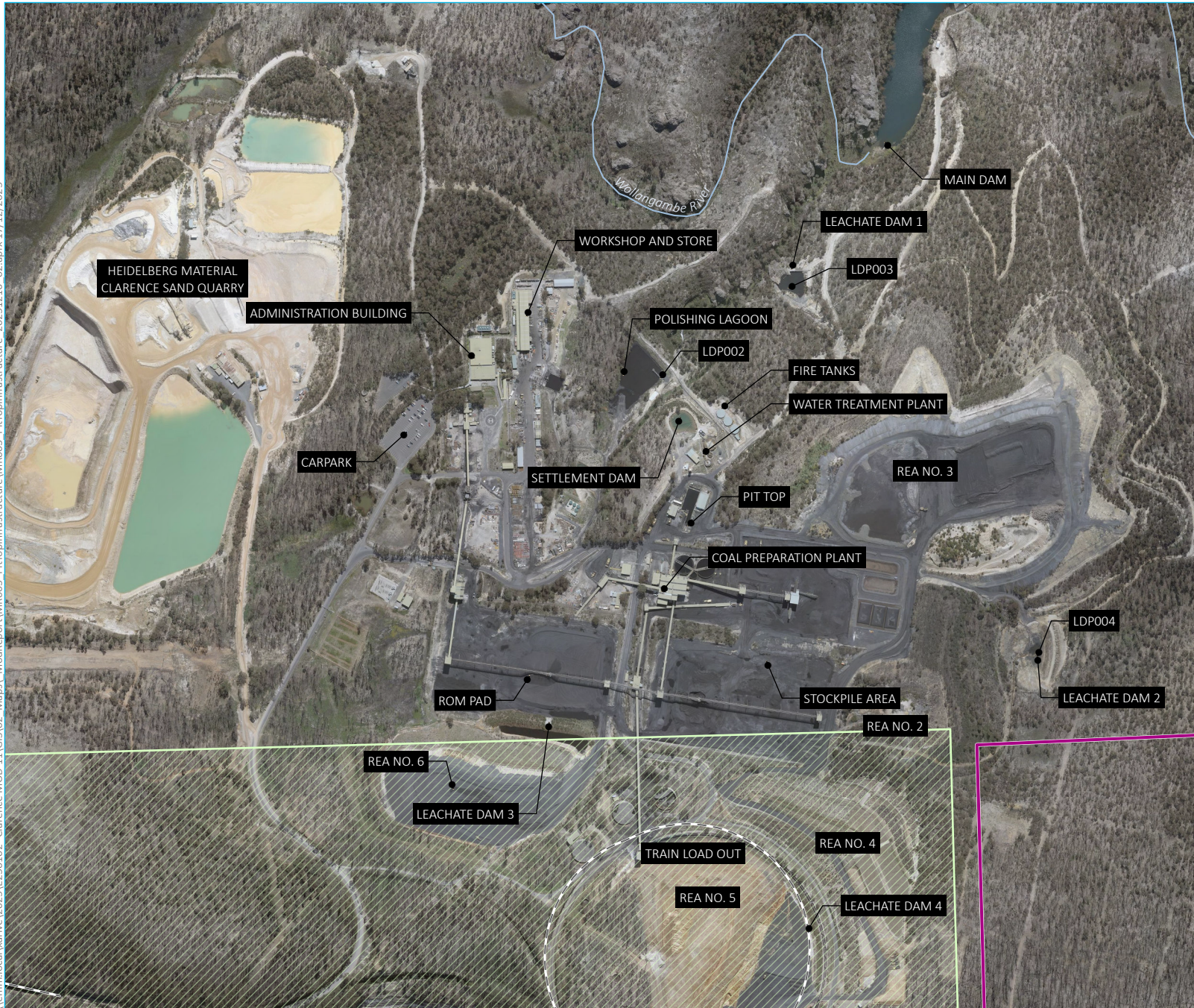


\\emm.local\drive\2025\E250102 - Clarence MOD 11\GIS\02 - Maps\G001 - Regional Setting\G001 - Regional Setting_20251020_02.aprx 30/01/2026

Source: Centennial (2025); EMM (2025); ABS (2021); DCSSS (2024); GA (2009)



\\emm.local\ydrive\2025\EZ50102 - Clarence MOD 11\GIS\02 - Maps\ModReport\MR003_PitTop\Infrastructure_20251216_02.aprx 17/12/2025



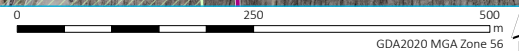
- KEY**
- Clarence Colliery Holdings Area
 - DA504-00 consent boundary
- Existing environment**
- Rail line
 - Named watercourse
- INSET KEY**
- Major road
 - Greater Blue Mountains World Heritage Area
 - NPWS reserve
 - State forest

Mine layout

Clarence Colliery- Modification 11
Social Impact Assessment
Figure 1.2



Source: EMM (2025); DCSSS (2024); Metromap (2025); GA (2009); LPI (2025)



1.4 Assessment approach and requirements

This SIA supports the planning and approval process for the proposed modification. It has been prepared in accordance with the Scoping Letter sent to the NSW Department of Planning, Housing and Infrastructure (DPHI) as well as relevant government assessment requirements, guidelines, and policies, including:

- the *Social Impact Assessment Guideline for State Significant Projects (SIA Guideline 2025)* (DPHI, 2025)
- the *Technical Supplement: Social Impact Assessment Guideline for State significant Projects (SIA Technical Supplement 2025)* (DPHI, 2025)
- State significant development guidelines – preparing a modification report (DPIE, 2022).

1.5 Authorship and SIA declarations

1.5.1 Authorship

This report has been prepared by a suitably qualified and experienced author and social scientist, Caroline Wilkins, and reviewed by a suitably qualified and experienced practitioner, Sam McCrea, consistent with SIA Guideline requirements. The curriculum vitae for each author is provided in Appendix B.1.

1.5.2 SIA declarations

The lead author declares that:

- the lead author's qualifications include a Master of Social Science (International Development) and a Bachelor of Arts/Bachelor of Commerce. The lead author has four years' experience conducting SIA in Australia and 20 years' experience in monitoring and evaluation and social research internationally
- the lead author's professional memberships include International Association for Impact Assessment (IAIA) and Australasian Evaluation Society (AES).

The lead author declares that this SIA report:

- was completed in November 2025
- has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act)
- has been prepared in accordance with the SIA Guideline 2025
- contains all reasonably available project information relevant to the SIA
- as far as EMM Consulting Pty Limited (EMM) is aware, contains information that is neither false nor misleading, in line with its legal and ethical obligations.

Assumptions and limitations of this report are outlined in Section 7.

2 Project description

2.1 Overview

Clarence Colliery is an underground coal mine situated within the Western Coalfield region, and in the Lithgow LGA. Clarence Colliery extracts coal from the Katoomba Seam and has the facilities on-site to wash ROM coal in order to maximise coal quality.

Clarence Colliery is partly located within the Gardens of Stone State Conservation Area (SCA). Clarence Village is situated 1.5 km south-west of Clarence Colliery's surface facilities including the pit top and associated infrastructure.

Centennial is seeking Mod 11 to DA 504-00 under section 4.55(2) of the EP&A Act to extend the life of mining at Clarence Colliery from 31 December 2026 for five years until 31 December 2031. Centennial is also seeking to amend DA 504-00, Schedule 2, Condition 7AA, to align with the extension of mine life. No changes are proposed to the total tonnes of coal transported per year or the approved haulage route identified in Condition 7AA.

The proposed changes are to DA 504-00 Schedule 2 are:

5. This consent shall lapse on ~~31 December 2026~~ **31 December 2031**.

Note: Conditions of this consent may require activities to be carried out by the Applicant beyond the period of approval.

- 7AA. Until ~~31st December 2026~~ **31 December 2031**, the Applicant may transport up to 300,000 tonnes of coal by road per calendar year in total, including up to 200,000 tonnes of coal by road per calendar year to the Mount Piper Power Station or to the Lidsdale Siding, and up to 200,000 tonnes of coal by road per calendar year to locations north of Sydney or Eastern NSW, using the haulage routes shown in Figure 1 of Appendix 5.

If approved, the modification will enable the continued extraction of coal that is already approved to be extracted.

The key aspects at Clarence Colliery and changes as a result of the proposed modification are summarised in Table 2.1 and described in the sections below. Other than as set out in the table, all activities that are currently approved under DA 504-00 are intended to continue and will remain the same under the modification, including mining methods, annual coal extraction rates, coal processing and handling activities, surface infrastructure and hours of operation. The proposed modification does not require any additional surface disturbance activities beyond those currently assessed and approved to be disturbed.

Table 2.1 Summary of modification

Project component	Approved components	Proposed modification
Project area	As shown on Figure 1.2.	No change
Mining method	Bord and pillar with both first workings and extraction of coal by partial extraction methods (second workings), including shortwalls.	No change
Mine life	31 December 2026	31 December 2031
Annual coal production	Up to 3 Mtpa	No change
Coal handling and processing	Coal crushing, screening and washing.	No change

Project component	Approved components	Proposed modification
Coal transport	<p>Product coal from Clarence Colliery is currently transported by rail to domestic markets and Port Kembla Port Terminal for overseas sales.</p> <p>Until 31 December 2026, Clarence Colliery may transport up to 300,000 t of coal by road per calendar year in total, including up to 200,000 t of coal by road per calendar year to the Mount Piper power station or to the Lidsdale Siding, and up to 200,000 t of coal by road per calendar year to locations north of Sydney or Eastern NSW, Haulage routes are shown in DA 504-00 Figure 1 of Appendix 5.</p> <p>Other than via the haulage route shown in Appendix 5, Clarence Colliery must not cause any coal truck movements through the City of Lithgow without the prior approval of LCC.</p> <p>Haulage of coal to the west must only take place between the hours of 7:00 am to 10:00 pm Monday to Saturday and between 8:00 am to 10:00 pm on Sunday and public holidays.</p>	<p>Allow for coal transport via road at the same rate as approved to 31 December 2026 for an additional five years, until 31 December 2031, to align with the proposed extended life of mine.</p> <p>No other changes other changes proposed to the approved condition including, total tonnage or haulage route.</p>
Coal reject management and transportation	<p>Coarse reject material is emplaced within the approved reject emplacement areas.</p> <p>Excavation and stockpiling of coarse coal reject from reject emplacement area 6 must only take place between the hours of 7:00 am to 6:00 pm Monday to Saturday and 8:00 am to 6:00 pm on Sunday and public holidays.</p> <p>Clarence Colliery may transport up to 350,000 t of coarse coal reject material per calendar year to Charbon Colliery by rail.</p>	No change
Water management system	<p>Separate clean, dirty and mine water.</p> <p>Clean water diversion drains.</p> <p>Sediment and water storage dams.</p> <p>Discharges from LD002 in accordance with EPL 726.</p>	No change
Workforce	<p>Approximately 300 FTE personnel currently employed.</p> <p>Approval for up to 400 FTE personnel.</p>	No change
Hours of operation	<p>General hours of operation are 24 hours per day, seven days per week.</p>	No change

3 Methodology

This section presents the methodology which guided completion of the SIA for the modification. The methodology was specifically tailored to meet the requirements of the SIA Guideline (DPHI, 2025) to consider the changes arising from the modification in accordance with the SIA Guideline 2025 (DPHI, 2025).

A SIA has not been conducted for Clarence Colliery as it was not required for the original environmental approval in 2005, with the mine operating under two LCC consents prior to 2005. Clarence Colliery began operating around 1980 and operations have continued to develop through a series of expansions and acquisitions of additional mining tenements. DA 504-00 has been modified on eight occasions, the most recent (Mod 10) was approved in 2024.

As the original environmental approval was provided in 1976, data to evidence the development for which the consent was originally granted is not available. This SIA therefore assesses Clarence Colliery as approved in May 2025. The SIA conducts an initial assessment of social impacts of the continuation of mining operations (the development as last modified) before assessing the social change due to the modification.

The SIA therefore conducts an initial assessment of social impacts and benefits of the continuation of mining operations (the development as last modified) before assessing the social change due to the Modification.

3.1 Methodological phases

The phases of the SIA methodology are described below.

3.1.1 Phase I

i Review of documents

An initial undertaking was the review of project documents. These documents included:

- previous modification reports
- complaints from ongoing operations
- environmental monitoring reports
- engagement records.

The review of these documents considered:

- potentially affected stakeholders and the feedback generated through engagement processes
- the SIA study area identified negative and positive social impacts of the modification
- the level of assessment required to address potential social impacts associated with the modification.

While this modification is addressed in terms of its potential combined effects on the community, the above considerations provide an understanding of the cumulative context, social locality and existing concerns and opportunities.

3.1.2 Phase 2

i Stage 1 - Social baseline study

Building upon the initial understanding of the existing social environment attained in the scoping phase, a social baseline study was compiled. Key sources of information included existing demographic, health, housing, and socio-economic data collected by the ABS, other government agencies and local government; published literature and social research; government policies and plans; and research completed on similar projects. A wide range of social indicators were reviewed and assessed for relevance.

The selection of social baseline indicators was informed by the social impact categories defined in the SIA Guideline and the outcomes of initial scoping and review of relevant literature (DPHI, 2025). The social baseline study provides a comprehensive socio-economic profile and analysis of social infrastructure and its capacity within SIA study areas.

The social baseline study provides the benchmark against which potential social impacts are identified and assessed. The social baseline study is presented in Section 4.

Triangulation of data was employed in the baseline to facilitate a more in-depth analysis. Using multiple sources, including qualitative and quantitative data, enhanced the validity of the baseline analysis. The social baseline has drawn on a range of primary and secondary information sources.

Quantitative data sources included:

- Australian Bureau of Statistics (ABS), including for Census and population data
- Government of NSW's population projection data
- Australian Government's Labour Market Information Portal, including data on unemployment and labour force participation trends, and skills and occupation shortages and projections
- Australian Institute of Health and Welfare, including for data on health and wellbeing indicators
- SQM Research for data on property and housing.

Qualitative data sources included:

- outcomes of targeted stakeholder engagement undertaken for this SIA
- review of literature, including from:
 - peer-reviewed academic journal articles
 - industry-commissioned surveys and research reports
 - Government policy and other publications
- desktop review of mapping tools, for data on location of social infrastructure and other areas of social interest.

The community profiles and social baseline analysis is presented in Section 5 of this SIA.

ii Stage 2 - Engagement informing the SIA Modification

A key source of information drawn upon by the SIA was feedback generated through engagement with potentially affected stakeholders and communities through the approved project and previous modifications. Four in-depth interviews were conducted to verify potential social impacts and benefits. Centennial has also undertaken further engagement to understand the effects of the modification. The specific activities and outcomes of the community engagement are presented in Section 5.

Data from submissions phase on previous modifications and complaints during ongoing operations were also identified as a key source of engagement data.

Information obtained through project engagement has been used to:

- validate baseline data and assumptions
- identify/test impacts that may be experienced by nearby neighbours and the broader community
- confirm identified impacts and determine potential management strategies
- provide stakeholders an opportunity to express any concerns.

i Stage 3 – Data analysis and review

Qualitative and quantitative data collected during engagement for the proposed modification was analysed to identify changes to community values, strengths and vulnerabilities. Data analysis provided a basis to identify and develop social impact themes and confirm potential social impacts.

ii Stage 4 - Social impact identification

Social impacts and benefits relevant to the proposed modification were identified by suitably qualified social scientists (see Annexure B) through analysis of the nature of project activities, baseline characteristics of potentially affected communities and feedback generated through engagement processes.

The SIA Guideline 2025 (DPHI, 2025) notes that social impacts may be tangible and intangible or may manifest as rational or justified fears or aspirations. As such, valid social impacts are both perceived and actual. Social impacts may be experienced differently by individuals within a community or by different communities and at different times/stages of the modification.

Identification and assessment of impacts was undertaken with consideration of the impact categories outlined in the SIA Guideline 2025 (DPHI, 2025), which refers to potential changes to people's:

- **way of life:** how people live, work, play and interact
- **community:** its composition, cohesion, character, how it operates and sense of place
- **accessibility:** how infrastructure provided by public, private or not for profit organisations, including services and facilities is accessed and used
- **culture:** shared beliefs, customs, values and stories, and connection to Country, land, places, waterways and buildings, both Aboriginal and non-Aboriginal
- **health and wellbeing:** physical and mental health
- **surroundings:** access to and use of ecosystem, public safety and security, access to and use of natural and built environment, aesthetic value and/or amenity

- **livelihoods:** how people sustain themselves through employment or business, their capacity to do so and whether disadvantage is experienced
- **decision-making systems:** extent community can have a say in decisions that affect their lives, access to complaint, remedy, and grievance mechanisms.

Identification of the modification’s potential social impacts and benefits was completed through several complementary approaches, helping to triangulate the findings and confirm accuracy. These approaches included consideration of:

- environmental impacts – review of similar projects in the area, as well as available academic and grey literature to identify potential impacts
- local plans and policies – findings from the review aided to contextualise and understand the local priorities as well as to identify local values
- the existing social environment – demographic and social analysis in the form of an updated social baseline study
- feedback generated through stakeholder engagement including findings from SIA engagement along with ongoing broader engagement on Clarence Colliery, previous Modification Reports, submissions and complaints
- findings from other technical disciplines that contributed to the Modification Report (EMM, 2025) were reviewed and potential social impacts defined. These included:
 - greenhouse gas impact assessment (EMM, 2025a)
 - noise and vibration impact assessment (EMM, 2025b)
 - water resources impact assessment (EMM, 2025c)
 - traffic impact assessment (EMM, 2025d)
- consideration of cumulative impacts – review of documentation from other existing projects in the study area.

A full description of each social impact is provided in Section 7 of this SIA.

iii Stage 5 - Social risk assessment

This stage involved the systematic identification and assessment of each social impact to predict the nature and scale of potential social impacts associated with operation of the modification. A social risk approach was adopted to assess the magnitude and likelihood of potential positive and negative social impacts with and without mitigation. The social risk assessment matrix, including the assessment framework used for the assessment, is outlined in the SIA Guideline Technical Supplement (DPHI, 2025) and as provided in Figure 3.1.

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

Source: SIA Guideline Technical Supplement, Social impact significance matrix

Figure 3.1 Social impact significance matrix

iv **Stage 6 – Social impact mitigation and management**

The mitigation and management framework considers all potential social impacts and benefits to allow for the identification of:

- required impact mitigation measures
- enhancement measures to maximise potential benefits
- partnership opportunities to manage broader cumulative effects.

Findings from Stages 1 to 5 were used to distil and analyse recommendations for the SIA Modification. This stage involved a multidisciplinary approach led by EMM’s social scientists supported by environmental advisers.

v **Stage 7 – SIA reporting**

Development of this SIA technical report and internal peer review were conducted by EMM’s social scientists and environmental advisers.

3.2 Research limitations

This SIA has been based on the best available information relevant to the modification.

The SIA relies on several assumptions, including that Clarence Colliery operations workforce is not expected to change as a result of the modification.

Other assumptions and limitations of the research include the following:

- A key source of data describing social conditions is the ABS Census of Population and Housing, the latest of which was in 2021. There may have been changes to social characteristics since this census event. A consideration is that the 2021 Census occurred during the height of COVID epidemic restrictions which may have impacted upon socio-economic trends and characteristics as recorded.

- Social infrastructure reviewed in the social baseline predominantly considers government-provided facilities or services. In some instances, it is possible that local communities access services through private providers for which data is not available.
- SIA engagement for the proposed modification was undertaken directly by the author. The SIA also relied on operational data such as complaints and grievances, environmental monitoring reports and ongoing consultation records.
- Engagement feedback drawn upon in this report includes insights from stakeholder and community engagement activities. While these provide valuable perspectives, they may not be representative of the views of all community members.
- Clarence Colliery will generate greenhouse gas emissions and the impacts of climate change are considered as part of this proposed modification. The physical effects and broader global social consequences of climate change are outside the scope of the SIA. The SIA will, however, consider direct social impacts within the SIA study area, for example to community cohesion as a result of divergent views on Clarence Colliery's real or perceived role in the energy transition, contributions to climate change and achievement of regulatory greenhouse gas emissions targets.


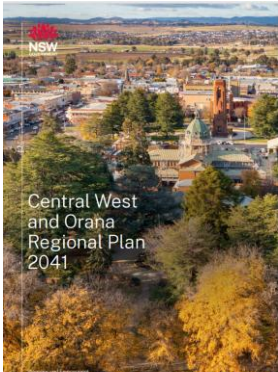
4 SIA context and scope


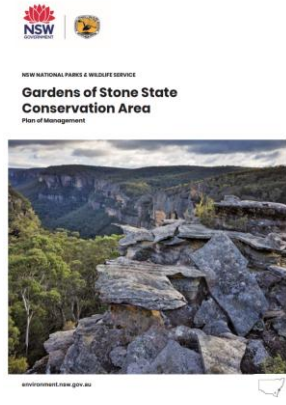
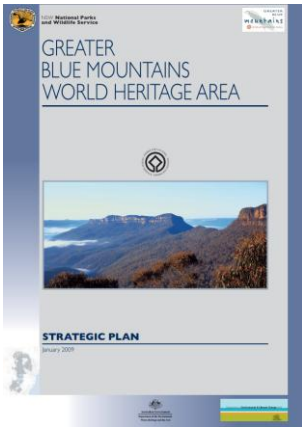
This chapter provides a summary of the relevant policy, plans, strategies, and guidelines that inform an appreciation of potential social impacts and benefits associated with Clarence Colliery. Clarence Colliery’s overall consistency with relevant policies and plans is also addressed in Chapter 4 of the Modification Report.

4.1 State strategies, plans, and guidelines

This section provides a summary of the relevant strategies, plans, and guidelines to Clarence Colliery at the NSW, regional and local level.

Table 4.1 Regional and local plans

Name	Description and relevance to the Project
<p><i>NSW strategic statement on coal exploration and mining in NSW</i> (NSW Government, 2020)</p> 	<p>The <i>Strategic statement on coal exploration and mining in NSW</i> (State of NSW 2020) describes the NSW Government’s position on the use of coal to 2050, and the approach to a global transition to a low carbon future. The strategic statement outlines how important the coal mining industry is for the economy of NSW, particularly the regional and local economies where mining occurs. The strategic statement notes that the coal mining industry is a significant source of employment, directly and indirectly employing over 110,000 people – underpinning prosperity in many local economies.</p> <p>The strategic statement notes that over the coming decades, the coal mining industry will be directly affected by the global transition to different forms of energy generation. However, that this transition will occur over an extended period. During the transition, the NSW Government commits to continue to support the local economy and the responsible development of the state’s abundant, high quality coal resources for the benefit of the State. The strategic statement makes it clear that the NSW Government seeks to recognise existing industry investment by continuing to consider responsible applications to extend the life of current coal mines, such as the Clarence Colliery.</p>
<p><i>Central West and Orana Regional Plan 2041</i> (DPE, 2022)</p> 	<p>The <i>Central West and Orana regional plan 2041</i> (DPE 2022) (CWORP) acknowledge the significant role that coal mining has played historically in the region’s economy, particularly in areas like Lithgow. The CWORP emphasises a strategic transition towards a more diversified and sustainable economic base. The CWORP promotes economic diversification, supporting affected communities, ensuring environmental rehabilitation, and advancing renewable energy projects to build a sustainable and resilient regional economy.</p> <p>The project meets the vision for the Central West and Orana region as set out in the regional plan which is for mining to continue to provide local job opportunities and make a significant regional economic contribution.</p>

Name	Description and relevance to the Project
<p><i>Lithgow 2040 Local Strategic Planning Statement</i> (Lithgow City Council, 2020)</p> 	<p>The Lithgow 2040 Local Strategic Planning Statement is a 20-year strategic plan for land-use directions and priorities in the Lithgow LGA. The statement identifies that mining is the largest contributor to the local economy (comprising \$241 million or 23%). It also includes actions to maintain the mining industry, including the protection of coal mining titles, and surface and supporting operational facilities from future land-use conflict.</p> <p>The statement identifies that developing a more diversified energy generation profile (including the skills required to construct and operate new energy developments) will take time. It supports the Western Coalfield, given its history and contribution to the economy, continued jobs and supply chain opportunities for local and regional businesses, resulting in a strong reliance on the coal mining sector for employment across the Lithgow LGA.</p> <p>The project will continue to contribute to the aims and objectives of the statement through the continued employment of the project workforce and continued support to local communities through service contracts and ongoing contributions to local initiatives.</p>
<p>Gardens of Stone State Conservation Area Plan of Management (NPWS, 2022)</p> 	<p>The GSSCA Plan of Management outlines the main values, issues, management directions and priorities for NSW National Parks and Wildlife Service (NPWS) for managing Gardens of Stone SCA.</p> <p>The Gardens of Stone SCA was reserved on 6 May 2022. It forms a strategic link between Blue Mountains National Park, Wollemi National Park and the Gardens of Stone National Park.</p> <p>The Plan of Management acknowledges that existing coal mining operations beneath the Gardens of Stone SCA will continue in accordance with consents and that access to established mining infrastructure will be required.</p> <p>The Plan of Management recognises that existing surface infrastructure, predominantly to manage water and ventilation, within the Gardens of Stone SCA is required to continue to support Clarence Colliery.</p> <p>To align with the general principles of the Plan of Management, there is not expected to be any impact on the Gardens of Stone SCA from the proposed modification.</p>
<p>Greater Blue Mountains World Heritage Area (BMWHA) Strategic Plan (NPWS, 2009)</p> 	<p>The Greater Blue Mountains World Heritage Area (BMWHA) Strategic Plan recognises that mining has potential major impacts to the GBMWA and notes that the EPBC Act provisions may apply to the project. It also states that past and present mining activity at the head of the Wollangambe River catchment and adjoining Gardens of Stone SCA and Nattai National Park poses a potential threat to downstream water quality and ecosystems.</p> <p>To align with the general principles of the GBMWA Strategic Plan, the proposed modification will need to ensure that there are negligible impacts to the GBMWA and the water quality of the Wollangambe River catchment.</p>

4.2 Centennial’s approach to social responsibility

Centennial is committed to enhancing the environmental management of its operations and ‘building, developing and maintaining strong community relations’ (Centennial 2025).

In addition to its own commitments, plans and policies, Centennial is a member of the NSW Minerals Council (NSWMC) (NSW Minerals Council, 2025). NSWMC’s guiding principles (NSWMC, 2023) expect members to:

- put respect, fairness, and transparency at the centre of engagement
- continually improve environmental performance of operations, including stewardship of water, mitigation of noise and dust emissions, and contribution to the conservation of biodiversity and nature
- provide a safe and inclusive work environment
- make a positive economic and social contribution to the communities in which they operate
- engage with and support communities to take advantage of opportunities for use of mine owned land, infrastructure, and workforces in the future
- support decarbonisation policies and programs consistent with agreed international frameworks and achieving the NSW target of net zero emissions by 2050.

4.3 SIA study area

As outlined in the SIA Guideline, review of project documents is the first phase of this SIA and involves gaining an appreciation of the social context and the nature of the project in order to complete initial identification of potential impacts and benefits to be taken forward for further assessment.

This section outlines the SIA study areas, provides a summary of key features of the area within which the project operates, the policy and planning context and the outcomes of the review of the modification SIA to determine which impacts and benefits need to be re-assessed due to project modifications.

The SIA study area (referred to as ‘social locality’ in the SIA Guideline) is defined with reference to stakeholders who could potentially be directly or indirectly affected by the project. This includes landholders, nearby neighbours, community members, businesses, service providers and indigenous groups who may have an interest in the project or could be directly or indirectly impacted.

Details of the social locality are provided in Table 4.2.

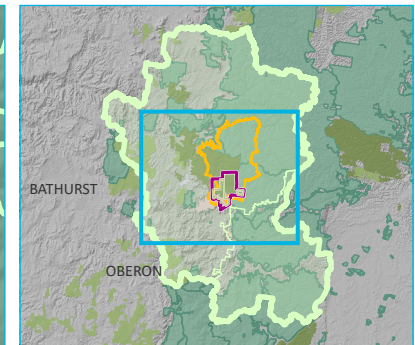
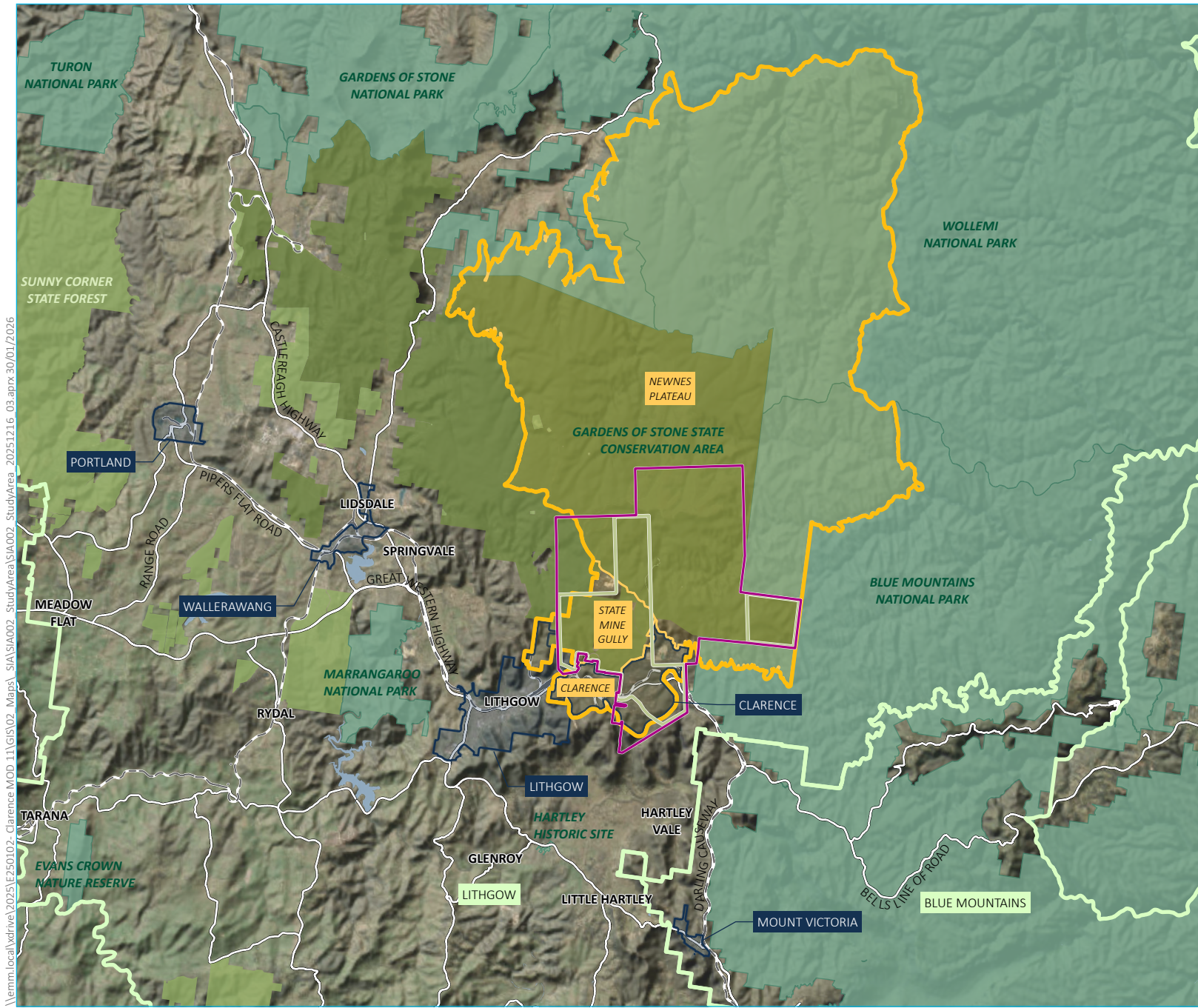
Table 4.2 Project social locality mapped to Australian Statistical Geography Standard (ASGS)

Social locality	Geographic area	ABS data category	Description/relevance to Project
Local area	Newnes Plateau	SAL 12964	Clarence Colliery is located within the localities of Newnes Plateau, State Mine Gully and Clarence Village. A small section of the underground area crosses into Lidsdale SAL. However, to avoid distorting the data, Lidsdale SAL is excluded from the local area.
	State Mine Gully	SAL 13670	
	Clarence Village	SAL 10918	
Key urban areas	Clarence Village	SAL 10918	Clarence township is the nearest urban area, situated approximately 2 km from Clarence Colliery. Clarence Colliery is situated within the Clarence SAL.
	Lithgow city	UCL 113008	The city of Lithgow is approximately 11 km west of Clarence Colliery. Lithgow is a significant urban centre of 11,000 residents and the main service centre for the project.

Social locality	Geographic area	ABS data category	Description/relevance to Project
	Wallerawang	UCL 115151	Wallerawang is approximately 25 km north-west of Clarence Colliery. Wallerawang incorporates the locality of Lidsdale, former Wallerawang power station at Greenspot and Centennial Lidsdale Siding, Centennial's rail loading facility.
	Mount Victoria (L)	UCL 121083	Clarence Colliery is approximately 17 km north of the township of Mount Victoria. DA504-00 permits trucking of coal along the Great Western Highway through Mount Victoria.
Regional area	Lithgow	LGA 14870	Clarence Colliery is situated within the Lithgow LGA.
	Blue Mountains	LGA 10900	Blue Mountains LGA is situated adjacent to Lithgow LGA. Approximately 7% of recent Project employees (and thus expected ongoing project workforce) reside in the area. This brings direct and flow on economic benefits into the LGA as well as amenity impacts such as traffic.
Area of reference	NSW	S/T 1	Clarence Colliery is situated within NSW. Where appropriate, NSW data has been referred to as a basis for comparison.

There is no census data for Newnes Plateau because the area had no people or a very low population in the 2021 Census.

Figure 4.1 displays the SIA study area and the modification.



- KEY**
- Clarence Colliery Holdings Area
 - DA504-00 consent boundary
 - Regional area
 - Local area
 - Key urban area
- Existing environment
- Rail line
 - Major road
 - Named waterbody
 - NPWS reserve
 - State conservation area
 - State forest

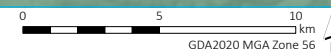
SIA study area

Clarence Colliery- Modification 11
Social Impact Assessment
Figure 4.1



\\emm.local\ydrive\2025\E250102-Clarence MOD 11\GIS\02-Maps\SIA\SIA002-StudyArea\SIA002-StudyArea_20251216_03.aprx 30/01/2026

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2025)



4.4 The surrounding area

The area surrounding Clarence Colliery comprises various operating and non-operating open cut and underground coal mines, and associated mining infrastructure. Coal mining activities have taken place in this region for more than 200 years, with coal-fired power generation taking place for over 70 years. With the exception of conservation areas and some privately owned land, the majority of the surrounding area has been largely affected by coal mining activity.

The non-mining surrounding area is characterised by State conservation area and National park land.

The residential areas of Newnes Junction and Clarence Village are 900 m south-east and 1.5 km south-west of Clarence Colliery's surface facilities including the pit top and associated infrastructure. There are six sensitive receivers within 1 km of Clarence Colliery's surface facilities. Two of these landholders have a negotiated amenity agreement in place.

Clarence Colliery is located within the Hawkesbury-Nepean Catchment and drains to the east into the Wollangambe River, which in turn drains into the Colo River.

4.4.1 Cumulative projects

There are six mining operations in the Western Coalfield region which are in operation and/or care and maintenance (see Table 4.3).

Table 4.3 Mines in the Western Coalfield

Mine	Project status	Operator
Clarence Colliery	Operating	Clarence Colliery
Springvale Colliery	Operating	Springvale Coal
Angus Place Colliery	Care and maintenance	Centennial Angus Place
Airly Coal Mine	Operating	Centennial Airly
Invincible Colliery	Operating	Castlereagh Coal
Cullen Valley Colliery	Care and maintenance	Castlereagh Coal

4.4.2 National parks and State Conservation Area

The underground mining areas at Clarence Colliery are generally beneath the Gardens of Stone SCA. The Gardens of Stone SCA covers an area over 28,000 ha and was formally gazetted on 6 May 2022. It comprises three former State forests, including Newnes State Forest and parts of Ben Bullen State Forest and Wolgan State Forest. Parts of Clarence Colliery are located within the Gardens of Stone SCA.

Clarence Colliery borders the 248,000 ha Blue Mountains National Park to the south-east of Clarence Colliery and the 501,700 ha Wollemi National Park is further north and east. The Gardens of Stone SCA, Wollemi National Park, Blue Mountains National Park and other reserves in the region (Nattai, Kanangra-Boyd and Thirlmere Lakes National parks and Jenolan Caves Reserve) make up the 103,000 ha United Nations Educational, Scientific and Cultural Organization (UNESCO) Greater Blue Mountains World Heritage Area (GBMWhA), managed by NSW National Parks and Wildlife Services (NPWS).

GBMWA was listed as a World Heritage Area in 2000 for significant biological evolutionary processes and the importance and diversity of habitats including wet and dry sclerophyll forest, mallee heathlands, swamps, wetlands and grasslands. The Greater Blue Mountains Area – Additional Values and Areas, has also been nominated for the National Heritage List. While it is not currently listed, the nomination status indicates its likely future inclusion.

5 Social baseline

This chapter provides a summary of the existing social conditions (as of August 2025) in the social locality of the Project with reference to specific and relevant social indicators that align to the following key themes:

- population and demography
- educational attainment and qualifications
- labour market and income
- housing and short-term accommodation
- vulnerabilities and vulnerable groups
- social infrastructure and services
- road infrastructure and transport
- community health and wellbeing.

The social baseline provides an understanding of pre-existing social conditions and identifies vulnerable groups. Data relating to housing and accommodation and local workforce skill and capacity also informs workforce and accommodation recommendations, to maximise benefits to the local community.

Unless otherwise stated, the data included in this social baseline is derived from the 2021 Census of Population and Housing (ABS, 2021; ABS, 2016; ABS, 2011).

5.1 Community profile

Community profiles provide a qualitative description of key trends and issues in an area or community (Vanclay, Esteves, Aucamp, & Franks, 2015). Community profiles of the local area and key urban areas are provided below. Key social trends and characteristics of each community are identified by comparing population, dwelling and labour force indicators to those for the State (NSW).

5.1.1 Local area

i Newnes Plateau

The local area comprises Newnes Plateau SAL for which there is no population data because the area had no people or a very low population in the 2021 Census (ABS, 2021).

The local area incorporates a range of protected areas and National parks including portions of Gardens of Stone National Park and Gardens of Stone SCA. Gardens of Stone National Park offers a range of recreational activities including hiking, camping, mountain biking, bird watching and horse riding, and adventure sports such as rock climbing, caving, canyoning and abseiling in this remote area (NPWS, 2025a).

The traditional custodians of the land and water that comprise the local area are the Wiradjuri People of the Wiradjuri Nation, with the Gundungarra nation to the south and the Darug nation to the east (Lithgow City Council, 2022a). The language group is Wiradjuri language, previously the Wiradhuri language, and the spelling “Wiradyuri” is preferred by some members of the language community (AIATSIS, n.d.).

ii State Mine Gully

State Mine Gully is a sparsely populated area adjacent to Newnes Plateau and Clarence SAL. In 2021, the population was 10 people. The median weekly household income of State Mine Gully residents was \$1,374. Detailed demographic data is unavailable due to the small population in the locality.

A key feature of State Mine Gully is the Lithgow State Mine Heritage Park and the Lithgow State Mine Museum which presents the industrial history of the New South Wales Western Coalfield. There are a number of activities for visitors including tours to ride the mine truck, used as underground transport at Wallerawang and Baal Bone Collieries, blacksmith and roofbolting¹ demonstrations, interactive displays and the “Fire in the Mine” multimedia show.

There are a number of recreational sites including Dobbs Drift Lookout, Paddys Creek Corner and Lithgow No.1 Dam. Lower Mountains Motorcycle Club is also located within the locality of State Mine Gully.

iii Clarence

Clarence SAL is situated within the Lithgow LGA, approximately 5 km from Clarence Colliery. The population of Clarence was 200 people, with no change in population in the five years to 2021. The town had an older population with a median age of 52 compared to the NSW average of 39 years. The older population was also evident characterised by lower labour force participation (54.3%) compared to the NSW average of 58.7%.

There was a higher proportion of Aboriginal and/or Torres Strait Islander population in Clarence at 5.0% compared to NSW (3.4%).

Top industries of employment for residents in Clarence were public administration and safety (15.8%), followed by transport, postal and warehousing (13.7%) and healthcare and social assistance (12.6%), with 4.2% of the population working in mining. The entire population of Clarence owned their home outright (51.3%) or with a mortgage (42.1%), compared to NSW (64.0%), with 31.5% owning their homes and 32.5% with a mortgage. Key occupations were technicians and trades workers, clerical and administrative workers, and machinery operators and drivers.

The data notes higher rates of some long-term health conditions in Clarence such as arthritis (12.0% compared to 8.4% in NSW), asthma (10.5% compared to the NSW average of 7.8%) and diabetes (6.0% compared to 4.8% in NSW). Mental health conditions were also higher (11.0% compared to 8.0% in NSW).

Social infrastructure within the township of Clarence is limited. There is a limited range of short-term accommodation facilities and places of interest such as Top Points Railway Station and Bottom Points Railway Station, remnant of the town’s history which was originally a railway outpost on the Main Western railway line across the Blue Mountains. The Zig Zag Railway was restored and today is one of Australia’s most well-known tourist lines with the original Clarence station for use as the terminus (Zig Zag Railway, 2025).

5.1.2 Key urban areas

i Clarence

As noted above.

¹ Roofbolting was a historical method of supporting the roof of coalmines.

ii Lithgow city

The city of Lithgow is situated on the Great Western Highway, approximately 160 km from Sydney. Lithgow is the main residential area within the Lithgow LGA. Situated approximately 10 km south-west of Clarence Colliery, the town had a population of 11,197 residents, which was a small decline of 2.9% since 2016 (ABS, 2021a).

Within the Lithgow LGA, 53.7% of residents reside in Lithgow city. The city is characterised by an older population, with a median age of 47 years compared to 38 years in NSW. There is a relatively high proportion of Aboriginal and Torres Strait Islander residents in Lithgow (7.9%), compared to the NSW average (3.4%).

Lithgow residents experience higher unemployment (6.8% compared to 4.9% in NSW) and lower labour force participation (48% compared to 58.7% in NSW). Household weekly incomes were lower (\$1,043) compared to the state average of \$1,829. Lithgow had a high proportion of social housing (23.9%) compared to NSW (12.8%).

Key industries of employment were healthcare and social assistance (13.8%), public administration and safety (10.7%) and retail trade (10.4%). There were 7.7% of Lithgow's population who worked in the mining industry.

Being a regional service centre, Lithgow provides a range of social infrastructure. This includes medical facilities, public spaces, education facilities, aged and disability care. There are various short-term accommodation options in the town, as well as accessible public transport. The city incorporates a range of tourist and historic attractions such as the Blast Furnace Park, where the first iron and steel in Australia were cast and surrounding national parks.

iii Wallerawang

Wallerawang is approximately 25 km north-west of Clarence Colliery and incorporates the locality of Lidsdale, former Wallerawang power station at Greenspot and Centennial Lidsdale Siding. The Main Western (train) Line also runs through the area.

In 2021, Wallerawang had a population of 2,079 residents and a relatively young population with a higher proportion of children and teenagers. The median age of Wallerawang was 38 years, similar to the NSW average of 39 years. There was a higher proportion of residents having completed Certificate III (22.2% compared to NSW 11.7%) and lower rates of high school completion (10.5% compared to 14.5% across NSW).

The town had a relatively high proportion of Aboriginal and/or Torres Strait Islander residents (9.5%).

The median household income was lower than the state median at \$1,441 per week, compared to \$1,829 across NSW and lower median rent payments (\$275 per week compared to the state average of \$420 per week). Health care and social assistance was the top industry of employment at 13.4% with retail trade (9.8%) and mining (9.1%) also significant employers. Technicians and trades workers were the top occupations at 18.4% (compared to the state average of 11.9%).

There were higher rates of arthritis (12.1%) in Wallerawang, relative to NSW (8.4%) as well as asthma (11.1%) relative to NSW at 7.8%, diabetes (6.8% compared to the state average of 4.8%) and lung condition (3.2% relative to NSW at 1.7%).

Wallerawang had a high proportion of social housing (29.4%) compared to NSW (12.8%).

There are a range of services available in the town including health services, emergency services, a school, a library, churches and retail stores. Wallerawang also offers recreational activities including trout fishing, sailing and canoeing at Lake Wallace, with an accessible fishing pontoon, barbecue facilities, a playground, showers and toilets available (NSW Government, 2025).

The township of Mount Victoria is approximately 17 km south of Clarence Colliery. Consent allows trucking of coal along the Great Western Highway through Mount Victoria. The township had 913 residents and an older population with a median age of 49 years compared to the state average of 39 years.

There was a high proportion of the town's residents (15.3%) attending vocational education compared to 8.5% in NSW and more residents with a bachelor's degree or above (32.7%) than NSW (27.8%). Mount Victoria had a lower rate of labour force participation (52.0%) compared to NSW (58.7%) and lower incomes (median household incomes were \$1,182 relative to the NSW average of \$1,829 although median mortgage payments were also lower in Mount Victoria (\$1,625 per month compared to \$2,167 in NSW).

Top employing industries were varied, with health care and social assistance (13.4%), education and training (12.9%), and retail trade (10.9%) the top three industries in Mount Victoria.

A higher proportion of Mount Victoria residents experienced long-term health conditions such as arthritis (12.2% compared to 8.4% in NSW), asthma (9.2% relative to 7.8% of NSW residents), cancer (4.6% compared to 2.8%), heart disease (4.8% relative to 3.9% in NSW) and mental health condition (10.3% compared to 7.8% of NSW residents).

Mount Victoria had higher rates of unoccupied private dwellings (24.7%) compared to the average rate in NSW of 9.4%. There is a limited range of community services and facilities in the town including a primary school, a K-12 school, child care, churches, fire and rescue station, short-term accommodation options and several local businesses. Recreational facilities include a revamped 1930s cinema and a number of parks.

The detailed social baseline is provided in Annexure A.

6 Community and stakeholder engagement

This chapter provides a summary of stakeholder and community engagement associated with ongoing operations of Clarence Colliery. It provides an overview of the engagement approach and a review of stakeholder identification and engagement activities undertaken to-date.

The feedback generated through community and stakeholder engagement, as well as wider sentiment investigation, directly informed preparation of the identification and assessment of social impacts and benefits of the modification.

The majority of engagement used to inform the modification was undertaken directly by Centennial and has been reviewed as a secondary source. Four semi-structured interviews with present Western Region Community Consultation Committee (CCC) members were conducted to provide additional context to the CCC meeting minutes.

6.1.1 Clarence Colliery existing community communication

Centennial has a number of existing community communication platforms for Clarence Colliery, these include:

- an established community communication committee, with quarterly meetings and regular engagement
- site signage from Clarence Colliery Road which includes a number for the Environment and Community Enquiries Hotline and an afterhours contact (see Photograph 6.1).

Centennial also has a website, where Clarence Colliery environmental monitoring, reports and documents are available to the public. The website can be found here: <https://www.centennialcoal.com.au/operations/clarence>.



Photograph 6.1 Clarence Colliery signage

6.1.2 Stakeholder mapping

A summary of the stakeholders currently identified is provided in Table 6.1.

Table 6.1 Key stakeholders

Who	Detail
Centennial employees (western region)	<ul style="list-style-type: none"> 71% of Centennial’s mining workforce resides in the Lithgow LGA; 12% in Bathurst LGA, 7% Midwestern LGA and 4% Blue Mountains
Community Consultative Committee	<ul style="list-style-type: none"> Community and stakeholder representatives who act as a community stakeholder-based contact point
First Nations groups	<ul style="list-style-type: none"> Bathurst Local Aboriginal Land Council Bathurst Wiradyuri and Aboriginal Community Elders Group Gundungurra Tribal Council Aboriginal Corporation Gundungurra Aboriginal Heritage Association Incorporated Mingaan Aboriginal Corporation Mooka Traditional Owners North-East Wiradjuri Corporation Warrabinga/Wiradjuri People Native Title Claimants Wiradyuri Council of Elders Wellington Valley Wiradjuri Corporation
Impacted landholders	<ul style="list-style-type: none"> Nearby sensitive receivers potentially impacted by noise have amenity agreements in place National Parks and Wildlife Services – managers of the Gardens of Stone State Conservation Area
Government agencies	<ul style="list-style-type: none"> Environmental Protection Authority National Parks and Wildlife Service DCCEEW – CPHR WaterNSW Lithgow City Council
Elected Representatives (Local, State and Federal)	<ul style="list-style-type: none"> Mayor: (presently Cass Coleman (Councillor Lithgow City Council) State MP: (presently Paul Toole (Nationals) Member of the NSW Legislative Assembly) Federal MP (presently Andrew Gee (Independent) MP for Calare) Local Councillors
Regional Non-Government Organisations (NGO’s) and Community Groups	<ul style="list-style-type: none"> Lithgow Environment Group Blue Mountains Conservation Society Wilderness Australia (Colong Foundation) 4Nature
General community	<ul style="list-style-type: none"> CCC members
Local community groups	<ul style="list-style-type: none"> Lidsdale Wallerawang Progress Association Portland Business Chamber Lithgow Business Chamber
Visitors and tourists	<ul style="list-style-type: none"> Wolgan One and Only

6.1.3 Government and regulatory engagement

Government and regulatory stakeholder engagement carried out on the proposed modification to date is summarised in Table 6.2.

Table 6.2 Agency consultation

Agency	Date	Method	Purpose and matters discussed
DPHI - Resource Assessments	21 July 2025	Letter	Briefing letter outlining the proposed Mod 11.
	December 2024	Meeting and site Inspection	Overview of Clarence operations, approvals and site inspection.
	June 2024, June 2025	Meeting and presentation	Overview of Clarence approvals.
	January 2025	Meeting and presentation	Overview of Clarence approvals.
EPA	Monthly during 2025	Meeting and presentation	Overview of Clarence operations and approvals.
	December 2024	Meeting and site Inspection	Overview of Clarence operations, approvals and site inspection.
DCCEEW – Biodiversity, Conservation and Science (BCS) (now Conservation Programs, Heritage & Regulation Division)	December 2024	Meeting and site Inspection	Overview of Clarence operations, approvals and site inspection.
	August 2024	Meeting and presentation	Overview of Clarence approvals.
Department of Primary Industries and Regional Development - Industry Advisory and Mining Concierge	July 2025, August 2025	Meeting and presentation	Overview of Clarence approvals.
Lithgow City Council	September 2025	Meeting and presentation	Overview of Clarence approvals.
	June 2024, September 2024, December 2024, March 2025, June 2025, September 2025	CCC meetings	Council officer and Councillor attend the CCC meetings that includes presentation and information on Clarence Colliery operations and approvals.
WaterNSW	July 2024, December 2024	Meeting and site Inspection	Overview of Clarence Colliery operations, approvals and site inspection.
NPWS	June 2024, September 2024, December 2024, March 2025, June 2025, September 2025	CCC meetings	Council officer and Councillor attend the CCC meetings that includes presentation and information on Clarence Colliery operations and approvals.

6.2 Community and Aboriginal party consultation

6.2.1 Consultation to date

Centennial undertook consultation with the Western Region Community Consultation Committee (CCC) and the Clarence registered Aboriginal parties (RAPs) in relation to the proposed modification. Details of this consultation is summarised in Table 6.3.

Table 6.3 Community consultation

Stakeholder	Date	Method	Consultation description and matters raised
CCC	June 2024, September 2024, December 2024, March 2025, June 2025, September 2025	Meeting and presentation	Presentation outlining Clarence Colliery operations and approvals.
Western Region RAPs	March 2024, September 2024, March 2025, October 2025	Meeting and presentation	Presentation outlining Clarence Colliery operations and approvals.
Non-government organisation (NGO)	July 2024, December 2024, April 2025, October 2025	Meeting and presentation	Overview of Clarence Colliery operations and approvals.

Feedback from the community has been varied and includes both positive and negative views on a range of topics. The modification is generally well-supported in the local community, and within the Lithgow LGA more broadly, based on the continued employment opportunities the project will generate. There is however notable opposition surrounding environmental impacts, particularly in areas of water quality and ecological protection.

6.2.2 SIA engagement

SIA engagement activities carried out for the project to date are summarised below.

In-depth interviews with four CCC members via telephone between 28 October 2025 and 11 November 2025. It is noted that CCC members are more informed regarding monitoring of environmental impacts than typical community members due to the information provided at CCC meetings. Feedback is based on a small number of stakeholders so cannot be taken to be representative of broader community sentiment.

Participants were long term residents of Clarence Village (1), Wallerawang (1), rural area outside of Wallerawang (1) and Lidsdale (1). Two participants were also local business owners.

- Participants interviewed were supportive of Clarence Colliery noting the mine has been operational since the 1980s.
- Vulnerabilities of the community in the local area and key urban areas were noted as an ageing population, limited health and community services and shortage of rental and short-term accommodation. Residents travel to access specialist health and community services in Lithgow, Penrith and Bathurst.
- Quality of local roads was also noted. Road maintenance is undertaken locally, with varying frequency and maintenance can be delayed. There was also a lack of maintenance of local facilities such as playgrounds and sporting facilities, tree planting and street maintenance in Wallerawang and Lidsdale.
- Other vulnerabilities of the local area were noted as lack of economic diversification and employment for young people, and a recent economic slowdown with several shops shut and businesses closing in the local area and key urban areas.
- Community events, social groups and sports such as tennis and golf as well as children’s sports, are well attended in Portland and Lithgow. Local pubs and sports clubs are common places for local residents to socialise.
- Users of short-term accommodation in Wallerawang are primarily power station and mine workers during the week with some tourists during the weekend. Short-term accommodation providers in Wallerawang are mostly heavily booked, with an estimated 60 to 70% occupancy rate.

- Local residents (of Clarence Village) were largely accustomed to amenity impacts such as noise including truck and railway noise and dust observed on their lawn due to their long-term nature of existing Clarence Colliery operations and limited impact on way of life.
- Two participants were confident that the project would be heavily regulated and any exceedances (of air quality, dust deposition, surface water quality, water discharge volumes) would be addressed.
- One participant understood that the proposed modification involved mining in the same area so was not concerned about potential groundwater impacts. Water availability and quality were noted by all participants as a resource greatly valued by local residents. One participant had a deep bore hole and several large water tanks for water security purposes. One participant had a dam used for watering cattle.
- One participant noted differing views of coal mining in the local community including residents who were concerned about climate change and residents who recognised the economic benefits and local employment that the proposed modification offers.
- Ongoing local employment and local procurement opportunities as well as the flow on effects of expenditure at local businesses were noted as social benefits of the modification.
- All participants desired new industries to be established in the local and regional area to improve economic diversification and generate stable local employment.
- Regarding community benefits, participants identified that the project supports local festivals and sports clubs.
- Regarding cumulative impacts, feedback included the social benefits of having construction workers resident in townships for local businesses. Expectation of local employment from renewable energy projects was limited due to limited availability of skills except for unskilled roles and local workers prioritising job security and long-term employment.

7 Assessment of social impacts and benefits

This chapter assesses social impacts and benefits generated by the proposed modification and provides an assessment of relative social risk utilising the methodology outlined in the SIA Guideline Technical Supplement (DPHI, 2025a).

As the original environmental approval for Clarence Colliery was provided in 1976, data to evidence the development for which the consent was originally granted is not available. The modification therefore assesses the development as last modified. The modification has been assessed as being substantially the same as the development last modified. The SIA therefore conducts an initial assessment of social impacts of the continuation of mining operations before assessing the social change due to the proposed modification.

Assessment of social impacts considers a range of factors and potentially competing interests. The impact assessment is reflective of this and has included potential impacts and benefits on local communities, the broader region and for vulnerable sectors of affected communities.

Social impacts and benefits have been assessed using a precautionary approach, and residual impacts have been re-assessed on the basis that proposed mitigation or enhancement measures are effectively implemented. The assessment uses the terms 'unmitigated' and 'mitigated' when referring to negative impacts and 'un-enhanced' or 'enhanced' when referring to positive impacts (benefits).

Social impacts and benefits relevant to the proposed modification were identified through analysis of social impacts and benefits identified in recent Project modification reports, technical studies, other SIA reports of similar projects, the proposed changes to the nature of project activities, baseline characteristics of potentially affected communities and feedback generated through engagement processes.

Application of the SIA Guideline's likelihood and magnitude framework (as outlined in Section 3.1.2 of this SIA) informs assessment of the level of significance of a social impact as being negligible, low, moderate, high, or very high.

Table 7.1 presents the assessment of social impacts and benefits due to the proposed modification.

Table 7.1 Social impacts

#	Impact category	Approved operations		Modification 11				
		Original project activity/factor	Social impact identified	Original management measure proposed and mitigated significance	Changes to project activity/factor (modification)	Latest baseline	Changes to impact and significance level	Changes to management measures
1	Way of life	<p>DA 504-00 permits the dispatch of coal via rail and allows limited dispatch of coal in trucks via public roads. DA 504-00 approves the transport of up to 200,000 tonnes per annum (tpa) of product coal from Clarence by road, including:</p> <ul style="list-style-type: none"> up to 200,000 tpa to the east, or up to 100,000 tpa to the west via the Darling Causeway and Great Western Highway route (Western Haulage Route) no change in operations workforce and no predicted change to current project operational contribution to traffic. <p>Haulage of coal to the west can only take place between 7:00 am and 10:00 pm on Monday to Saturday between 8:00 am and 10:00 pm on Sundays and public holidays. Most of Clarence’s coal is railed to Port Kembla or Newcastle for shipping to international markets.</p>	<p>Potential impact of traffic congestion and road delays – operations</p> <ul style="list-style-type: none"> Continuation of traffic generated by haulage of product to customers. Continuation of traffic generated by existing operations workforce. 	<p>Clarence has a TMP, approved under Mod 10. The TMP outlines:</p> <ul style="list-style-type: none"> measures for pedestrian and vehicle safety within the site total production volumes for the haulage timing of the product haulage prescribed haulage routes complaint handling and monitoring procedures Drivers Code of Conduct. <p>Mitigated significance: Low</p>	<ul style="list-style-type: none"> Transportation of up to 300,000 t of coal by road until 31 December 2031. Transport associated with Clarence will continue to be restricted during school zone hours (8:00 am to 9.30 am and 2.30 pm to 4:00 pm during NSW school terms). 	<p>A local resident in Clarence Village observed traffic noise from trucks using exhaust brakes during the night and a train going in and out of the tunnels (the resident lived 2km from the train line). It was observed that this transport noise was not heard during winter when windows were closed.</p>	<ul style="list-style-type: none"> Traffic generation of light vehicles and heavy vehicles associated with the ongoing operation of Clarence will remain unchanged during the proposed five-year operational extension (EMM, 2025d). Key intersections along identified haulage route will continue to operate at acceptable levels of service under projected 2031 traffic conditions. No significant adverse impact on intersection performance is anticipated as a result of the modification. <p>Mitigated significance: Low</p>	<p>No change.</p>
2	Way of life	<ul style="list-style-type: none"> Continued generation of dust and exposure to diminished air quality a key concern raised by stakeholders. 	<p>Potential impacts due to continued exposure to dust and diminished air quality</p> <ul style="list-style-type: none"> Operations – continued operations will not cause any exceedance of criteria relating to total suspended particulates and deposited dust at neighbouring residences. 	<ul style="list-style-type: none"> Management of air quality impacts in accordance with the project’s Air Quality and Greenhouse Gas Management Plan Western Region (James Bailey & Associates, 2023). All haul trucks will pass through a vehicle wash bay before leaving each site (i.e. Clarence pit top, Lidsdale Siding and MPPS). This will remove any ‘hang up’ or spillage or coal and dirt or mud from vehicle tyres. Loaded trucks will be covered to ensure no windblown dust leaves each loaded vehicle during transport. Trucks will use low sulphur diesel to reduce exhaust emissions (James Bailey & Associates, 2023). <p>Mitigated significance: Low</p>	<ul style="list-style-type: none"> Transportation of up to 300,000 t of coal by road until 31 December 2031. Transport associated with Clarence will continue to be restricted during school zone hours (8:00 am to 9.30 am and 2.30 pm to 4:00 pm during NSW school terms). 	<p>There were elevated rates of arthritis, asthma, lung condition and mental health condition in the local area relative to NSW (12.8%, 10.0%, 2.8% and 10.4% compared to 8.4%, 7.8%, 1.7% and 8.0% across NSW).</p> <p>SIA engagement noted that residents (of Clarence Village) were largely accustomed to amenity impacts such as dust observed on their lawn due to their long-term nature of existing project operations and limited impact on way of life.</p>	<p>Monitoring of depositional dust in the year to September 2025 shows no exceedances of air quality criteria of 4 g/m²/mth (Centennial, 2025).</p> <p>Mitigated significance: Low</p>	<p>No change.</p> <p>Continued dust monitoring and monitoring of complaints.</p> <p>Consideration of additional dust suppression measures as required.</p> <p>Continued disclosure of air quality monitoring results to local residents to reduce community concerns via the CCC and Annual Report, published on the Centennial website. Monthly environmental monitoring results are published on the Centennial website.</p>

#	Impact category	Approved operations		Modification 11				
		Original project activity/factor	Social impact identified	Original management measure proposed and mitigated significance	Changes to project activity/factor (modification)	Latest baseline	Changes to impact and significance level	Changes to management measures
3	Community Decision making systems	<ul style="list-style-type: none"> Project contributes to further coal extraction for energy production and ongoing production of greenhouse gas emissions. Sources of GHG emissions include on-site diesel consumption, LPG consumption, consumption of oils and greases and fugitive emissions from ventilation shafts. 	<p>Reduced community cohesion due to divergent opinions on coal projects with regard to climate change impacts</p> <ul style="list-style-type: none"> Project forms a small piece of climate change puzzle but is a matter of high importance to the broader Australian community. 	<p>Mitigation measures as per previous Modifications include:</p> <ul style="list-style-type: none"> use of low sulphur diesel in contracted coal haulage trucks tracking of energy demand and GHG emissions per tonne of ROM coal produced regular maintenance of plant and equipment to minimise fuel consumption cost effective measures to improve energy efficiency consideration of energy efficiency in plant and equipment selection (James Bailey & Associates, 2023). <p>Mitigated significance: Medium</p>	<p>There is no change to the maximum coal extraction rate of up to 3 Mtpa. The continuation of mining operations for a further five years, will result in scope 1 and scope 2 emissions peaking at around 44 kt CO₂-e/year in 2027-28. The largest contributors to scope 1 and scope 2 emissions over the life of the modification would be purchased electricity (68% of the total) and fugitive sources (29% of the total). Scope 3 emissions would peak at around 3,900 kt CO₂-e/year in 2028-29.</p> <p>The project is not considered to be a large emitter (EMM, 2025).</p>	<p>Local residents interviewed for SIA engagement noted differing views of coal mining in the local community including residents who were concerned about climate change and residents who recognised the economic benefits and local employment that the modification offers.</p>	<p>No change.</p> <p>Mitigated significance: Medium</p>	<p>In addition to planned mitigation measures in the Air Quality and Greenhouse Gas Assessment (AQGHG):</p> <ul style="list-style-type: none"> Development and effective implementation of initiatives that contribute to maintaining social cohesion in the local area. Support for community events which enable interaction between community members. Continue to provide community email and phone contact numbers via Centennial website and site signage. Community complaints register is published on the Centennial website.
4	Community Decision making systems	<ul style="list-style-type: none"> Project contributes to further coal extraction for energy production and ongoing production of greenhouse gas emissions. Sources of GHG emissions include on-site diesel consumption, LPG consumption, consumption of oils and greases and fugitive emissions from ventilation shafts. 	<p>Reduced community cohesion due to perceived inequitable distribution project benefits</p>	<p>Community benefit programs including employees volunteering for organisations such as the Rural Fire Service, State Emergency Service and NSW Fire and Rescue.</p> <p>Mitigated significance: Medium</p>	<p>No change to operations workforce.</p>	<p>Local residents interviewed for SIA engagement noted differing views of coal mining in the local community including residents who were concerned about climate change and residents who recognised the economic benefits and local employment that the modification offers.</p> <p>Regarding community benefits, participants identified that the project supports local festivals and sports clubs.</p>	<p>No change.</p> <p>Mitigated significance: Medium</p>	<ul style="list-style-type: none"> Support for community events which enable interaction between community members. Continue to provide community email and phone contact numbers via Centennial website and site signage. Community complaints register is published on the Centennial website.
5	Culture	<ul style="list-style-type: none"> Project contributes to further coal extraction for energy production. Potential for impact to cultural heritage sites. The process of underground mining can also induce changes to the ground surface and disturb Aboriginal cultural heritage sites. The potential impact to heritage items from the underground mining is as a result of surface works and/or subsidence. Any activity which results in the disturbance of the surface has the potential to harm Aboriginal heritage sites. 	<p>Disturbance or displacement of Aboriginal and non-Aboriginal heritage sites and/or items, and changes to cultural landscapes.</p>	<p>Coal extraction using low impact mining methods that have low subsidence potential.</p> <p>Management of Aboriginal cultural heritage is undertaken in accordance with the approved Western Region Aboriginal Cultural Heritage Management Plan (Centennial 2025).</p> <p>Historic heritage is managed in accordance with the Western Region Historic Management Plan (Centennial 2018).</p> <p>Mitigated significance: Low</p>	<ul style="list-style-type: none"> No change to mining area. No surface disturbance proposed. 	<p>Bi-annual meetings have been held with the project RAPs. Each meeting included a presentation outlining Clarence operations and approvals.</p>	<p>No change.</p> <p>Mitigated significance: Low</p>	<p>No change.</p> <p>Continued management in accordance with the approved Western Region Aboriginal Cultural Heritage Management Plan (Centennial 2025)</p>

#	Impact category	Approved operations		Modification 11				
		Original project activity/factor	Social impact identified	Original management measure proposed and mitigated significance	Changes to project activity/factor (modification)	Latest baseline	Changes to impact and significance level	Changes to management measures
6	Culture	<ul style="list-style-type: none"> Project contributes to further coal extraction for energy production. Potential for impact to cultural heritage sites. Similarly, the process of underground mining can also induce changes to the ground surface and disturb Aboriginal cultural heritage sites. The potential impact to heritage items from the underground mining is as a result of surface works and/or subsidence. Any activity which results in the disturbance of the surface has the potential to harm Aboriginal heritage sites. 	Diminishment of First Nations cultural values due to disturbance or displacement of Aboriginal heritage sites and/or artefacts and changes to visual landscape.	<p>Coal extraction using low impact mining methods that have low subsidence potential.</p> <p>Management of Aboriginal cultural heritage is undertaken in accordance with the approved Western Region Aboriginal Cultural Heritage Management Plan (Centennial 2025).</p> <p>Mitigated significance: Low</p>	<ul style="list-style-type: none"> No change to mining area. No surface disturbance proposed 	i-Bi annual meetings have been held with the project RAPs. Each meeting included a presentation outlining Clarence operations and approvals	No change. Mitigated significance: Low	No change. Continued management in accordance with the approved Western Region Aboriginal Cultural Heritage Management Plan (Centennial 2025)
7	Health and wellbeing	<ul style="list-style-type: none"> Impacts on health and wellbeing of nearby residents due to noise and vibration generated by operational activities raised as a concern by stakeholders. Predicted noise levels received at residences from train loading and rail operations has previously been outlined in <i>Clarence Colliery - Modification 6 Noise and Vibration Impact Assessment</i> (EMM 2020). 	<p>Impacts from noise and vibration</p> <ul style="list-style-type: none"> Annual noise monitoring results indicate that evening and night-time noise levels attributed to Clarence having, on occasion, exceeded the applicable noise criteria at monitoring location M1 on one occasion in 2017 in the evening period and two occasions during the night period in 2015 and 2017. The major contributor to the elevated noise levels measured during the evening and night-time 2015 surveys was identified to be tonal reversing alarms on mobile equipment operating on the stockpiles. 	<p>A number of measures are implemented to proactively plan and manage noise emissions from Centennial's western region operations. Measures implemented by Centennial include:</p> <ul style="list-style-type: none"> a region-wide monitoring rationalisation for real-time noise monitoring to provide more informative data and enable more timely response to elevated noise levels off-site procurement of quieter equipment regularly reviewing of monitoring and management measures and updating as applicable impact assessments of future modifications and extensions. <p>Mitigated significance: Low</p>	<ul style="list-style-type: none"> Noise levels at the nearest residences during train operations on the rail loop are expected to remain consistent with those presented in the Mod 6 NVIA (EMM 2020). The site's night-time maximum noise level events are not anticipated to change as a result of the modification. This modification does not propose any changes to train loading or rail operations at Clarence. 	<p>SIA engagement noted a Clarence Village resident can hear trucks on the main road using their exhaust brakes at 3.30 am in the morning and the one train going in and out of the tunnels. It was noted that this transport noise cannot be heard in the winter when windows are closed.</p> <p>EMM understands that within the last 12 years there has been one complaint received in relation to noise emissions from Clarence Colliery. In April 2017, a complaint was received regarding 'a low hum' from the Clarence ventilation facility.</p>	No change. Mitigated significance: Low	No change Continue to address complaints regarding noise and vibration. Continue to disclose noise and vibration monitoring reports via the CCC and Annual Report, published on the Centennial website. Monthly environmental monitoring results are published on the Centennial website.

#	Impact category	Approved operations		Modification 11				
		Original project activity/factor	Social impact identified	Original management measure proposed and mitigated significance	Changes to project activity/factor (modification)	Latest baseline	Changes to impact and significance level	Changes to management measures
8	Health and wellbeing	<ul style="list-style-type: none"> Community concerns around impacts on drinking water quality from possibility of dust entering privately owned water tanks or in ground water sources. 	<p>Impact of continued anxiety about potential effects on water quality and availability</p> <ul style="list-style-type: none"> SIA engagement noted concern amongst the local community regarding water quality in particular related to the availability of groundwater and potential for flooding. 	<ul style="list-style-type: none"> Existing Clarence Water Management Plan. <p>Mitigated significance: High</p>	<ul style="list-style-type: none"> No change to mining method. 	<p>One participant understood that the proposed modification involved mining in the same area so was not concerned about potential groundwater impacts.</p> <p>Water availability and quality were noted by all participants as a resource greatly valued by local residents. One participant had a deep bore hole and several large water tanks for water security purposes. One participant had a dam used for watering cattle.</p> <p>Monitoring of surface water quality in the year to September 2025 shows exceedances of cobalt, phosphorus and zinc. Concentrations triggered conductivity, barium, cobalt, lithium, nickel, rubidium, strontium and zinc. There were no exceedances of EPL limits for pH (6.5-8.5), TSS (30 milligrams per litre (mg/L)) or Oil and Grease (10 mg/L) for the Mine during the monitoring interval. There were no exceedances for water volume discharged offsite (Centennial, 2025).</p>	<p>Monitoring of surface water quality in the year to September 2025 shows exceedances of cobalt, phosphorus and zinc. Concentrations triggered conductivity, barium, cobalt, lithium, nickel, rubidium, strontium and zinc. There were no exceedances of EPL limits for pH (6.5-8.5), TSS (30 mg/L) or Oil and Grease (10 mg/L) for the Mine during the monitoring interval. There were no exceedances for water volume discharged offsite (Centennial, 2025).</p> <p>Exceedances of surface water pH were observed during monitoring in the period November 2023 to October 2024 (Centennial, 2024).</p> <p>The Water Resources Impact Assessment (WRIA) evaluated key potential risks relating to water management and associated potential water discharge risks. Potential impacts of the modification on streamflow, stream water quality, groundwater quality, groundwater pressures and associated receptors are expected to be minimal.</p> <p>The WRIA concluded that there is no predicted impact to third-party groundwater bores. The Water Assessment also found that discharge is not expected to impact surface water quality or change beneficial uses.</p> <p>Mitigated significance: Medium.</p>	<p>Continue to address complaints regarding dust and water quality.</p> <p>Continued disclose monitoring reports for water management via the CCC and Annual Report, published on the Centennial website</p> <p>Monthly environmental monitoring results are published on the Centennial website.</p>
9	Health and wellbeing	<ul style="list-style-type: none"> Impacts on health and wellbeing of nearby residents due to dust and decreased air quality generated by operational activities. 	<p>Impacts of continued exposure to dust and decreased air quality</p> <ul style="list-style-type: none"> Dust generation during project operations. 	<ul style="list-style-type: none"> Mitigation of GHG emissions is conducted in accordance with Centennial's <i>Air Quality and Greenhouse Gas Management Plan Western Region</i> (James Bailey & Associates, 2023). <p>Mitigated significance: Medium</p>	<ul style="list-style-type: none"> The continuation of mining operations for a further five years, will result in scope 1 and scope 2 emissions peaking at around 24.7 kt CO₂-e/year in 2026-27. The largest contributors to scope 1 and scope 2 emissions over the life of the modification would be fugitive sources (59% of the total) and purchased electricity (36% of the total). 	<p>There were elevated rates of arthritis, asthma, lung condition and mental health condition in the local area relative to NSW (12.8%, 10.0%, 2.8% and 10.4% compared to 8.4%, 7.8%, 1.7% and 8.0% across NSW).</p>	<p>Monitoring of depositional dust in the year to September 2025 shows no exceedances of air quality criteria of 4 g/m²/month (Centennial, 2025).</p> <p>Mitigated significance: Medium</p>	<p>No change.</p> <p>Air quality to continue to be monitored. Activities that contribute to air quality impacts to be proactively monitored and managed with results reported via the CCC and Annual Report, published on the Centennial website. Monthly environmental monitoring results are published on the Centennial website. Where exceedances occur, feedback to be provided in a timely manner to residents as to what resolution measures will be adopted.</p>

#	Impact category	Approved operations		Modification 11				
		Original project activity/factor	Social impact identified	Original management measure proposed and mitigated significance	Changes to project activity/factor (modification)	Latest baseline	Changes to impact and significance level	Changes to management measures
10	Livelihood	<ul style="list-style-type: none"> Impact of ongoing operations on water resources with a focus on cumulative impact of coal mining on ground and surface water quality and supply. 	<p>Impact on perceived decreased water quality impacting agriculture-based livelihoods</p>	<ul style="list-style-type: none"> Existing Clarence Water Management Plan. Proposed Water Management System including a series of erosion and sediment control measures during operational and rehabilitation phases. Maintain complaints mechanism and ongoing communication of water monitoring results. <p>Mitigated significance: Medium</p>	<ul style="list-style-type: none"> No changes to project area, mining method, coal production rate, coal handling and processing, coal reject management and transportation or water management system. 	<p>Water availability and quality were noted by all participants as a resource greatly valued by local residents. One participant had a deep bore hole and several large water tanks for water security purposes. One participant had a dam used for watering cattle.</p> <p>Monitoring of surface water quality in the year to September 2025 shows exceedances of cobalt, phosphorus and zinc. Concentrations triggered conductivity, barium, cobalt, lithium, nickel, rubidium, strontium and zinc. There were no exceedances of EPL limits for pH (6.5-8.5), TSS (30 mg/L) or Oil and Grease (10 mg/L) for the Mine during the monitoring interval. There were no exceedances for water volume discharged offsite (Centennial, 2025).</p>	<p>The Water Resources Impact Assessment (WRIA) evaluated key potential risks relating to water management and associated potential water discharge risks. Potential impacts of the modification on streamflow, stream water quality, groundwater quality, groundwater pressures and associated receptors are expected to be minimal.</p> <p>The WRIA concluded that there is no predicted impact to third-party groundwater bores. The Water Assessment also found that discharge is not expected to impact surface water quality or change beneficial uses.</p> <p>Mitigated significance: Medium</p>	<p>Continue to address complaints regarding dust and water quality. Disclose monitoring reports via the CCC and Annual Report, published on the Centennial website. Monthly environmental monitoring results are published on the Centennial website.</p>

Table 7.2 Social benefits

#	Benefit category	Continuation of mining operations			Modification 11			
		Original project activity/factor	Original benefit identified	Original enhancement measure proposed and enhanced significance	Changes to project activity/factor (modification)	Latest baseline	Changes to benefit and significance level	Changes to enhancement measures
1	Livelihoods	<ul style="list-style-type: none"> Employment of approximately 300 FTE personnel. 	<ul style="list-style-type: none"> Local and regional employment contributing to population retention and expenditure in the local economy. 	High	<ul style="list-style-type: none"> Continuation of local employment and training opportunities. 	No change.	No change. Enhanced significance: High	No change. Centennial participation in LCC's LEEP initiatives.
2	Livelihoods	<ul style="list-style-type: none"> Procurement opportunities for local businesses and contractors. 	<ul style="list-style-type: none"> Contribution to the viability and profitability of local businesses. 	Enhanced significance: Medium	<ul style="list-style-type: none"> Continuation of procurement opportunities for local and regional businesses. 	No change.	No change. Enhanced significance: Medium	No change.
3	Community Accessibility Surroundings	<ul style="list-style-type: none"> Payment of royalties and taxes. 	<ul style="list-style-type: none"> Contribution to the provision of public goods and services that benefit local and regional communities. 	Enhanced significance: Medium	<ul style="list-style-type: none"> Continuation of royalties and tax payments, contributing to the provision of public goods and services that benefit local and regional communities. 	In the 21/22 financial year, the project paid state royalties of approximately \$41.2 million and payroll tax of approximately \$2.4 million. Rates and charges paid to LCC were approximately \$620,000 (Aigis Group, 2023).	No change. Enhanced significance: Medium	No change.
4	Community Accessibility	<ul style="list-style-type: none"> Community benefit programs including employees volunteering. 	<ul style="list-style-type: none"> Contribution of personnel to support identified community groups and local services. 	Enhanced significance: Medium	<ul style="list-style-type: none"> Continuation of community benefit programs. 	Employees volunteering for organisations such as the Rural Fire Service, State Emergency Service and NSW Fire and Rescue.	No change. Enhanced significance: Medium	No change.

8 Conclusion

The proposed modification involves a five-year extension to the time that mining activities can be conducted. All other activities that are currently approved under DA 504-00, are intended to continue under the modification. The proposed modification is therefore substantially the same as the development last modified. The SIA therefore conducted an initial assessment of social impacts and benefits due to the modification before assessing the social impacts and benefits after the application of proposed mitigation and enhancement measures. Acumulative assessment was also prepared.

Ten social impacts and four social benefits were identified as a result of the assessment. It was assessed that the modification will not result in any change to the majority of the social impacts and benefits. Potential social impacts relate to amenity including traffic, generation of dust, noise and vibration, impacts relating to community cohesion, and potential water quality impacts. Health and wellbeing impacts relate to concerns regarding potential noise, air quality, and water quality and availability impacts.

Potential social benefits relate to ongoing employment and procurement opportunities improving the viability of local businesses, contribution to the provision of public goods and services that benefit local and regional communities and contribution of personnel to support identified community groups and local services.

References

- .id consulting. (2021). *Lithgow City Council*. Retrieved from Workers place of residence by industry - Mining: <https://economy.id.com.au/lithgow/workers-place-of-residence-industry?Indkey=23002>
- .idcommunity. (2021). *Lithgow City Council*. Retrieved from Employment self-containment: <https://economy.id.com.au/lithgow/employed-locally?Indkey=23002>
- .idcommunity. (2024). *Lithgow City Council economic profile*. Retrieved from .idcommunity demographic resources: <https://economy.id.com.au/lithgow/about>
- .idconsulting. (2025). *Lithgow City Council - Population forecast*. Retrieved from <https://forecast.id.com.au/lithgow>
- ABS. (2011). *Census of Population and Housing: General Community Profiles*. Retrieved from Australian Bureau of Statistics .
- ABS. (2016). *Census of Population and Housing: General Community Profiles*. Retrieved from Australian Bureau of Statistics .
- ABS. (2021). *Census of Population and Housing: General Community Profiles*. Retrieved from Australian Bureau of Statistics.
- ABS. (2021a). *Census of Population and Housing: General Community Profiles*. Australian Bureau of Statistics.
- ABS. (2022). *The Labour Force Framework*. Retrieved from <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6102.0.55.001~Feb%202018~Main%20Features~The%20Labour%20Force%20Framework~3>
- ABS. (2024). *Region Summary: Lithgow*. Retrieved from <https://dbr.abs.gov.au/region.html?lyr=lga&rgn=14870>
- AHRC. (2008). *Homelessness is a Human Rights Issue*. Sydney: Australian Human Rights Commission.
- AHURI. (2019). *Understanding the 30:40 indicator of housing affordability stress*. Australian Housing and Urban Research Institute. Retrieved from <https://www.ahuri.edu.au/policy/ahuri-briefs/3040-indicator>
- AIATSIS. (n.d.). *D10: Wiradjuji*. Retrieved from AustLang: <https://collection.aiatsis.gov.au/austlang/language/d10/>
- Aigis Group. (2023). *Clarence Colliery Socioeconomic Profile*.
- AIHW. (2021b). *Australia's welfare 2021 - Volunteers*. Australian Institute of Health and Welfare. Retrieved from <https://www.aihw.gov.au/reports/australias-welfare/volunteers>
- AIHW. (2022, July 7). *Rural and remote health*. Retrieved August 21, 2023, from Australian Institute of Health and Welfare: <https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health>
- Alston, M. (2002). Social capital in rural Australia. *Rural Society*, 12(2), 93-104.
- Ask Izzy. (2022). *Search*. Retrieved from Ask Izzy: <https://askizzy.org.au/>
- Blue Mountains City Council. (2020, March). *Blue Mountains 2040 Living Sustainably: Local Strategic Planning Statement*. Retrieved from <https://www.bmcc.nsw.gov.au/sites/default/files/docs/Blue%20Mountains%20Local%20Planning%20Statement%2031%20March%202020%20.pdf>
- Centennial. (2024). *Summary of Environmental Monitoring Data*.

- Centennial. (2025). *Summary of Environmental Monitoring Data*.
- CSDH. (2008). *Closing the gap in a generation: health equity through action on the social determinants of health*. Geneva: World Health Organisation (WHO).
- Della Bosca, H. a. (2018). The Coal Story: Generational Coal Mining Communities and Strategies of Energy Transition in Australia. *Energy Policy*, 120, 734-40. doi:<https://doi.org/10.1016/j.enpol.2018.04.032>.
- DPE. (2022a). *Cumulative Impact Assessment Guidelines for State Significant Projects*. NSW Government.
- DPE. (2023). *Population projects*. Retrieved from NSW Department of Planning and Environment: <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections>
- DPE. (2023a). *Social Impact Assessment Guideline for State Significant Projects*. Canberra: NSW Government. Retrieved from NSW Government.
- DPHI. (2024, November). *Population projects*. Retrieved from NSW Department of Planning, Housing and Infrastructure: <https://www.planning.nsw.gov.au/data-and-insights/population-projections/explore-the-data>
- DPHI. (2025). *Social Impact Assessment Guideline for State Significant Projects*. Canberra: NSW Government. Retrieved from NSW Government.
- DPHI. (2025). *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects*. Retrieved from DPHI: <https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/Social-Impact-Assessment/SIA-Guideline---Technical-Supplement-2v7.pdf?la=en>
- DPHI. (2025a). *Technical Supplement*.
- DPIE. (2022). *State significant development guidelines – preparing a modification report*.
- EMM. (2025). *Clarence Colliery Modification 11 Report*.
- EMM. (2025). *Clarence Colliery Modification 11 - Greenhouse Gas Assessment*.
- EMM. (2025a). *Clarence Colliery Modification 11 - Greenhouse gas impact assessment*.
- EMM. (2025b). *Clarence Colliery Modification 11 - Noise and vibration impact assessment* .
- EMM. (2025c). *Clarence Colliery Modification 11 - Water resources impact assessment*.
- EMM. (2025d). *Clarence Colliery Modification 11 - Traffic impact assessment* .
- EMM. (2025e). *Clarence Colliery Modification 11 - Air Quality Impact Assessment*.
- Gardens of Stone Alliance. (2025). *Centennial Coal: Environmental Scorecard in the Gardens of Stone*.
- healthdirect. (2022). *Service Finder*. Retrieved from healthdirect: <https://www.healthdirect.gov.au/australian-health-services>
- Infrastructure Australia. (2019). *Australian Infrastructure Audit 2019: Social Infrastructure*. Infrastructure Australia. Retrieved from <https://www.infrastructureaustralia.gov.au/sites/default/files/2019-08/Australian%20Infrastructure%20Audit%202019%20-%206.%20Social%20Infrastructure.pdf>
- James Bailey & Associates. (2023). *Clarence Colliery and Lidsdale Siding - Continuation of product transport Modification Report*.
- Lithgow City Council. (2022). *Our Place Our Future: Community Strategic Plan*. Lithgow City Council.

- Lithgow City Council. (2022a). *Our Place Our Future Community Strategic Plan 2035*.
- Lithgow City Council. (2024). *LEEP Lithgow Economic Opportunities*. Retrieved from Lithgow City Council: <https://www.leep.lithgow.com/opportunities/>
- Lithgow Tourism Information. (2023). *National Parks & Wildlife | Aboriginal Sites*. Retrieved from Lithgow Surrounded by Nature : <https://lithgow-tourism.com/aboriginal.htm>
- NPWS. (2009). *Greater Blue Mountains World Heritage Area (BMWHA) Strategic Plan*.
- NPWS. (2022). *Gardens of Stone State Conservation Area Plan of Management*. National Parks & Wildlife Service.
- NPWS. (2025a). *The Newnes Plateau Cliffs*. Retrieved from <https://www.nationalparks.nsw.gov.au/things-to-do/adventure-sports-experiences/the-newnes-plateau-cliffs/visitor-info>
- NSW Government. (2025). *Lake Wallace*. Retrieved from <https://www.nsw.gov.au/visiting-and-exploring-nsw/locations-and-attractions/lake-wallace>
- NSW Minerals Council. (2025). *Our Members*. Retrieved from <https://nswmining.com.au/who-we-are/our-members/>
- NSWMC. (2023). *Guiding Principles for Responsible Mining in NSW (ESG)*. Retrieved from <https://nswmining.com.au/news/guiding-principles-for-responsible-mining-in-nsw-esg/>
- REMPPLAN. (2025, February 28). *Muswellbrook Economy, Jobs, and Business Insights*. Retrieved from REMPLAN: <https://app.rempln.com.au/muswellbrook/economy/workers/place-of-usual-residence>
- Supply Nation. (2024). *Search Indigenous Business Direct*. Retrieved from Supply Nation: [https://ibd.supplynation.org.au/public/s/search-results#loc=Lithgow%20NSW,%20Australia&search=.](https://ibd.supplynation.org.au/public/s/search-results#loc=Lithgow%20NSW,%20Australia&search=)
- Vanclay, F., Esteves, A. M., Aucamp, I., & Franks, D. M. (2015). *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*. Fargo, ND: International Association for Impact Assessment.
- Zig Zag Railway. (2025). *Zig Zag Railway*. Retrieved from <https://zigzagrailway.com.au/journey/clarence-to-bottom-points-return/>

Annexure A

Social baseline study

A.1 Population and socio-cultural characteristics

A.1.1 Population trends

The local area experienced population decline in the five years to 2021 while the population in key urban areas grew by 10.9%. The local area is characterised by an older population, evident by a median age of 56 years and a higher proportion of people aged 65 years and over. There was a higher proportion of people who identify as Aboriginal and/or Torres Strait Islander in key urban areas (7.8%) compared to other areas.

Table A.1 Population and socio-cultural characteristics, 2021

Indicator	Local area	Key urban areas	Regional area	NSW
2021 population (#)	210	14,389	98,963	8,072,163
2016 population (#)	221	13,000	97,944	7,480,228
Population change over 5 years to 2021 (%)	-4.9%	10.9%	0.9%	8.1%
Identify as Aboriginal and/or Torres Strait Islander (#)	10	1,112	3,722	278,043
Identify as Aboriginal and/or Torres Strait Islander (%)	4.7%	7.8%	3.7%	3.4%
Non-English language spoken at home (%)	1.9%	5.0%	5.7%	22.4%
Median age	56	48	46	39
Proportion of people aged 65 years and over	28.1%	25.1%	22.8%	17.6%

Source: ABS 2016 and 2021, Census of Population and Housing: General Community Profiles.

A.1.2 Population trends

The population of Lithgow LGA is expected to grow by 7.26% in the 20 years to 2046 (.idconsulting, 2025). This would increase the population from 21,144 residents to 22,679 residents in 2046.

A.2 Vulnerability and resilience

A.2.1 Indicators of vulnerability

Vulnerability refers to an individual or group's capacity to adapt to, or cope with changes in their environment, and is influenced by a range of socio-economic factors operating at different scales (Spielman et al., 2020). Some individuals or groups may be more vulnerable than others due to certain existing socio-economic characteristics. Common indicators of vulnerability include:

- age, such as the very young and the elderly who are more likely to require care and may be financially dependent on the working population (people aged 15 to 64)
- socio-economic status, such as people who are recipient of welfare, reside in social housing, or who are unemployed
- people with a need for assistance, such as those people requiring assistance in the core activities of self-care, mobility or communication because of disability, long-term health condition, or old age
- culturally and linguistically diverse (CALD) populations, such as those who live in households where a non-English language is spoken.

Figure A.2 illustrates some key areas of vulnerabilities in the study areas. There is a higher proportion of residents who need assistance and people who reside in social housing in key urban areas. This may be due to a higher level of socioeconomic disadvantage (see Section A.2.3).

Table A.2 Indicators of potentially vulnerable groups in SIA study area, 2021

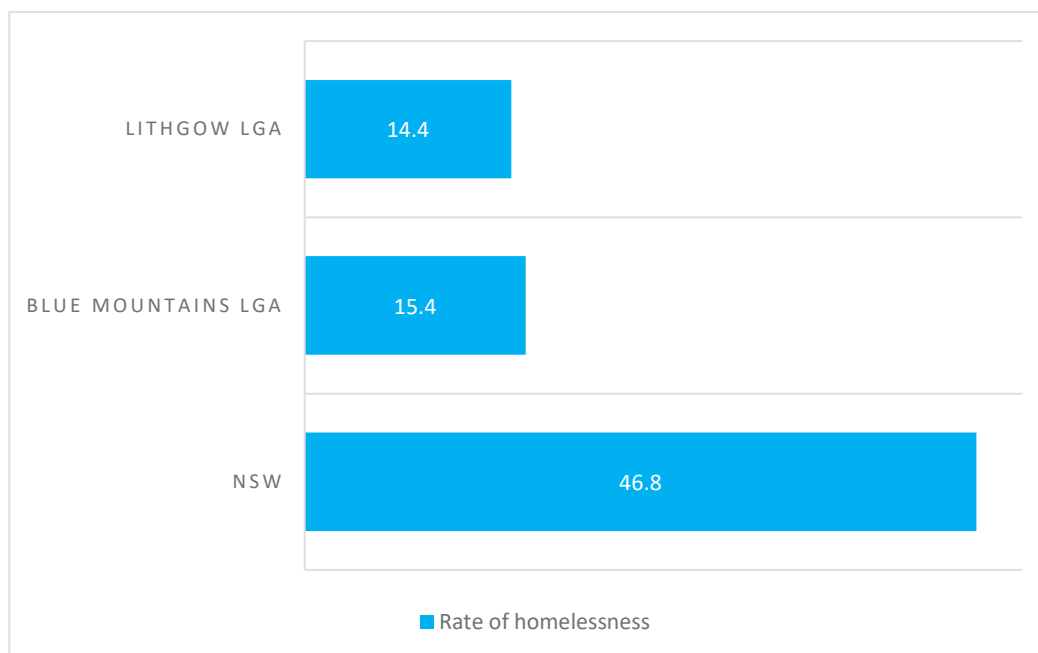
Indicator	People who need assistance	People who reside in social housing	Households where a non-English language is used	Does not speak English well or at all
Local area	4.7%	0.0%	1.9%	0.0%
Key urban areas	8.6%	23.6%	4.7%	0.7%
Regional area	6.2%	13.8%	5.7%	0.5%
NSW	5.8%	12.8%	22.4%	4.5%

Source: ABS 2021, Census of Population and Housing: General Community Profiles and QuickStats.

A.2.2 Homelessness

The 2021 Census estimated rates of homelessness per 10,000 persons, as shown in Figure A.1. As explained by the Australian Human Rights Commission (AHRC), homelessness impacts on human rights to health, personal safety, privacy, education, work, non-discrimination and more (AHRC, 2008). Homeless persons are at greater risk of being negatively affected by potential impacts on livelihoods and health and wellbeing.

Figure A.1 displays low rates of homelessness in the regional area, which is significantly lower than the NSW average. This may be due to a larger proportion of social housing available in the area.



Source: ABS 2021, Estimating Homelessness: Census

Figure A.1 Rates of homelessness per 10,000 people, 2021

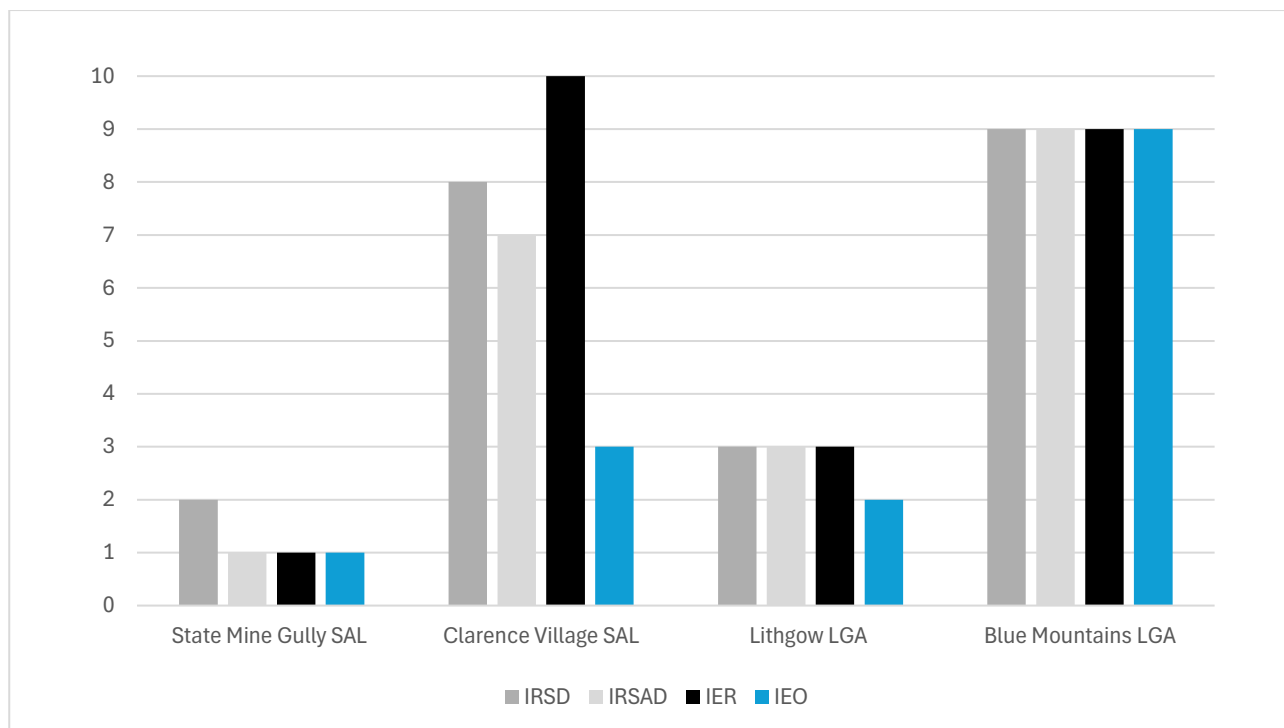
A.2.3 Socio-economic advantage and disadvantage

The levels of disadvantage and advantage in the population can be indicated by the Socio-Economic Indexes for Areas (SEIFA). Using ABS Census data, these indexes measure aspects such as low-income earners, relatively lower education attainment, high unemployment, and dwellings without motor vehicles. SEIFA provides four summary measures including:

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

The SEIFA decile ranking system allocates the lowest 10% of areas to the decile number of 1 and the highest 10% of areas to a decile number of 10. While there are variations to interpreting the decile scores across the four indexes, generally a low decile rank is associated with disadvantage, and a high decile rank is associated with less disadvantage. The rankings of the local area and regional area for each of the four summary measures are demonstrated in Figure A.2. SEIFA data is not available for UCL localities.

Analysis of SEIFA data shows residents of Lithgow LGA experiencing very low socioeconomic advantage. This is evidenced by all four rankings for the area being within the lowest 30% of the state. Disadvantage is characterised by lower rates of high school completion (10.6% compared to the NSW average of 14.5%), lower labour force participation and lower incomes (median weekly household incomes of \$1,658 compared to \$2,185 across NSW). State Mine Gully in the local area also had very low SEIFA rankings.



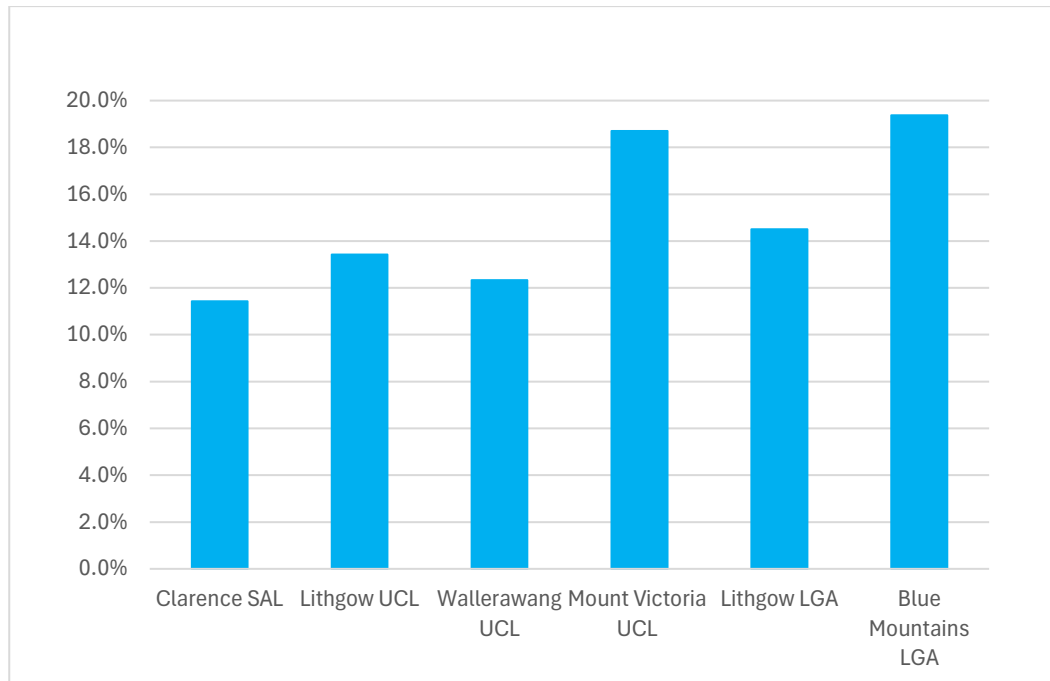
Source: ABS 2021, Socio-Economic Indexes for Areas (SEIFA), Australia

Figure A.2 SEIFA decile rankings, 2021

A.2.4 Voluntary work

Volunteering rates can give an indication of social cohesion and resilience in a community, and the willingness of people to help each other. Higher rates of volunteerism are also associated with older age groups, households with higher incomes and couples with children (AIHW, 2021b).

Compared to the NSW average of 13.0%, most areas with larger populations had higher rates of voluntary work. Wallerawang had a lower proportion of residents who undertook voluntary work.



Source: ABS 2021, Census of Population and Housing: General Community Profiles.

Figure A.3 Volunteering rates, 2021

A.2.5 Long-term health conditions

Social determinants of health are described as “the circumstances in which people grow, live, work, age, and the systems put in place to deal with illness...which are shaped by political, social, and economic forces” (CSDH, 2008). Social determinants of health can indicate the health of a population. These include factors such as conditions of employment, provision of social services and support, and socioeconomic position.

There were elevated rates of arthritis, asthma, lung condition and mental health condition in the local area and key urban areas compared to NSW. Arthritis, asthma and mental health conditions were significantly higher than the NSW average. There were also elevated rates of diabetes and heart disease in key urban areas.

Table A.3 Type of long-term health condition, 2021

Indicator	Arthritis	Asthma	Cancer	Dementia	Diabetes	Heart disease	Kidney disease	Lung condition	Mental health condition	Stroke	No condition
Local area	12.8%	10.0%	1.9%	0.0%	5.7%	3.3%	0.0%	2.8%	10.4%	0.0%	48.1%
Key urban areas	14.1%	10.4%	3.9%	1.1%	6.8%	6.1%	1.2%	3.1%	12.1%	1.4%	49.7%
Regional area	11.3%	9.6%	3.7%	0.8%	5.0%	5.1%	1.0%	2.4%	11.2%	1.1%	53.9%
NSW	8.4%	7.8%	2.8%	0.8%	4.8%	3.9%	1.0%	1.7%	8.0%	0.9%	61.0%

Source: ABS 2021, Census of Population and Housing: General Community Profiles.

Typically, regional Australians fare poorly on a number of health outcomes (Alston, 2002). According to the Australian Institute of Health and Welfare (AIHW), Australians living in regional areas have shorter lives, higher levels of disease and injury, and poorer access to and use of health services, compared with people living in metropolitan areas (AIHW, 2022). Poorer health outcomes in regional areas may be due to multiple factors and health determinants including lifestyle differences and a level of disadvantage related to education and employment opportunities, as well as access to health services.

Lithgow LGA had significantly higher rates of smoking, use of alcohol and psychological distress compared to the NSW average.

Table A.4 Summary of relevant health indicators, 2024 per 100,000 people

Indicator	Lithgow LGA	Blue Mountains LGA	NSW
Current smoker (Daily + Occasional)	14.4	10.1	11.6
Harmful use of alcohol	26.3	21.6	18.0
Overweight (BMI > 25)	34.6	34.8	33.6
High/ very high level of psychological distress	15.8	12.6	13.0

Source: PHIDU, 2024

A.2.6 Community safety

Data describing the incidence of crime is sourced from the NSW government’s Bureau of Statistics and Crime Research Office (BOSCAR). Data is available at the LGA level and State level.

Table A.5 shows the rate of offences per 100,000 population in the Lithgow and Blue Mountains LGAs, and NSW.

Lithgow LGA experiences higher rates of crime, in particular assault, sexual offences, theft, malicious damage to property, against justice procedures and disorderly conduct.

Table A.5 Crime rates, sub-regional area, 2025

Offence group	Lithgow LGA	Blue Mountains LGA	NSW
	2025 (count), rate	2025 (count), rate	2025 (count), rate
Assault	1,573.1	543.1	899.4
Homicide	0.0	2.5	1.2
Robbery	19.4	8.9	22.8
Sexual offences	482.5	225.7	240.3
Theft	2,764.9	1,008.5	2117.7
Malicious damage to property	1,047.1	420.7	576.7
Against justice procedures	1,592.3	518.8	1,107.6
Disorderly conduct	400.6	147.9	234.7
Drug offences	269.9	288.0	458.0

Source: BOSCAR, 2025

A.3 Labour market and income

Table A.6 presents unemployment and labour force participation rates for the study area. Labour force participation rates are a measure of those over 15 years who are employed or actively seeking work (ABS, 2022).

Lithgow city, Lithgow LGA and Wallerawang experienced low labour force participation compared to other study areas. Youth participation in the labour force was highest in Wallerawang and lowest in Mount Victoria.

Table A.6 Labour force characteristics, 2021

Indicator	Clarence	Lithgow city	Wallerawang	Mount Victoria	Lithgow LGA	Blue Mountains LGA	NSW
Number of people in labour force (#)	95	4,495	943	409	8,790	37,749	3,874,012
Labour force participation rate (%)	54.3%	48.0%	58.1%	52.0%	50.4%	58.5%	58.7%
Female (%)	47.4%	37.8%	44.5%	40.9%	40.6%	46.2%	45.8%
Male (%)	50.9%	42.6%	45.7%	48.2%	43.7%	50.5%	50.2%
Youth (15 to 24 years) (%)	50.0%	64.5%	76.4%	44.2%	63.2%	60.3%	59.3%

Source: ABS 2021, Census of Population and Housing: General Community Profile.

In the past five years, unemployment at LGA level shows an overall trend of lower unemployment across the regional area although an uptick has been experienced since March 2024.

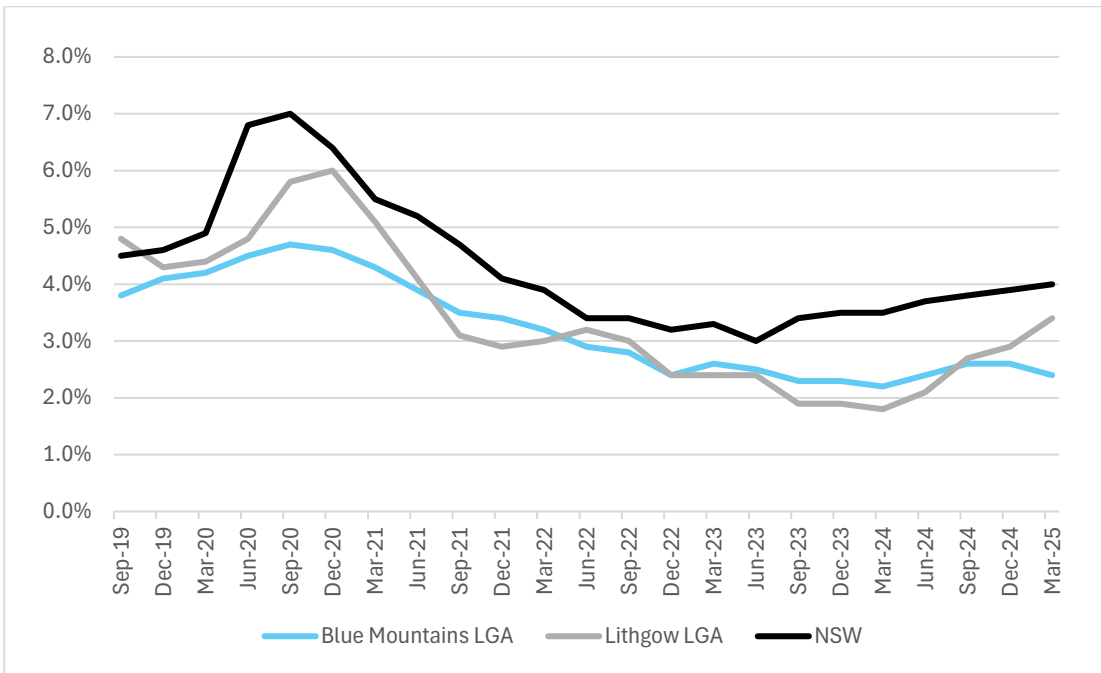


Figure A.4 Quarterly unemployment, June 2020 to June 2025

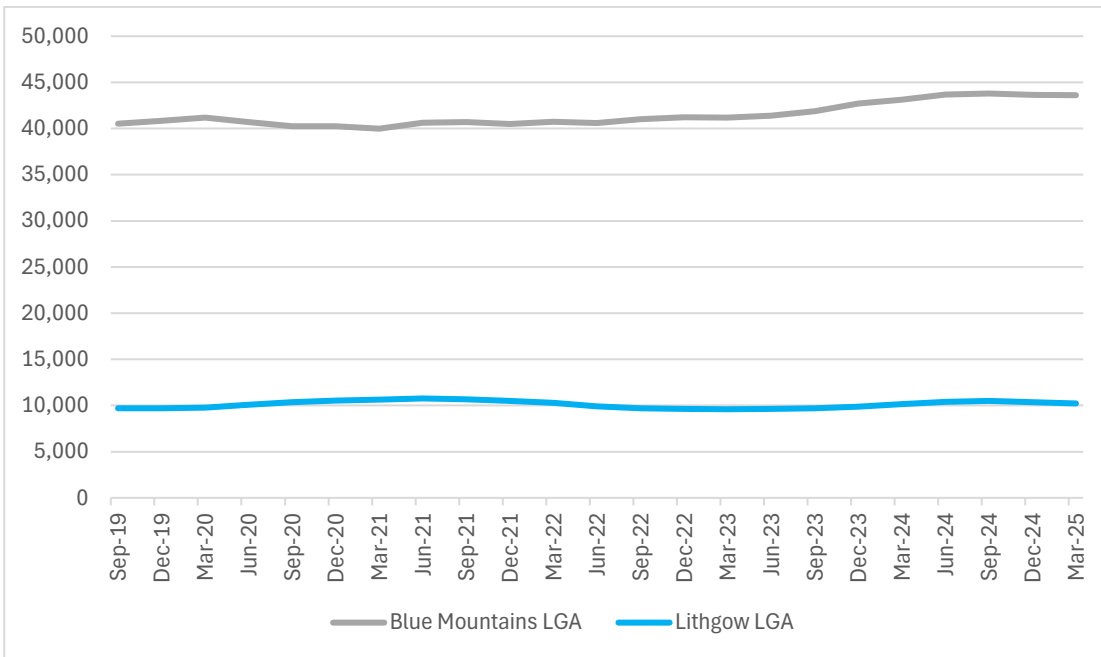


Figure A.5 Quarterly labour force participation, June 2020 to June 2025

A.3.1 Industry of employment

Table A.7 demonstrates the top five industries of employment across the regional area in 2024. Mining was the dominant employing industry with 1,440 workers or 16.3% employed in Lithgow LGA. Blue Mountains LGA had more diversification of employing industries and very few workers employed in mining (14 workers or 0.1%) (.idcommunity, 2024).

Table A.7 Top five industries of employment, 2024

Study area	1 st	2 nd	3 rd	4 th	5 th
Lithgow LGA	Mining (16.3%)	Health care and social assistance (12.0%)	Public administration and safety (10.7%)	Retail trade (7.6%)	Accommodation and food services (6.8%)
Blue Mountains LGA	Health care and social assistance (19.6%)	Education and training (13.6%)	Construction (10.2%)	Retail trade (9.1%)	Accommodation and food services (9.1%)
NSW	Health care and social assistance (15.3%)	Professional, scientific and technical services (10.1%)	Construction (9.7%)	Retail trade (9.0%)	Education and training (8.5%)

Source: .idcommunity, 2024 LGA economic profiles.

A.3.2 Top occupations

Table A.8 displays top five industries of employment in the study areas. Top occupations relevant to the project include technicians and trades workers, machinery operators and drivers, and labourers, with high proportions in the local area, key urban areas and in Lithgow LGA.

The occupational profile in Blue Mountains LGA is quite different with more professional and managers.

Table A.8 Top five industries of employment, 2021

Study area	1 st	2 nd	3 rd	4 th	5 th
Local area	Clerical and administrative workers (22.1%)	Technicians and trades workers (17.9%)	Machinery operators and drivers (15.8%)	Professionals (12.6%)	Community and personal service workers (10.5%)
Key urban areas	Technicians and trades workers (16.1%)	Community and personal service workers (14.8%)	Professionals (16.1%)	Clerical and administrative workers (13.2%)	Machinery operators and drivers (11.5%)
Lithgow LGA	Technicians and trades workers (16.6%)	Community and personal service workers (13.9%)	Professionals (13.4%)	Clerical and administrative workers (12.8%)	Labourers (11.4%)
Blue Mountains LGA	Professionals (30.5%)	Managers (13.9%)	Technicians and trades workers (12.6%)	Clerical and administrative workers (12.4%)	Community and personal service workers (11.9%)
NSW	Professionals (25.8%)	Managers (14.6%)	Clerical and administrative workers (13.0%)	Technicians and trades workers (11.9%)	Community and personal service workers (10.6%)

Source: ABS 2021, Census of Population and Housing: General Community Profiles.

A.3.3 Residential distribution of mining workforce

There were 591 or 72.4% of *mining* workers working in Lithgow LGA who live within Lithgow LGA. This aligns with the broader trend that 73.9% of *all* workers who reside in Lithgow LGA work locally (.idcommunity, 2021).

There were 225 workers or 27.6% of workers who work within the LGA but live outside the area (.id consulting, 2021). Of those that live outside of Lithgow LGA, 55 workers or 6.7% live in Blue Mountains LGA (.id consulting, 2021).

Given the high proportion of project workers who reside locally, economic activity generated by worker expenditure on goods and services is likely to benefit the local economy.

A.3.4 Residential distribution of project workforce

Figure A.6 displays the residential distribution of Clarence Colliery's operations workforce.

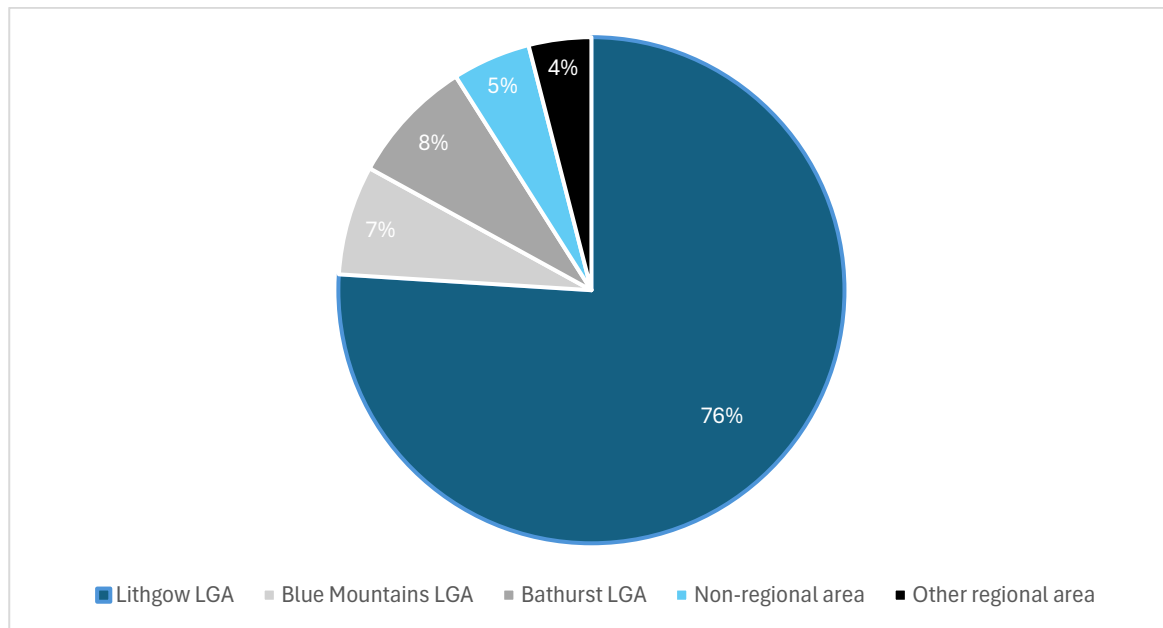
The project workforce is locally based, with the vast majority of workers residing within a commutable distance from the project. Of the project workforce:

- 202 workers or 76% reside in Lithgow LGA
- 19 workers or 7% reside in Blue Mountains LGA
- 21 workers or 8% reside in Bathurst LGA.

Of the remaining 9% of project workers, they reside:

- 10 workers reside elsewhere in the region (4%)
- 14 workers reside outside of the region (5%) (Aigis Group, 2023).

Given the high proportion of project workers who reside locally, economic activity generated by worker expenditure on goods and services is likely to benefit the local economy.



Source: Clarence Colliery Socioeconomic Profile, Aigis Group, 2023.

Figure A.6 Residential distribution of project workforce, 2023

A.3.5 Income and income distribution

Of the study areas, residents of Clarence Village and Blue Mountains LGA experience the highest individual and household median weekly income, on par with NSW. Lithgow city residents have the lowest individual and household incomes of the study areas.

Lithgow city demonstrates the least equal income distribution with almost 28.0% of households earning less than \$650 per week.

Table A.9 Median income, 2021

Area	Individual (median income \$ weekly)	Household (median income \$ weekly)	Households earning less than \$650 per week	Households earning more than \$3,000 per week
Clarence	814	1,791	17.1%	17.1%
Lithgow city	595	1,043	27.9%	10.5%
Wallerawang	667	1,441	19.7%	14.0%
Mount Victoria	679	1,182	23.9%	13.9%
Lithgow LGA	632	1,196	24.6%	15.8%
Blue Mountains LGA	817	1,756	13.4%	23.9%
NSW	813	1,829	15.3%	25.2%

Source: ABS 2021, Census of Population and Housing: General Community Profiles.

A.4 Housing and short-term accommodation

Access to safe, adequate and affordable housing is a critical pillar in enabling the physical, mental and social health of communities. While housing is generally provided in the private market, a distinct lack of affordable and appropriate housing options available for various income and cultural groups within the community it can result in a greater demand for housing assistance (Infrastructure Australia, 2019).

A.4.1 Dwelling occupancy and tenure

Table A.10 demonstrates relevant dwelling indicators for the study area.

There is potentially spare housing capacity in Mount Victoria with only 74.0% of private dwellings occupied. There is a limited range of housing in key urban areas and the regional area with few apartments available. Clarence Village and Mount Victoria experience high rates of home ownership or homes owned with a mortgage while there was a very low proportion of residents in Blue Mountains LGA who owned their own homes. Households in most study areas experienced low rates of renting except for Lithgow city which had the highest proportion, similar to the NSW average.

Table A.10 Dwelling type and ownership, 2021

Area	Number of private dwellings	Occupied dwellings	Separate house	Flat or apartment	Owned outright or with a mortgage	Rented	Social housing
Clarence	85	89.4%	100.0%	0.0%	93.4%	0.0%	0.0%
Lithgow city	5,450	88.9%	84.5%	2.5%	63.4%	31.3%	23.9%
Wallerawang	856	90.7%	93.9%	0.5%	72.1%	1.3%	29.3%
Mount Victoria	404	74.0%	99.3%	0.0%	78.7%	18.0%	3.9%
Lithgow LGA	9,585	86.8%	89.6%	1.6%	71.4%	24.1%	21.7%
Blue Mountains LGA	34,093	89.5%	92.1%	3.1%	39.8%	17.8%	10.9%
NSW	3,199,988	90.6%	65.6%	21.7%	64.0%	32.6%	12.8%

Source: ABS 2021, Census of Population and Housing: General Community Profile.

A.4.2 Affordable housing and homelessness

Housing stress is considered to occur when households in the lower 40% of income distribution spend more than 30% of their income on rental payments (rental stress) or mortgage repayments (mortgage stress) (AHURI, 2019). This may indicate that local people with lower-paying jobs may be unable to afford local rents which can be pushed up by those with higher salaries.

Table A.11 demonstrates housing affordability in terms of rent and mortgage, as well as low-income households. Of the study area, Lithgow UCL had the highest proportion of low-income households (27.8%). Conversely, the Blue Mountains LGA has a significantly lower proportion of low-income households with 15.8%.

Table A.11 Housing affordability indicators in SIA study area, 2021

Area	Low-income households ¹ (%)	Median rent (\$/weekly)	Low-income households under financial stress from rent stress ² (%)	Median mortgage repayment (\$/weekly)	Low-income households under financial stress from mortgage ³ (%)
Clarence	17.1%	\$320	0.0%	\$2,050	12.5%
Lithgow city	27.8%	\$270	37.1%	\$1,400	12.2%
Wallerawang	19.7%	\$275	28.4%	\$1,500	10.3%
Mount Victoria	23.9%	\$380	59.2%	\$1,625	17.9%
Lithgow LGA	24.6%	\$270	35.4%	\$1,500	12.4%
Blue Mountains LGA	15.8%	\$400	44.7%	\$2,035	13.3%
NSW	15.3%	420	35.5%	2,167	17.3%

Source: ABS 2021, Quickstats

Notes: 1. Households that earn less than \$650 per week.

2. Rent payments are greater than 30% of household income for low-income households (households in bottom 40% of income distribution).

3. Mortgage payments are greater than 30% of household income for low-income households (households in bottom 40% of income distribution).

A.5 Social infrastructure

A.5.1 Health and emergency services

There is limited availability of health services in the local area, and a vast majority are provided in Lithgow, which is home to key service providers such as:

- Lithgow Hospital
- Lithgow Community Health Centre
- Lithgow Valley Medical Practice
- NSW Ambulance – Lithgow
- Ochre Medical Centre – Lithgow and Bowenfels
- Lithgow Police Station.

A.5.2 Social services

Social infrastructure refers to community facilities, services, and networks that help individuals, families, groups and communities meet their social needs, maximise their potential for development and enhance community wellbeing.

Lithgow is a service hub that is home to most of the childcare centres, primary schools, secondary schools, tertiary institutions and arts and cultural community facilities in the LGA. Key social services available in Lithgow include:

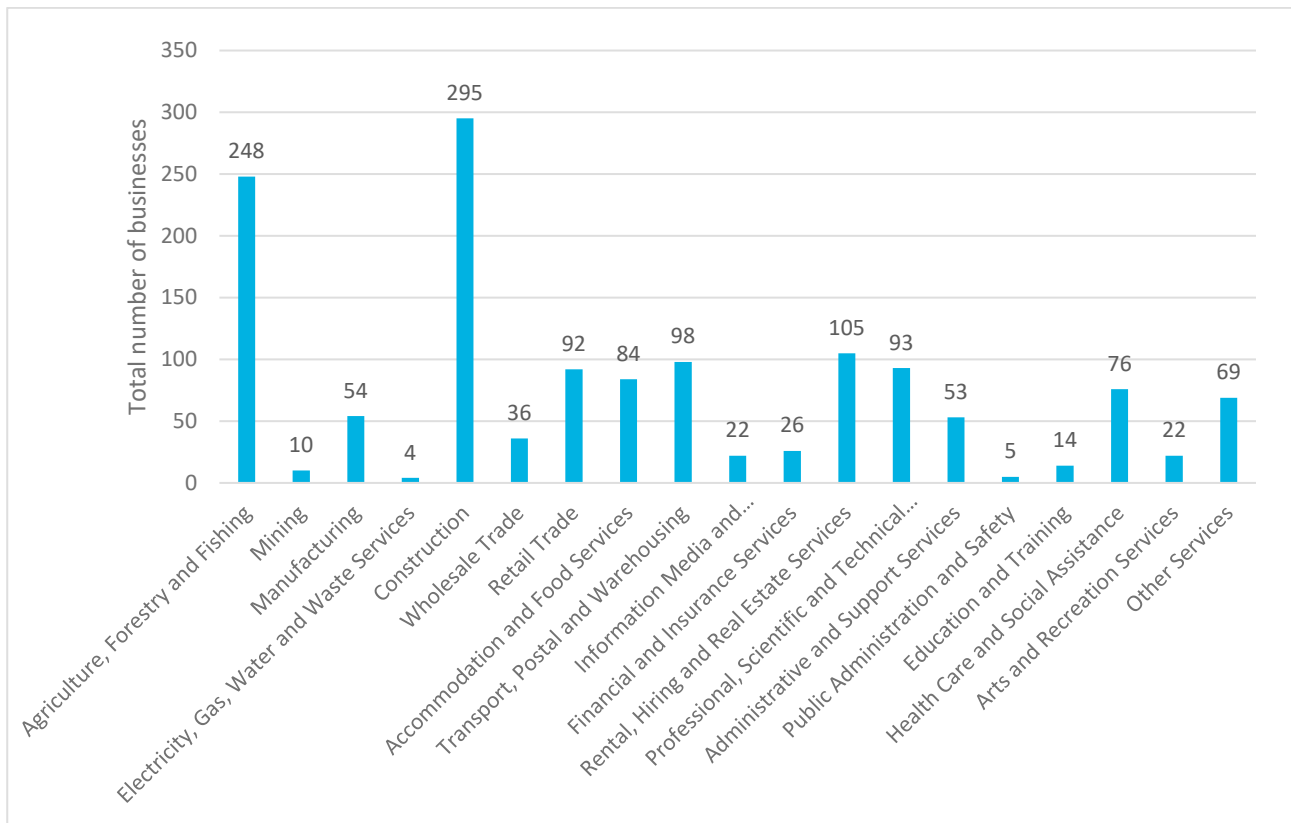
- Centrelink
- Lithgow Library
- The University of Notre Dame Australia - Lithgow Clinical School
- Stride NDIS Support
- Lithgow Employment Service
- OCTEC Lithgow
- Lithgow Medical Clinic
- Lithgow High School
- Lithgow Primary School
- TAFE NSW – Lithgow
- Western Sydney University, Lithgow Campus
- Lithgow Information & Neighbourhood Centre.

A.6 Business and industry

A.6.1 Regional business and industry

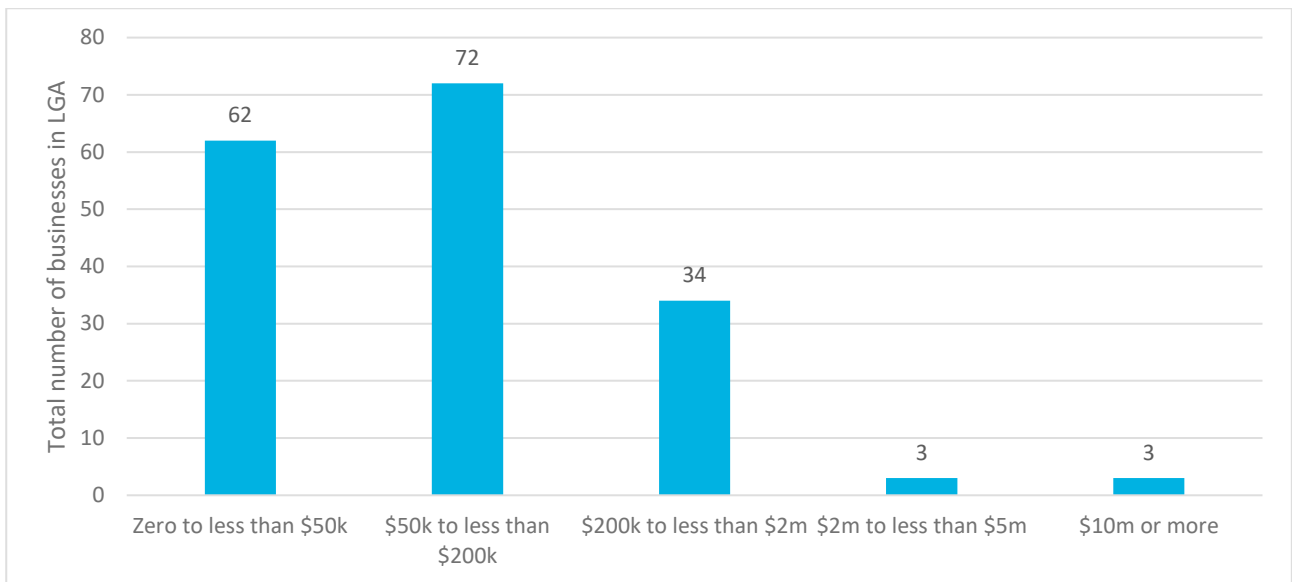
Data from the ABS (ABS, 2024) recorded 1,398 registered businesses in the Lithgow LGA, of which the most common industry was construction, which accounted for 295, or 21.1%, of registered businesses. The second most common industry was agriculture, forestry and fishing, which accounted for 248, or 17.7%, of total registered businesses in Lithgow LGA. Most businesses were low employing, with 878 businesses with no employees, and 495 businesses with 1 to 19 employees. As such, only 32 businesses in the Lithgow LGA had over 20 employees.

The largest business turnover is concentrated between \$200,000 and less the two million dollars annually with 466 businesses in Lithgow LGA, closely followed by those making between \$50,000 and less than \$200,000 per year, comprising 464 of businesses in the area.



Source: ABS Data by Region: Region summary: Lithgow, ABS, 2024

Figure A.7 Total number of businesses by industry



Source: ABS Data by Region: Region summary: Lithgow, ABS, 2024

Figure A.8 Total business turnover

A.6.2 Indigenous business and industry

A search for Indigenous businesses in the study area on Supply Nation found five Indigenous-run businesses within a 30 km radius from Lithgow (Supply Nation, 2024). These comprised one construction business and the other Indigenous-run businesses were in counselling and arts and culture.

A.7 Tourism

Based on a four-year average from 2016-2019, Lithgow LGA received a total of 673,000 visitors which resulted in a total expenditure of \$67 million for the Lithgow economy (Australian Trade and Investment Commission, 2019). The main reasons for travel were either holiday reasons or visiting friends and relatives. Lithgow LGA is host to a range of regional attractions including:

- Lake Wallace Camping Ground
- Thomspson Creek Campground
- Newnes State Forest
- Gardens of Stone SCA.

Events and festivals held in the Lithgow LGA which attract tourists include:

- Seven Valleys Live and Local music festival
- LithGlow Festival
- Lithgow Halloween Street Festival.

The Blue Mountains LGA saw an approximate revenue production of \$358.3 million from overnight domestic visitors between the years of 2019 to 2020 (Blue Mountains City Council, 2021). In 2034 and 2024, the total tourism sales in Blue Mountains City Council was \$622 million, and the total value to the economy was \$287.6 million.

The value of tourism to local employment within the Blue Mountains LGA between 2019 and 2024 was 11.8% compared to 8.8% in NSW (idcommunity). The main reasons people visit the Blue Mountains LGA were for holiday reasons, followed by visiting friends and family (Australian Trade and Investment Commission, 2019). The Blue Mountains LGA is known for tourist attractions and events including:

- surrounding National parks including Blue Mountains National Park, home to the Three Sisters in Katoomba
- camping and bushwalking
- Scenic World (Scenic Railway)
- on stage exhibitions and museums
- Wines of the West festival.

A.8 Road infrastructure and transport

Regionally significant road networks near to Clarence Colliery include Chifley Road which connects to Lithgow and Bells Line of Road which connects to North Richmond. The Great Western Highway is a major thoroughfare through the Blue Mountains to Bathurst. Major regional towns connected to Lithgow include Bathurst which is a 50-minute drive from Lithgow.

The Blue Mountains Line also has stations in Lithgow and Rydal, which connect to Sydney and Bathurst.

School bus services are provided by Lithgow Buslines at Bell and Lithgow. School bus stops along the route include at Clarence Village, Zig Zag and Doctors Gap. Bus Route S365 travels along Chifley Road between Bell and Lithgow via Clarence.

Annexure B

Curriculum vitae



Caroline Wilkins

Associate Social Scientist
EMM Consulting Pty Limited

Professional Overview

Caroline is an Associate Social Scientist in the Social Assessment and Performance team at EMM. Caroline has over 20 years' experience designing, planning, implementing and evaluating major social programs in challenging operating contexts. She brings extensive knowledge and demonstrated application of social science methodologies and development strategies. Her skill set includes social impact assessment, social research, human rights assessments, community and stakeholder engagement, monitoring and evaluation, risk management, strategic planning, project management and reporting. Caroline provides practical insightful advice to clients to development and implementation of social risk mitigation and management.

Caroline has worked in a range of social settings, having led projects in Australia and internationally. Caroline is a critical thinker with highly developed problem-solving skills.

Qualifications and licences

Master of Social Science (International Development), RMIT University
Bachelor of Arts/Bachelor of Commerce, Deakin University
Member, Australian Evaluation Society
Member, International Association of Impact Assessment (IAIA)
Associate Member, Australasian Institute of Mining and Metallurgy (AusIMM)

Specialisation

Social Impact Assessment (SIA)
Delivery of SIA And social performance advice
Community and Stakeholder Engagement
Monitoring and evaluation

Representative experience

Energy

- **Julia Creek Wind Farm, Potential Energy Trust, Julia Creek, QLD, 2025-current** Technical inputs for Socio-Economic Scoping and Stakeholder Engagement Strategy, and Socio-Economic Context Analysis (SECA) in accordance with:
 - *Planning (Social Impact and Community Benefit) and Other Legislation Amendment Bill 2025*
 - Social Impact Assessment Guideline (July 2025)
 - Community Benefit Agreements Guidance for Local Governments and Proponents (July 2025)
 - *Planning Act 2016*
 - State Development Assessment Provisions version 3.3 including State Code 23: Wind Farm Development.
- **Pioneer-Burdekin Pumped Hydro Energy Storage (PHES) project, 2024, Queensland Hydro, QLD.** Pioneer-Burdekin PHES was a proposed 5,000 MW, 120-GW hour long duration PHES project situated in the Pioneer Valley, 70km west of Mackay. Responsibilities included provision of technical support for the preparation of Scoping Report and Social Assessment and Management Plan (SAMP) for Exploratory Works. Tasks included review of project documentation, defining project assumptions, social and health impact assessment (SHIA) study area definition, preparation of stakeholder and community profiles, and preliminary identification of social and health impacts in line with the Queensland Social Impact Assessment (SIA) Guideline (2018).
- **Oven Mountain Pumped Hydro Energy Storage Project (OMPS), OMPS Pty Ltd, 2022-2025.** Lead author of the Social Impact Assessment (SIA). The project involves the construction of a major new pumped hydro energy storage project situated 60 km south-east of Armidale, NSW. The project was declared Critical State Significant Infrastructure (CSSI) and will produce 900MW of firm energy storage. Tasks included planning and scheduling, scoping, study area definition, preparation of the social baseline, extensive community consultation and stakeholder engagement including 80 in-depth interviews and two community surveys, data analysis, impact identification and risk assessment, development of social impact mitigation framework and reporting. An Amendment Report was also included in scope to capture changes to the design.
- **Muswellbrook Pumped Hydro Energy Storage Project, AGL/Idemitsu, 2023-current.** Lead author of the Social Impact Assessment (SIA). The project involves the construction of a new 400 MW pumped hydro energy storage project partly situated on a former coal mine site near Muswellbrook, NSW. The project was declared Critical State Significant Infrastructure (CSSI). Responsibilities included delivery of a SIA in line with the NSW SIA Guideline (2023).
- **Social impact evaluation (SIE), social impact assessment (SIA) and social impact management plan (SIMP), Pilbara Decarbonisation Program, Fortescue Metals Group (FMG), WA.** FMG is undertaking an industry leading program to decarbonise its iron ore mining operation in the Pilbara region, Western Australia. The USD\$6 billion program includes various projects such as wind, solar, battery, transmission lines, port upgrades, green fleet (including rail and sea) and road systems. The SIE focused on identifying social value at global, national, regional and local scale. The SIA provided an assessment of social impacts and benefits for individual projects, and the program as a whole.
- **Koorakee Energy Hub, Social Scoping Report, Squadron Energy, NSW, 2023-2024.** SIA Lead for the Social Scoping report. The project involved construction of 167 wind turbine generators (1 GW), 2.2 million solar panels (1 GW), battery storage with a capacity of 1 GW and ancillary infrastructure situated 10 km from Euston, NSW.
- **Yambla Range Wind Farm, Social Scoping, Tetris Energy, NSW, 2024-current.** SIA Lead for the Social Scoping report. Scoping involved planning, identification of social locality, preparation of social baseline, and early identification of potential social impacts.
- **Balala Wind Farm Scoping Report, EDF Renewables, Uralla, NSW, 2025-current.** Technical inputs included identification of social locality, preparation of social baseline, early

identification of potential social impacts and preparation of a social scoping chapter and scoping worksheet.

- **Boorolong Wind Farm Social Scoping Report, Squadron Energy, NSW, 2022-2025.** Technical inputs included identification of social locality, preparation of social baseline, early identification of potential social impacts and preparation of a social scoping chapter.
- **Deeargee Solar and Battery Project, ACEN Australia, NSW, 2024-current.** Lead author of the Social Impact Assessment (SIA). The project involves the construction of a major new solar and battery storage project situated approximately 5 km south-east of Uralla, NSW. The project will produce 320MW of energy and two hours of firm storage.
- **Muswellbrook Solar Farm, ESCO Pacific, NSW 2022-2023.** Lead author of the Social Impact Assessment. The project involves construction of a solar farm on the now closed Muswellbrook coal mine in Muswellbrook, NSW. Tasks included planning and scheduling, scoping, preparation of the social baseline, SIA stakeholder engagement, data analysis, impact identification and risk assessment, development of social impact mitigation framework and reporting. Post approval scope included an Accommodation and Employment Strategy.
- **Birriwa Solar and Battery Project – SIA Modification Report, ACEN Australia, NSW, 2025.** Changes included increasing storage capacity and duration to 900 MW for a 4-hour duration, local road upgrades, increasing the capacity of the project's accommodation facility and updating traffic movement data.
- **Wellington Battery Energy Storage System (BESS).** Social Impact Assessment (AMPYR Australia) 2022

Mining and metals

- **Julia Creek/Richmond Critical Minerals Zone (CMZ) Social Baseline Study, Department of Resources, QLD 2024-2025.** Prepared a social baseline study and cumulative assessment framework to identify potential impacts on and benefits for communities during the development of critical minerals projects in the CMZ. Conducted extensive in-person and remote engagement with 30+ stakeholders including five Councils, proponents, local businesses, community groups and health, community and education service providers in Mount Isa, Cloncurry, Julia Creek, Richmond and Hughenden.
- **Lindfield Vanadium Project, Critical Minerals Group Pty Ltd, Julia Creek, 2025 (on hold)** Technical inputs for Stakeholder Engagement Plan, Social Impact Assessment and Social Impact Management Plan in accordance with Queensland Government Critical Minerals Strategy, Strong and Sustainable Resource Communities Act 2017 and SIA Guideline (July 2025).
- **Wimmera Project SIA, Iluka Resources, VIC, 2022-current** SIA Lead and Project Manager. Caroline is leading all phases of the Social Impact Assessment for the proposed new critical minerals mine near Horsham, Victoria. Responsibilities include client liaison, planning and scheduling, preparation of the social baseline, extensive stakeholder engagement including 35 stakeholder interviews with landholders, nearby neighbours, community groups, regional development organisations, service providers and local Councils, attendance at four annual Community Information Sessions, data analysis, impact identification and risk assessment, development of social impact mitigation framework and reporting.

- **Human rights risk assessment, Townsville Energy Chemicals Hub (TECH) Project, QLD 2023.** The project involves the design, construction and operation of a sustainable, high-purity battery materials refinery in Townsville. Cost of construction is estimated at \$2.1 billion. The assessment focused on supply chains, risk factors such as supplier profile, high risk geographies, product complexity and high-risk procurement categories. Recommendations were made to establish policy, systems and processes to assess, monitor and report on human rights issues and risks and establishment of a human rights (supplier) due diligence process.
- **Integra Underground Mine Closure SIA, Glencore, Singleton, NSW, 2022-23.** Lead author and project manager. Caroline led all phases of the Social Impact Assessment for the coal mine closure including client liaison, planning and scheduling, preparation of the social baseline, gathering of primary data through the survey of mine employees and supplier businesses, stakeholder engagement and field study, data analysis, impact identification and risk assessment, development of social impact mitigation framework and reporting.
- **Hunter Valley Operations (HVO) Continuation Project – SIA Amendment Report, HVO Operations Pty Ltd, NSW, 2025.** The Project was amended to respond to community feedback. The Amendment involved reducing the life of mine operations by five and three years respectively, rate of coal extraction, and adjusting operations to reduce greenhouse gas emissions. Responsibilities included preparing a social impact assessment to assess the changes occurring to the Amended Project.
- **Ok Tedi Mining Limited, Social Closure Transition Framework and Strategy, Australia, 2023.** Co-author and project manager. Caroline worked closely with the OTML Social Sustainability team to develop a social closure framework and strategy to support mine closure planning. Responsibilities included reviewing existing business frameworks, preparing a literature review, review of key documentation and conducting in-depth interviews with key stakeholders including various OTML teams, local suppliers and Papua New Guinea government officials. Components include future of the mine-owned town (Tabubil), public assets and services transition plan, OTML employees and contractors transition, role of the Ok Tedi Development Foundation (OTDF), post closure environmental sustainability, community investments and trust funds, and infrastructure development/(Tax Credit Scheme (TCS).
- **Annual Report, Ok Tedi Mining Limited (OTML).** Technical assistance for OTML's Annual Report 2021 and 2022.

Infrastructure

- **Carlingford Re-development SIA, Tripe Eight Corporation Pty Ltd, NSW, 2025.** Project Director for a mixed-use development including residential and commercial building in Pennant Hills Road, Carlingford, Sydney. Key client contact, provided technical support to EMM team and technical review of SSD SIA report.
- **Dungowan Dam EIS and pipeline REF, Water Infrastructure NSW, 2022.** Technical input for the Social Impact Assessment. The project was declared Critical State Significant Infrastructure (CSSI) and included a larger new dam downstream of the existing Dungowan Dam and a replacement pipeline.

Samantha McCrea

Associate Director Social Scientist
EMM Consulting Pty Limited

Professional Overview

Samantha is a seasoned social performance and consulting leader, having worked across Australia and Asia for over ten years collaborating with a range of companies from financial institutions through to private sector mining, oil and gas and renewables companies. She has over 20 years' experience focused on consulting, specializing in the consideration of community impacts, human rights and modern slavery, green energy transition, stakeholder engagement and social risk management.

Qualifications and licences

Master of Science (Environmental Technology), Imperial College London, 1999-2000

Bachelor of Engineering (Chemical Engineering), University College London, 1994-1998

Specialisation

Social Performance
Business Development
Project Leadership
Stakeholder Management
People Leadership & Development
Sustainability/ESG Advisory

Representative experience

Fortescue Energy, Global Social Performance Manager

- Responsible for leading the governance and compliance aspects of our global developments with respect to communities; this role required a high level of collaboration across all sustainability and project functions. Key responsibilities included development, implementation training of "S" standards and guidance notes for all global projects across the business. Design of corporate community investment and funding processes and oversight of corporate stakeholder relations.

JLL Asia Pacific, Energy & Sustainability Solution Lead

- Led the business development activities for the sustainability team with a focus on decarbonization and ESG across south-east Asia within the real estate sector. Responsibilities included collaborating with APAC business functions and existing clients to identify ESG opportunities, lead the development of proposals and track sales and opportunities pipeline.

ERM Indonesia, APAC Social Performance Partner

- Responsible for the implementation of projects led by ERM in Indonesia and South East Asia for a range of sectors including renewables, power, financial, mining and oil and gas. Samantha led a team of 20 plus social performance consultants and was responsible for business operations and performance in Indonesia. Her role entailed advising a range of lenders and developers on project development, to ensure community risks were identified and mitigated to acceptable levels that adhere to relevant international standards whilst managing reputation risks. She also was the businesses' social performance lead for Asia Pacific, advising clients on specialized matters to embed and operationalize sustainability into business and build the regional team's capacity. She worked closely with multinational clients including Engie, Shell, Chevron, Freeport McMoran, Macquarie Group, ANZ, IFC and Sinarmas as well as numerous

government entities, research and lobbying bodies (including the Indonesian Business Council for Sustainable Development) and NGOs. I also held the role of sustainability lead internally across Asia Pacific, executing and driving the development of action plans, sustainability initiatives and employee awareness across ten countries.

ERM Australia, Australia Social Performance Lead

- Responsible for the delivery of a range of social studies across Australia and South East Asia for mining, power and oil and gas clients. Key clients included Rio Tinto, BHP Billiton, Woodside, BG, Origin and Wesfarmers all seeking approvals as well as to mitigate reputational issues and ESG impacts. Sam frequently participated and led numerous assessments, stakeholder consultation activities and due diligence projects across the region identifying risks, outlining actions to address risks and monitoring their implementation. She was accountable for the West Australian business KPIs, managing commercial aspects, leading existing and new client accounts as well as people recruitment and development and thought leadership with the industry.

Australia

SYDNEY

Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE

Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE

Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA

Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE

Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE

Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH

Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO

2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER

2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY

700 2nd Street SW Floor 19
Calgary AB T2P 2W2



[linkedin.com/company/emm-consulting-pty-limited](https://www.linkedin.com/company/emm-consulting-pty-limited)



emmconsulting.com.au