

APPENDIX F

SOCIAL IMPACT ASSESSMENT

COORANBONG ENTRY SITE STOCKPILE EXTENSION MODIFICATION

SOCIAL IMPACT ASSESSMENT

*for Centennial Northern Coal Services
Pty Limited*

31 January 2025



DOCUMENT CONTROL

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REPORT DECLARATION

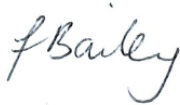
This report has been prepared by James Bailey & Associates (JBA), Senior Environmental and Social Scientist Fiona Bailey. Fiona holds a Bachelor of Science and has also completed post graduate studies in community engagement and social impact assessment. Fiona is a professional member of the Environment Institute of Australia and New Zealand Inc. (EIANZ) and the International Association and Public Participation (IAP2) scheme. Fiona has more than 25 years' professional experience, including 12 years with JBA (previously known as Hansen Bailey). Fiona has provided community engagement and Social Impact Assessment (SIA) and management services for a range of major projects in New South Wales (NSW). A copy of Fiona's curriculum vitae is provided in **Appendix C**.

The SIA component of the Modification Report contains all information relevant to the SIA for the Northern Coal Services Modification 4 to State Significant Development SSD-5145. The information provided is not of a false or misleading nature. JBA was engaged by Centennial Coal Company Pty Limited (Centennial) as an independent assessor. JBA has provided an impartial assessment of the anticipated social impacts of the Modification. There are no known conflicts of interest.

The assessment was completed between June 2023 and December 2024. The consultation to inform the SIA was primarily undertaken by Centennial. All data and information provided by Centennial is assumed to be reliable and an accurate representation of the findings of consultation.

I, Fiona Bailey, confirm that the above statements and information given is true and correct to the best of my knowledge.

Signed:



Date: 31 January 2025

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1. INTRODUCTION

1.1 OVERVIEW

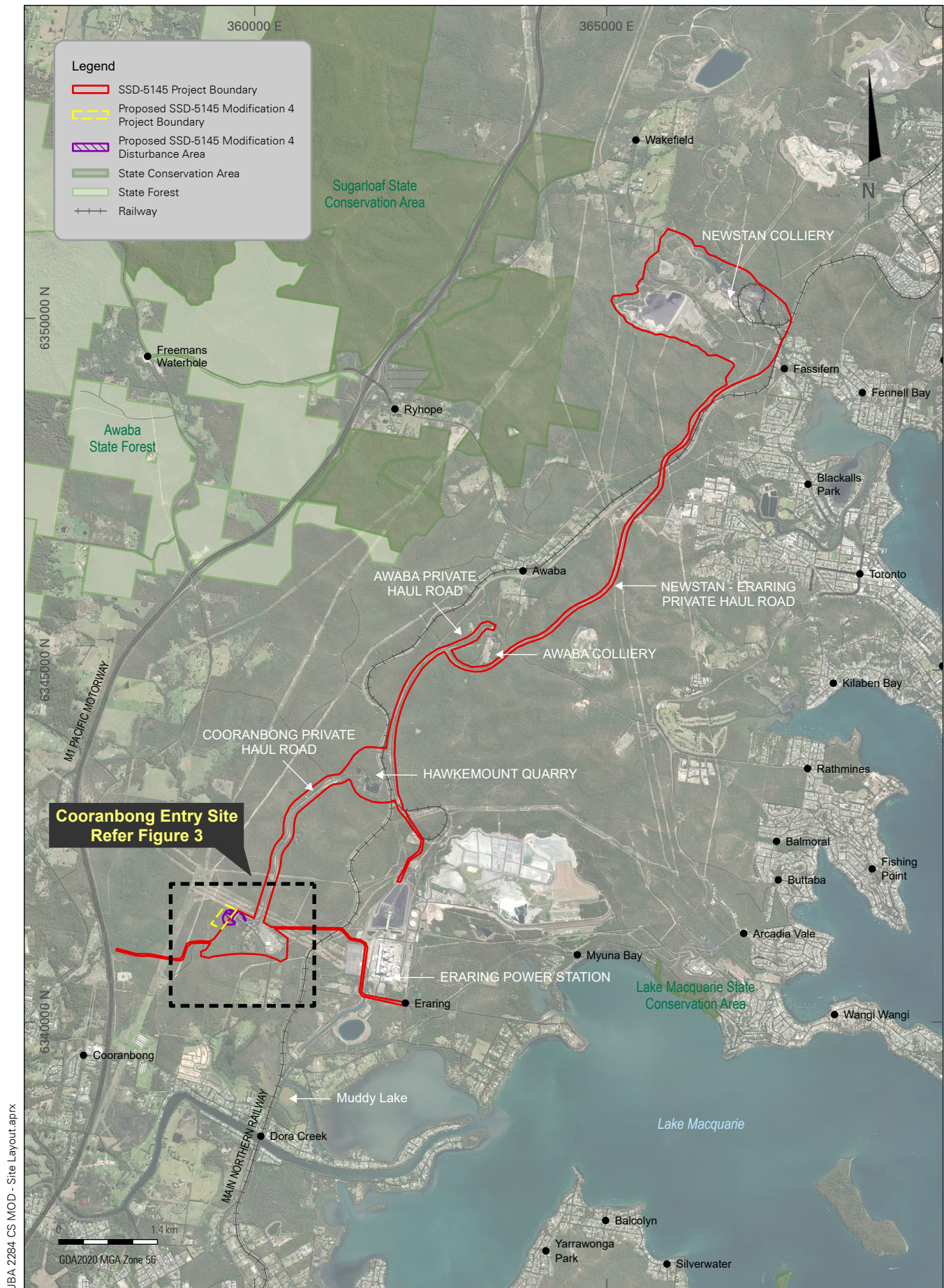
NCS operations are located on the western side of Lake Macquarie, approximately 25 kilometres (km) south-west of Newcastle and 140 km north of Sydney. NCS comprises surface coal handling and processing facilities at the Newstan Colliery surface site and CES, as well as private haul roads connecting Newstan Colliery, Awaba Colliery, CES and Eraring Power Station. NCS facilities are integral to the handling, processing and transport of coal from Newstan Colliery (via the private haul roads) and Mandalong Mine (via an underground conveyor to CES then NCS private haul roads) (see **Figure 1**).

CES was originally developed as part of the Cooranbong Colliery in 1981. It comprises a Coal Handling Plant (CHP), coal stockpiles, coal conveyors, mine entries for access to Mandalong Mine, workshop and administration buildings, car parking, water management structures and other associated infrastructure. Since 2015, CES has formed part of NCS coal handling and logistics activities authorised by SSD-5145 and is approved to operate 24 hours a day, seven days per week until the 31 December 2045.

SSD-5145 was approved in September 2015 and has been modified on two occasions:

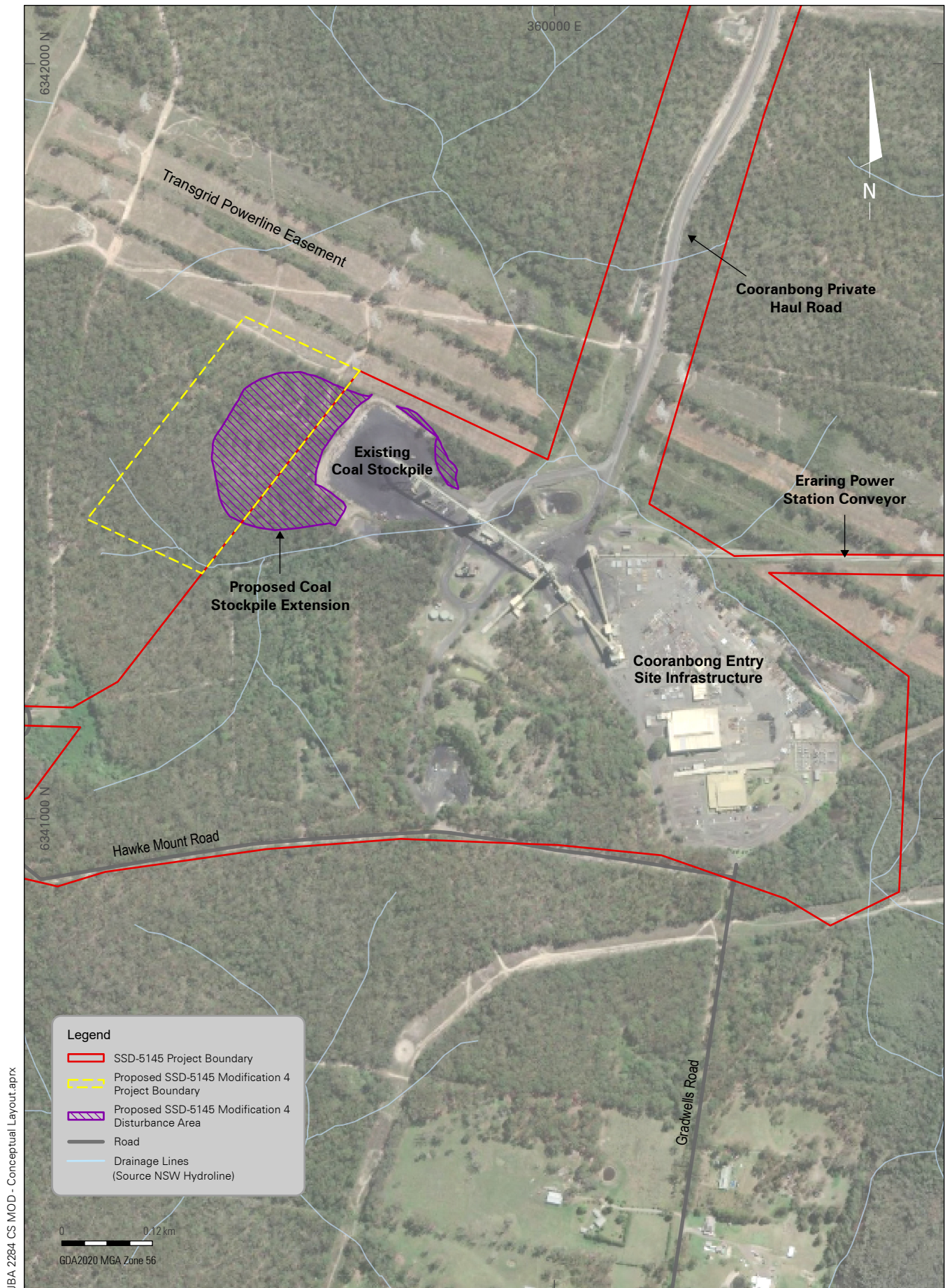
- MOD 1: increase in employees based at CES and for administrative amendments to noise and air quality criteria (determined in January 2018);
- MOD 2: withdrawn; and
- MOD 3: amendment of SSD-5145 to align the rehabilitation management and performance conditions with contemporary requirements under the *Mining Act 1992* (Mining Act) (determined in November 2022).

Centennial is seeking a Modification to SSD-5145 (the Modification) under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to increase the capacity of the existing Run of Mine coal stockpile at CES. The conceptual Modification layout is illustrated in **Figure 2**.



JBA 2284 CS MOD - Site Layout.aprx

COORANBONG STOCKPILE MODIFICATION



JBA 2284 CS MOD - Conceptual Layout.aprx

COORANBONG STOCKPILE MODIFICATION

1.2 PURPOSE AND SCOPE

This Social Impact Assessment (SIA) has been prepared by James Bailey and Associates (JBA) on behalf of Centennial and will form part of the Modification Report. This SIA has considered:

- The Social Locality of the Modification;
- Likely social impacts and opportunities, both positive and negative;
- Any other activities or projects that may combine to produce cumulative impacts; and
- Whether the Modification meets the objectives of relevant planning instruments.

This SIA has been prepared in consideration of the '*Social Impact Assessment Guideline*' (SIA Guideline) (Department of Planning and Environment (DPE), 2023b) and the associated '*Technical Supplement Social Impact Assessment Guideline for State Significant Projects*' (SIA Technical Supplement) (DPE, 2023c).

This SIA aims to inform government agencies and other stakeholders about the potential social impacts and benefits of the Modification and outlines the measures that will be implemented to manage, mitigate and offset incremental social impacts and enhance social benefits.

1.3 ASSESSMENT REQUIREMENTS

1.3.1 SIA Assessment Requirements

The Modification is subject to the following NSW regulatory requirements and guidelines in relation to the conduct of the SIA:

- SSD-5145, which the Modification is seeking to vary by way of an application submitted under Section 4.55(2) of the EP&A Act; and
- The SIA Guideline. The SIA Guideline and SIA Technical Supplement documents the approach to assessing the social impacts of State Significant projects in NSW. The SIA Guideline also applies to applications to modify State Significant projects where the social impacts associated with the proposed modification are new or different to those that were approved under the original development consent.

This SIA addresses key requirements of the SIA Guideline taking into consideration the scale of the Modification i.e. the incremental impacts beyond those already approved for the NCS. Accordingly, the level of assessment SIA relies upon the previous assessments of social impacts for the NCS, post approval monitoring and the results of ongoing stakeholder engagement.

1.4 DOCUMENT STRUCTURE

The SIA is structured as follows:

- **Section 1** provides an overview of the project and describes the purpose and scope of the SIA;
- **Section 2** describes the approved Centennial operations including interactions with other nearby development in the Lake Macquarie Local Government Area (LGA) and also describes the components of the Modification and characteristics relevant to the assessment of social impacts;
- **Section 3** describes the SIA objectives, provides an explanation of the SIA methodology and describes the approach to stakeholder engagement;
- **Section 4** presents a summary of the key socio-economic characteristics of the Social Locality;
- **Section 5** presents the predicted social impacts and opportunities of the Modification and describes measures to avoid, mitigate or manage the identified impacts;

- **Section 6** describes how the social impacts of the Modification will be monitored and reported;
- **Section 7** provides a conclusion to this SIA; and
- **Section 8** includes a list of reference documents used in the preparation of this SIA.

2. THE MODIFICATION

This section of the report presents a description of the Modification.

2.1 MODIFICATION DESCRIPTION

Centennial is seeking the Modification for:

- Development of the existing coal stockpile at CES to increase capacity from 100,000 tonnes to 400,000 tonnes; and
- Construction of infrastructure associated with the modified stockpile footprint including access tracks, lighting and water management structures.

The proposed upgrade to the CES stockpile capacity will:

- Assist in ensuring a continuous reliable supply of thermal coal to Eraring Power Station during periods of mining downtime (including during longwall changeouts or unplanned outages at Mandalong Mine). This in turn will increase the security of base load power generation in NSW; and
- Increase the ability for Mandalong Mine ROM coal to be processed at Newstan Colliery. This will provide Centennial with greater flexibility in the marketing of coal extracted from Mandalong Mine and assist in the management of coal quality at NCS.

An overview of the proposed Modification in comparison with the approved NCS operations is provided in the 'CES Stockpile Modification Report' (JBA, 2024).

Consideration was given to the potential social impacts of the Modification during the concept design phase. Options for alternate ROM coal management arrangements at CES or elsewhere within NCS considered by Centennial during this phase included:

- Use of existing CES hardstand areas as an alternate ROM coal stockpile location;
- Extension of the stockpile to the south of the existing CES ROM coal stockpile location;
- Extension of the stockpile to the west of the existing CES ROM coal stockpile location;
- Utilise the approved ROM coal stockpile at Newstan Colliery; and
- The 'Do Nothing' option, i.e. continue with current stockpile arrangements approved under SSD-5145.

The preferred option for the Modification is the extension of the existing NCS coal stockpile to the west. This option is the most suitable to support ongoing CES and Mandalong Mine operations, based on concept design reviews and an evaluation of environmental, community and economic considerations including:

- Using existing CES infrastructure where possible, to minimise additional disturbance and impacts to biodiversity, noise, visual, surface water and heritage;
- Avoidance of nearby 1st, 2nd and 3rd order streams;
- Minimising the disturbance footprint and excavation works required for the modified stockpile;
- Practicality and cost-effectiveness; and
- Health and safety outcomes for the Centennial workforce.

3. SIA METHODOLOGY

This section presents a summary description of the SIA methodology including the assessment scope and approach to consultation.

3.1 OBJECTIVES

The objectives of this SIA were to:

- Identify the Social Locality;
- Develop a baseline of social conditions in the Social Locality;
- Identify potential direct, indirect and cumulative social impacts and opportunities of the Modification and their significance; and
- Develop strategies to avoid and/or mitigate social impacts, and actions which would enhance social benefits.

3.2 SIA METHODOLOGY

Table 1 summarises the methodology used for the SIA.

Table 1 SIA Approach and Methodology

Methodology	Description of Activities	Reference
Phase 1 – Scoping		
Social Locality Definition	• Review of Modification components to define an area of potential social impacts and opportunities	Section 4.1
Stakeholder Engagement	• Initial stakeholder identification and analysis	Section 3.3
Identification of Potential Material Impacts	• Review of existing Centennial engagement with NCS stakeholders over existing operations and complaints received regarding CES operations • Scope potential Modification impacts and complete scoping assessment	Section 4 and Section 5
Phase 2 - Community Profiling of Social Locality		
Baseline Study	• Review of Policy and Planning Context • Review of other activities and development that may contribute to cumulative impacts • Review and analysis of Australian Bureau of Statistics (ABS) Census data and other relevant social and community statistical data sets • Identification of areas of community vulnerability through analysis of particular demographic indicators • Review of Emerging Issues	Section 4
Phase 3 – Identification and Assessment of Impacts and Opportunities		
Analysis of Impacts / Opportunities and Impact Significance Assessment	• Community engagement and consultation	Section 5.1

Methodology	Description of Activities	Reference
	- Review and analysis of the findings of the broader Modification Report - Identification of potential social impacts and opportunities - Determine potential social impact significance	Section 5.5
Phase 4 – Identification of Management and Enhancement Strategies		
Social Impact Management	- Review existing management measures for potential impacts and opportunities - Where necessary, identification and development of additional strategies to address predicted impacts and enhance opportunities	Section 5.4 Section 5.5
Performance Monitoring	Review existing NCS programs for relevance to the Modification and develop additional performance monitoring tools where necessary	Section 6

3.3 ASSUMPTIONS AND LIMITATIONS OF SIA

The assessment, conclusions and recommendations in this report are based on data and information reviewed at the date of the preparation of the SIA. All data provided by Centennial and/or contained within published reports and documents is assumed to be reliable and an accurate representation of the information. No verification of socio-economic data in Centennial documentation was undertaken for the purpose of the SIA.

This SIA was prepared in accordance with the broader Modification assessment process. The consultation process relied on engagement predominantly undertaken by Centennial. It is assumed that the consultation undertaken by Centennial was undertaken ethically and voluntarily.

3.4 STAKEHOLDER ENGAGEMENT

3.4.1 Purpose

The purpose of the SIA consultation was to validate social baseline data, review community values and aspirations, and inform an understanding of the different stakeholder perceptions of the Modification.

3.4.2 Objectives

The key objectives of engagement for the Modification Report and SIA were to:

- Maintain and enhance existing relationships between Centennial and key stakeholders;
- Communicate key project messages;
- Confirm affected landholders and engagement methods;
- Understand issues and concerns; and
- Identify potential actions to manage social impacts and/or enhance opportunities.

3.4.3 Stakeholder Identification and Engagement

NCS stakeholders were reviewed to determine those with a potential interest in the Modification. Stakeholder groups in the Social Locality who were consulted as part of Modification include:

- Lake Macquarie City Council (LMCC);

- Newstan/ Awaba/ NCS Community Consultative Committee (CCC) members;
- Mandalong CCC members;
- Adjacent landholders;
- NCS Registered Aboriginal Parties (RAPs):
 - Awabakal Descendants Traditional Owners Aboriginal Corporation;
 - Awabakal Traditional Owners Aboriginal Corporation;
 - Bahtabah Local Aboriginal Land Council (LALC);
 - Biraban LALC;
 - Cacatua Culture Consultants;
 - Darkinjung LALC;
 - Guringai Tribal Link Aboriginal Corporation;
 - Wonn 1 Contracting;
 - Wonnarua Nation Aboriginal Corporation; and
 - Yula – Punaal Education and Healing Aboriginal Corporation;
- TransGrid;
- DPHI Crown Lands;
- Origin Energy (Origin); and
- NCS employees.

Engagement with regulatory authorities was also undertaken throughout the preparation of the Modification and is documented in the Modification Report. This included engagement with:

- DPHI;
- LMCC;
- DPHI Crown Lands;
- Commonwealth Department of Climate Change, Energy, the Environment and Water;
- NSW Department of Climate Change, Energy, the Environment and Water – Biodiversity and Conservation Science Directorate ;
- NSW Environment Protection Authority;
- Subsidence Advisory NSW;
- DPHI Water;
- Resources Regulator;
- Mining, Exploration and Geoscience; and
- NSW Department of Climate Change, Energy, the Environment and Water – Heritage (NSW DCCEEW – Heritage).

4. SOCIAL BASELINE PROFILE

*This section provides a description of the Social Locality and summarises the social baseline of the CES communities of interest. The raw data supporting this summary is included in **Appendix A**.*

4.1 SOCIAL LOCALITY

The Social Locality is made up of a Local Study Area and a Regional Study Area (see **Figure 3**). The Social Locality has been defined based on an assessment of the communities likely to be influenced by the CES, the residential location of the existing workforce and the geographic spread of community contributions and procurement spend made by Centennial for NCS to date.

4.1.1 Local Study Area

The Local Study Area includes the CES and encompasses private residences south of CES and Eraring Power Station (Eraring). The Local Study Area encompasses the suburbs of Cooranbong, Dora Creek and Eraring.

Cooranbong is located within the Lake Macquarie LGA approximately 5 km south-west of the CES. Cooranbong had a population of 7,077 people during the completion of the 2021 Census (ABS 2021).

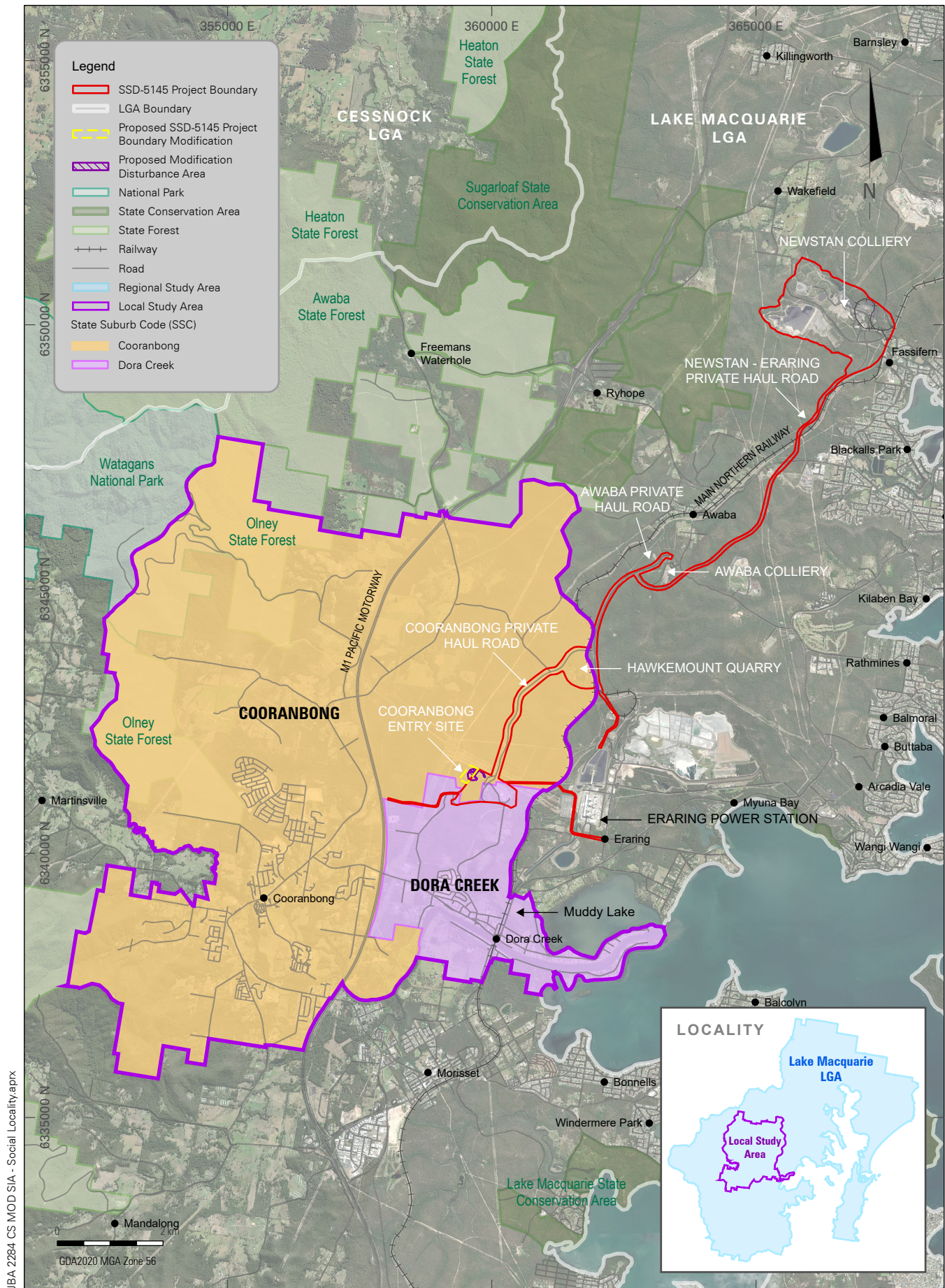
Dora Creek is also located within the Lake Macquarie LGA, approximately 2 km south of the CES and had a population of 1,739 people during the 2021 Census (ABS 2021). The location of the privately owned residences (sensitive receivers) nearest to CES is illustrated in **Figure 4**.

Eraring is a coal-fired power station located to the east of CES. Eraring was commissioned in 1984 and was acquired from the NSW Government by Origin in 2013. In February 2022 Origin notified the Australian Energy Market Operator (AEMO) of the potential early retirement of Eraring in August 2025 (Origin Energy Limited, 2023). Origin has now submitted a revised notice for closure to the AEMO to extend operations at Eraring to 19 August 2027 under the *Generator Engagement Project Agreement* (Origin Energy Limited, 2024).

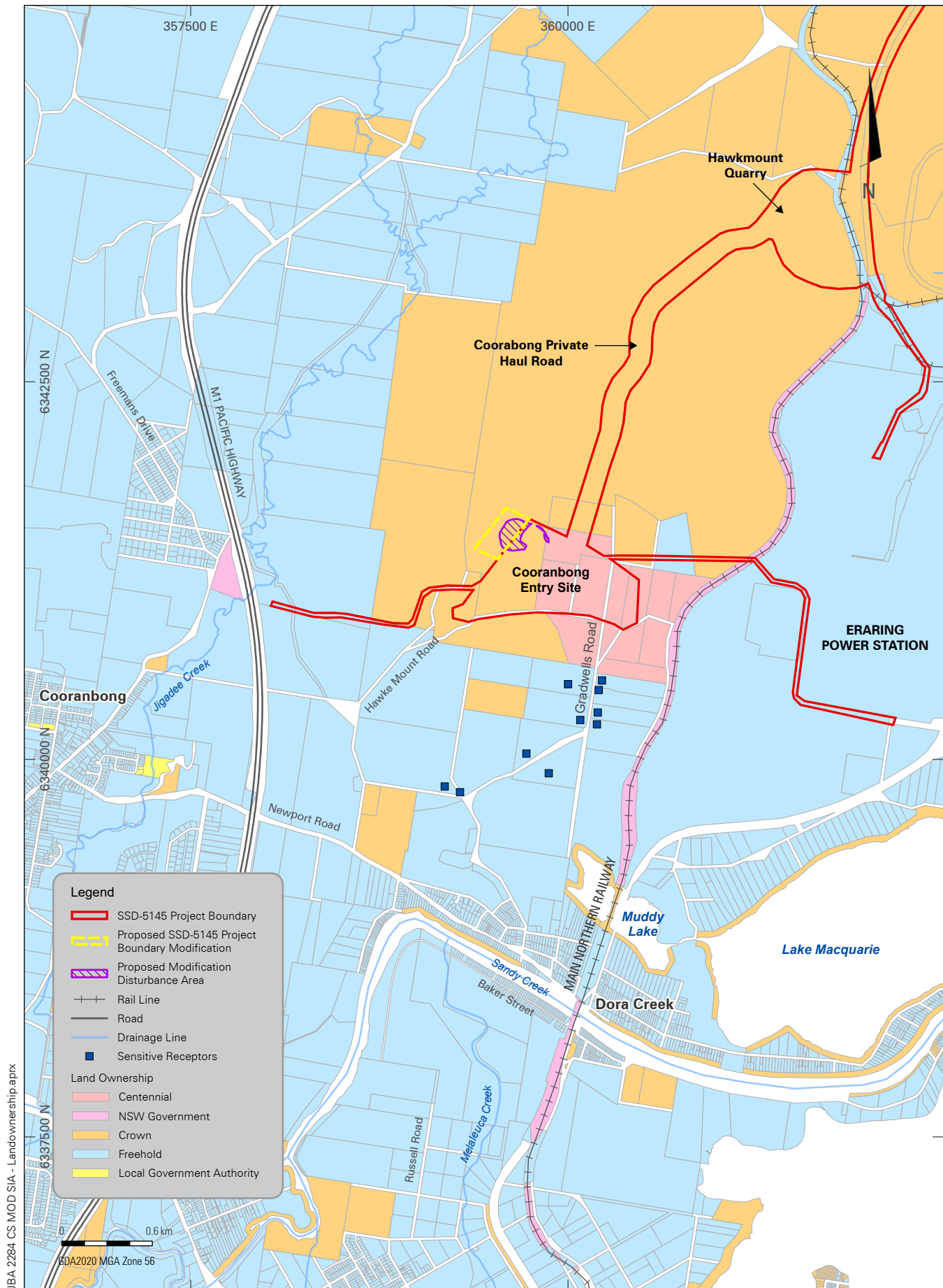
4.1.2 Regional Study Area

The CES and NCS are located within the Lake Macquarie LGA. The majority of employees and contractors at NCS reside within this LGA. Local spend and services are also provided to this area by Centennial, therefore the Regional Study Area is defined by the geographic boundary of the Lake Macquarie LGA.

Lake Macquarie is a city encircled by distinctive towns and villages. The LGA is renowned as having Australia's largest coastal salt water lake, Lake Macquarie, which is used for various recreational activities including swimming, sailing, diving, fishing and other water sports. Lake Macquarie also has a number of beaches, headlands and coastal bushland (Lake Macquarie History, 2023).



COORANBONG STOCKPILE MODIFICATION



JBA 2284 CS MOD SJA - Landownership.aprx

GD2020 MGA Zone 56

COORABONG STOCKPILE MODIFICATION

4.2 SOCIAL POLICY AND PLANNING CONTEXT

4.2.1 Regional Plans

The 'Hunter Regional Plan 2041' (Hunter Regional Plan) (DPE, 2022) is a 20-year land use plan that applies to the LGAs of Muswellbrook, Cessnock, Dungog, Singleton, Lake Macquarie, Maitland, Mid Coast, Port Stephens, Newcastle and the Upper Hunter. The Regional Plan has been designed to promote sustainable growth opportunities and investments, including housing choice and lifestyle opportunities to retain the Hunter as a leading regional economy in Australia.

The 'Greater Newcastle Metropolitan Plan 2036' (DPE, 2018) aligns with the vision and goal of the Hunter Regional Plan and sets out strategies that will drive sustainable growth across Greater Newcastle including Cessnock City, Lake Macquarie City, Maitland City, Newcastle City and Port Stephens communities.

4.2.2 Lake Macquarie Local Environmental Plan 2014

The *Lake Macquarie Local Environmental Plan 2014* (Lake Macquarie LEP) aims to make local environmental planning provisions for land in Lake Macquarie City in accordance with the relevant standard environmental planning instrument under section 3.20 of the EP&A Act.

The particular aims of this plan are:

- To protect and promote the use and development of land for arts and cultural activity, including music and other performance arts;
- To recognise the importance of Lake Macquarie and its waterways, including the coast, as an environmental, social, recreational and economic asset to Lake Macquarie City and the Hunter and Central Coast regions;
- To implement a planning framework that protects areas of significant conservation importance, while facilitating development and public facilities in appropriate areas, that are accessible to a range of population groups, to accommodate Lake Macquarie City's social and economic needs;
- To promote the efficient and equitable provision of public services, infrastructure and amenities;
- To facilitate a range of accommodation types throughout Lake Macquarie City so that housing stock meets the diversity of community needs and is affordable to as large a proportion of the population as possible;
- To apply the principles of ecologically sustainable development; and
- To encourage development that enhances the sustainability of Lake Macquarie City, including the ability to adapt to and mitigate against climate change.

4.2.3 Council Plans and Strategies

There are a number of plans and strategies that are applicable to the Social Locality. **Table 2** summarises the objectives of the LMCC strategic plans.

Table 2 Council Strategic Plans and Strategies

Plan / Strategy	Summary
LMCC Community Strategic Plan 2022- 2032	The Community Strategic Plan 2022-2032 is the key strategic planning document for LMCC and guides the future direction of Lake Macquarie City for the next 10 years. The Community Strategic Plan objectives are grouped under seven key focus areas which includes: • Unique Landscape; • Lifestyle and Wellbeing; • Mobility and Accessibility; • Diverse Economy; • Connected Communities; • Creativity; and • Shared Decision Making.
Hunter Regional Plan 2041	The Hunter Regional Plan 2041 identifies Morisset as a regionally significant growth area. It is described that Morisset will emerge as a regionally significant mixed use centre supporting diverse businesses and services, as well as opportunities for more intensive multi-storey commercial, mixed use and residential development (DPE 2022).
Morisset Place Strategy	The Morisset Place Strategy is a plan (currently in draft) that will consider biodiversity, transport, flooding and other relevant planning matters. The strategy aims to enhance what people love about the area and presents a vision for growing Morisset. The Strategy proposes actions and studies that will be required to prepare and implement a Place Strategy for Morisset. The boundary for the Place Strategy is based on the 'Morisset regionally significant growth area' identified in the Hunter Regional Plan 2041. The LMCC is currently reviewing community feedback on the discussion paper which will inform the draft Morisset Place Strategy.

Source: Lake Macquarie City Council 2023

Draft LMCC Community Strategic Plan 2025 - 2035

LMCC are currently reviewing its Community Strategic Plan. LMCC approached the community to share their 10-year vision for Lake Macquarie to help guide the Councils planning over the coming decade. Feedback closed on the 31 May 2024 and will be used to shape the Councils updated Community Strategic Plan, Local Strategic Planning Statement and other key strategic documents.

A report will be prepared for Council in December 2024 recommending public exhibition of the draft Community Strategic Plan 2025-2035 (Lake Macquarie City Council 2024).

4.2.4 Application of Strategies and Plans at NCS

Centennial is consistent with and / or currently contributes to the strategies objectives and goals described above through:

- Providing employment and procurement opportunities and benefits, whilst also committing to local spend. Centennial encourages a strong regional economy;
- The potential environmental impacts of NCS are minimised through design, compliance with regulatory requirements and through the implementation of a number of environmental management plans ensuring the Principals of Ecological Sustainability are met;

- Ongoing employment at the NCS (and associated mines) as well as the flow on effects to local businesses that contribute to a diverse economy;
- The ongoing and reliable supply of coal for electricity contributes to community liveability and wellbeing;
- NCS (and associated mines) employ a locally based workforce which in turn supports population stability and contributes to community strength; and
- The community investments by Centennial support the development of thriving local communities, infrastructure, facilities and community services.

4.3 DEVELOPMENT AND MAJOR PROJECTS

Coal mining has been a part of the local industry in the Lake Macquarie LGA since the earliest times of European settlement. Major coal-related development in the vicinity of the CES are presented in **Table 3** and illustrated in **Figure 1**.

Table 3 Nearby Existing Operations and Approved Projects

Project	Description	Location	Project Life
Eraring Power Station	Eraring Power Station has been operating since 1982 and comprises four 720-megawatt (MW) coal fired generator units. EPS is Australia's largest power station with a generation capacity of 2,880 MW.	Lake Macquarie LGA	Origin has announced the potential retirement of Eraring Power Station in August 2027
Newstan Colliery	Newstan Colliery is located approximately 25 km south-west of Newcastle and 140 km north of Sydney. In August 2014, the underground mining operations at Newstan Colliery were placed onto care and maintenance. Centennial has submitted an EIS with the Department proposing to restart underground mining at Newstan.	Lake Macquarie LGA	Care and Maintenance. An application for a new SSD (SSD-10333) was submitted in August 2021 for the Newstan Extension Project to extract up to 25.9 Mt over a fifteen year period at a production rate of 4 Mtpa. The application is in the Response to Submissions phase of the approvals process.
Mandalong Mine	Existing underground coal mine near Morisset, approximately 35 km south-west of Newcastle and predominantly within the Lake Macquarie LGA.	Lake Macquarie and Central Coast LGAs	Under SSD-5144, mining operations are permitted to 31 December 2040
Awaba Colliery	Ceased operating as a producing mine in early 2012, ending over 60 years of underground coal mining. Centennial Coal purchased the mine in 2002. The pit top is used as a service facility for Newstan Colliery.	Lake Macquarie LGA	Awaba Colliery remains an important site for Centennial with regards to power supply for Newstan, potential gas management and ventilation infrastructure associated with the proposed Newstan Extension Project.

Source: EMM Consulting 2021, GHG 2018, AECOM 2021

4.4 BUILT AND NATURAL FEATURES

The CES occupies freehold land owned by Centennial Fassifern Pty Limited (subsidiary company of Centennial Coal) and Crown land. The nearest privately-owned residence is located on Gradwells Road 330 m south of the CES. The nearest privately-owned residence on Gradwells Road is located approximately 950 m from the existing ROM stockpile, and the proposed stockpile extension will not significantly reduce this distance. The sensitive receptors located closest to the CES are identified in **Figure 4**.

The CES is accessed via Gradwells Road, Hawke Mount Road and the internal haul roads. The Main Northern Railway Line traverses on a north-south alignment approximately 400 m to the east of the CES. The M1 Pacific Motorway traverses a north-south alignment approximately 1.8 km to the west of the CES. The Earing Power Station is located east of the CES.

Lake Macquarie is located approximately 2 km from the CES and is used for a number of recreational activities. The CES is located on an unnamed creek that contributes to Muddy Lake. Muddy Lake is an estuarine coastal wetland connected to Lake Macquarie via an aqueduct that crosses the Earing Power Station cooling water inlet canal (SLR, 2014).

Cooranbong is located at the foothills of the Watagan Mountains. The Watagan Mountains National Park offers visitors graded walking tracks for bird watching, scenic lookouts, waterfalls, picnic and BBQ areas (Lake Macquarie Tourism 2024). The Awaba State Forest is located north of the CES and bordered by the Heaton and Watagan State Forests (Forestry Corporation 2024). Olney State Forest is a popular visitor area and part of the State Forests of the Watagan Mountains. The Olney State Forest is located west of Lake Macquarie and bordered by the Wyong State Forest, Watagan State Forest and Watagan National Park.

4.4.1 Indigenous Lands

All of the Lake Macquarie LGA lies within the traditional country of the Awabakal people. The Aboriginal population in the Lake Macquarie LGA has grown over the last decade with more than 5,500 people of Aboriginal descent now living in this LGA.

The landscape of Lake Macquarie LGA has important traditional Awabakal spiritual and cultural values and meanings. There are more than 500 archaeological places and sites which demonstrates the relationship between the Awabakal people and their country over thousands of years (Lake Macquarie History, 2023).

4.5 GEOGRAPHIC AND DEMOGRAPHIC PROFILE

The SIA and social baseline were informed by a multitude of data. Geographical and demographic statistical data was drawn primarily from the 2021 ABS Census, which was undertaken on the night of the 10 August 2021, and compared with the 2011 and 2016 ABS Census data sets.

In addition to ABS Census, data was sourced from realestate.com, SQM Research, CoreLogic, Public Health Information Development Unit (PHIDU), the NSW Bureau of Crime Statistics and Research (BOCSAR) and Australian Curriculum Assessment and Reporting Authority (ACARA).

Other data that was used to form the social baseline included data from the existing NCS (and nearby Centennial operations), council websites, local newspapers, articles and SIAs completed for other developments located within or close proximity to the Social Locality.

The following sections provides a summary of key socio-economic and demographic indicators for the geographic areas relevant to the Modification. These areas include the suburbs of Dora Creek and Cooranbong as well as the Lake Macquarie LGA. The ABS data categories mapped to these locations is provided in **Table 4**. Additional detailed socio-economic data is provided in **Appendix A**.

Table 4 Locations within Social Locality Mapped to ABS Categories

Study Area	Geographic Area	ABS Data Category
Local Area	Cooranbong	Cooranbong SAL11052
	Dora Creek	Dora Creek SAL11279
Regional Area	Lake Macquarie LGA	Lake Macquarie LGA 14650

Source: ABS, 2021

4.5.1 Socio-Economics and Demographics

The population and key demographic characteristics of the Social Locality (primarily sourced from ABS data) is summarised in **Table 5**. This data provides insight into the expected population growth, projections and mobility for the areas of interest. Population growth and mobility levels can provide some indication into community cohesion, as retaining a stable or increasing community population over time supports a stronger community.

The age, gender and place of birth statistics are also provided for the Social Locality as an indication of the gender and cultural diversity of the area (based on the number of people born in Australia).

Table 5 Key Socio-economic and Demographic Data in Social Locality

Data Type	Key Data and Findings	
Total Population	• Lake Macquarie LGA	213,845
	• Cooranbong	7,077
	• Dora Creek	1,739
	• NSW	8,072,163
Population Growth	• All the geographic areas have had a population increase from 2011 to 2021	
Indigenous Population	• The Aboriginal and Torres Strait Islander population has grown by 110.2% in the Lake Macquarie LGA between 2011 and 2021	
Population Projections	• The population in the Lake Macquarie LGA is projected to increase by 0.78% on an annual basis up to 2041	
Population Mobility	• In 2021, over 50% of the population in Lake Macquarie LGA has lived in the same address as five years ago • Over 70% have lived at the same address for at least one year	
Age and Gender	• Cooranbong has a higher proportion of people aged four years and younger (6.8%) than NSW (5.8%)	
Cultural Diversity	• The Lake Macquarie LGA (85.5%) has a higher proportion of people who were born in Australia than the NSW proportion (65.4%)	

Source: ABS 2011, ABS 2016, ABS 2021, DPE 2023

On 31 May 2024 the Commonwealth Bank of Australia (CBA) released its quarterly Regional Movers Index (RMI) and found that the number of city dwellers moving to regional Australia hit a 12-month high. CBA's report found that Millennials were the key demographic movers from cities to regional areas across all states (Mortgage Business, 2024). Sydney outflow dropped to 67% from 89% in March 2023, while regional NSW inflows went from 23% to 39% (SBS News, 2024).

The Watagan Park is a master-planned estate located in Cooranbong approximately 7 km from the CES. Watagan Park spans over 356 hectares and currently has over 1,008 families living in the estate with 2,000 more families to come. Recognised as a major urban release area by the NSW government, Watagan Park is set to accommodate significant population growth (Watagan Park 2024).

4.5.2 Housing Profile and Family Composition

The housing and family data sourced from the 2011, 2016 and 2021 ABS Census, SQM Research, CoreLogic and realestate.com.au, provides an overview of the key housing and family characteristics of the geographic areas relevant to the Social Locality. **Table 6** summarises housing and family composition data, with detailed data provided in **Appendix A**.

Table 6 Key Family and Household Composition Data in Social Locality

Data Type	Key Data and Findings
Family and Household Composition	- All geographic areas have a relatively higher proportion of family households compared to lone person and group households - Cooranbong has the highest proportion of family households
House Tenure	- Dora Creek has the highest proportion (45.7%) of houses owned outright - Cooranbong has the highest proportion (40.8%) of houses owned with a mortgage
Housing Availability	- Median rent has increased from 2011 to 2021 across all areas of interest, with the most significant increase (53.3%) in Cooranbong - Median rent has increased from 2011 to 2021 across all areas of interest for dwellings occupied by Aboriginal and / or Torres Strait Islander people. The most significant increase in median rent was 58.1% experienced in Cooranbong - There were 342 properties listed as rental properties in the Lake Macquarie Greater Region, 19 in Cooranbong and 3 listed in Dora Creek
Social Housing	- The proportion of State or Territory housing in the Lake Macquarie LGA is 3.8% - The proportion of community housing availability in the Lake Macquarie LGA is 0.75%

Source: ABS 2011, ABS 2016, ABS 2021

4.5.3 Employment and Industry

Table 7 summarises employment and industry data, with detailed data provided in **Appendix A**.

Table 7 Employment and Industry Data

Data Type	Key Data and Findings
Employment and Industry	58.3% of people in the Lake Macquarie LGA are in the labour force 54% of people in the Lake Macquarie LGA work full time
Industry of Employment	- Employment in the Lake Macquarie LGA is concentrated in the Health Care and Social Assistance sector followed by the Construction sector - Employment in Cooranbong and Dora Creek is concentrated in the Construction sector and the Health Care and Social Assistance sector
Occupations	- Cooranbong has the highest proportion of people (17.1%) employed as technicians and trade workers - Dora Creek has the highest proportion of people employed as managers (12.9%), which is below the NSW proportion (14.6%)

Source: ABS 2011, ABS 2016, ABS 2021

4.5.4 Health and Vulnerability

Key indicators of health and wellbeing based on information available through ABS Census and the BOCSAR are provided in **Appendix A** and summarised in **Table 8**.

Selected crime statistics compiled by BOCSAR for the Social Locality for 2022 were reviewed to inform the social baseline. Data from the 2021 ABS Census was analysed to understand the diversity and vulnerability of the community by examining the language spoken at home and reviewing the median weekly income of individuals, families and households located within the Social Locality as well as NSW.

Table 8 Health and Vulnerability Data

Data Indicator	Key Data and Findings
Health	- Dora Creek has the highest proportion of people living with long term health conditions compared to Cooranbong and NSW (including arthritis, asthma, cancer (including remission), dementia (including Alzheimer's), diabetes (excluding gestational diabetes) and heart disease. The proportion of people living in Dora Creek with one condition is 24.7%, two conditions is 8.9% and three of more conditions is 5.5% (higher than the NSW proportions) - The proportion of people living in Cooranbong with one condition is 24.7%, two conditions is 7.9% and three of more conditions is 3.9% (higher than the NSW proportions)
Vulnerability – Language Spoken	Lake Macquarie LGA has the highest proportion (90.9%) of households where only English is used at home, which is higher than the NSW proportion (67.6%). Cooranbong had 7.9% of households where a non-English language is used, compared to NSW which had 29.5% of households
Disadvantaged	Dora Creek has the lowest personal, family and household weekly median income, which is lower than the NSW weekly median income
Crime	In 2022 'malicious damage to property' was the highest recorded major offence in the Lake Macquarie LGA

Source: ABS 2011, ABS 2016, ABS 2021

4.5.5 Social Infrastructure and Services

The data for education, children's services and health and emergency services in the Social Locality is presented in **Appendix A** and summarised in **Table 9**. This data provides an indication of how well the communities within the Social Locality are equipped and serviced.

Table 9 Social Infrastructure and Services Data

Data Type	Key Data and Findings
Education	- Lake Macquarie LGA has over 29 preschool, kindergarten and vacation care services with various private and public schools catering for both primary and high school students. - Zero child care services are available in the postcode area of Dora Creek.
Hospitals and Health Facilities	- Lake Macquarie LGA has two private hospitals, Lake Macquarie Private Hospital and Belmont Hospital. - Lake Macquarie LGA has other community health services including Over 55's Programs, Awabakal Medical Service, Go4Fun, Autoimmune Resource and

Data Type	Key Data and Findings
	Research Centre, Hunter Brain Injury Respite Options Inc. and Epilepsy Action Australia.
Ambulance	- Lake Macquarie has five Ambulance Stations. - There are eight fire stations located within the Lake Macquarie LGA, including one in Morisset.

Source: localsearch 2023, Fire and Rescue NSW 2023, NSW Ambulance 2023, Lake Macquarie City Council 2023b

4.5.6 Summary of Key Findings

The key findings from the analysis of key geographic and demographic data can be summarised as follows:

- Cooranbong has a population of 7,077 while the nearby Dora Creek has a population of 1,739 people. Population growth has been significant in Cooranbong (42.7%), whilst Dora Creek's population has only grown by 4.1% from 2011 to 2021. This is in comparison to the NSW population growth trend of 16.7%;
- Population across the Lake Macquarie LGA is expected to grow by 0.78% annually over a 20-year period from 2021 to 2041, representing a steady growth;
- In 2021, over 50% of the population in each LGA has lived in the same address as five years ago, indicating a relatively cohesive community;
- The age and gender data showed residents from Dora Creek were slightly older than the other areas of interest, with a median age of 51. This is in comparison to the NSW median age of 39;
- Lake Macquarie LGA is considered less culturally diverse when compared to the greater area of NSW, with the Lake Macquarie LGA (85.5%) having a higher proportion of people who were born in Australia than the NSW proportion (65.4%);
- Dora Creek and Cooranbong have the highest proportion of houses owned outright and houses owned with a mortgage respectively. This suggests a long-term population base in these areas;
- The family and household composition across all areas of interest are dominantly family households, which could be an indication of the attractiveness of the region for bringing up families;
- Housing prices and median rents have steadily increased over the last 10 years, with Cooranbong median rent increasing by over 50% since 2011;
- Dora Creek (6.9%) had higher unemployment rates higher than NSW (4.9%) in 2021;
- Employment in Cooranbong and Dora Creek is concentrated in the 'Construction' sector and the 'Health Care and Social Assistance' sector. This follows the overall trend for Lake Macquarie LGA, which also dominant in the 'Health Care and Social Assistance' and 'Construction' industries; and
- The Lake Macquarie LGA seems to be well serviced with two private hospitals, ambulance stations, fire stations, a number of community health and disability services as well as various nearby education and children facilities.

4.6 CENTENNIAL COMMUNITY PROGRAMS AND INVESTMENTS

Centennial is committed to supporting the local community in which they operate through various sponsorship and donations for community activities, groups and associations. In 2024, NCS provided support to the following community organisations:

- Biraban Local Aboriginal Land Council;

- Cooranbong Preschool;
- Country Women's Association of NSW;
- Dora Creek Southlakes Rugby League;
- Morisset Early Education Centre;
- Morisset Lake Macquarie Show;
- PCYC Morisset;
- Southern Lakes United FC;
- St John Vianney Primary School Morisset; and
- Toronto Tigers Baseball Club.

Calendar year local, regional and NSW community spend by NCS from 2019 to 2023 is shown in **Table 10**.

Table 10 Breakdown of Annual NCS Local, Regional and NSW Spend

Category	2019 Total Spend (\$M) ^A	2020 Total Spend (\$M) ^A	2021 Total Spend (\$M) ^A	2022 Total Spend (\$M) ^A	2023 Total Spend (\$M) ^B
Local Spend	11.0	\$11.2	\$12.4	\$13.6	\$8.6
Regional Spend	15.3	\$12.7	\$13.9	\$16.5	\$8.7
NSW	16.0	\$13.0	\$14.2	\$17.1	\$25.6
Total	42.3	36.9	40.5	47.2	42.9

^A Source: AIGIS Group 2023, ^B Centennial

5. SOCIAL IMPACT ASSESSMENT

This section provides a summary of SIA stakeholder engagement findings, local and regional trends and discusses the social impacts and opportunities associated with the Modification.

5.1 STAKEHOLDER ENGAGEMENT FINDINGS

The scope and methodology of SIA consultation undertaken is described in **Section 3.3** with a summary of the outcomes of consultation provided in the following sections.

The findings of SIA engagement were supplemented by social baseline information presented in available literature. Consistent with the SIA Guideline, SIA consultation confirmed data, assumptions, findings and potential recommendations. SIA consultation provided insight into the Social Locality and allowed perceived impacts and benefits to be considered. It also proved to be useful for information dissemination e.g., providing stakeholders with a Modification briefing.

Table 11 Stakeholder Engagement and Consultation

Stakeholder	Method of Consultation	Comments/ Issues
Community		
Adjacent Landholders	Notification Offer of briefings	Discussions with nearby neighbours over the Modification and potential impact mitigation
Broader Community	Company website Newstan community information and complaints Telephone Line and email address Mandalong Community Information Telephone Line and email address	Information over the Modification provided on company website with Centennial contact details available
NCS Employees	Toolbox Talks	Workforce briefing provided for the Modification
RAPs	Notification and invitation for involvement in Modification Aboriginal Cultural Heritage Assessment Cultural Heritage Field Surveys Provision of draft Aboriginal Cultural Heritage Assessment Report	RAP site officer requested NCS to consider relocation of some native vegetation (specifically Geebungs and Grass trees) in the proposed disturbance areas prior to vegetation clearing
CCC	September and December 2024 NCS CCC meetings June and October Mandalong Mine CCC meetings	Briefing provided over the Modification. No issues raised
Northern Region Aboriginal Cultural Heritage Committee	Notification September 2024 Meeting	Provide briefing and notification
Lake Macquarie Coastal Zone Committee	5 June 2024 meeting	Briefing provided at meeting and additional notes circulated to the committee

Stakeholder	Method of Consultation	Comments/ Issues
Regulatory Authorities		
DPHI	8/12/22 Pre-modification meeting	Project detail provided
	29/3/23 Quarterly Projects Meeting update	Project detail provided
	7/6/23 Email and Planning Portal – Pre-Modification consultation letter submission	Pre-modification Consultation Letter on DPHI Major Projects portal
	28/6/23 Quarterly Projects Meeting update	Project progress provided
	3/10/23 Quarterly Projects Meeting update	Project progress provided
	30/4/24 Pre-modification application on the Planning Portal	-
	17/5/24 Email	Economic Development Cost clarification
	22/5/24 Pre-modification meeting and presentation	Premodification Application processed by DPHI on the MP planning portal – advice on EPBC, noise specialist and Subsidence Advisory
	19/6/24 Quarterly Projects Meeting update	Project progress provided
Commonwealth DCCEEW	29/5/24 Pre-technical Meeting	Update on Project and referral
	21/6/24 Lodgement of EPBC Referral documentation	EPBC Referral and supporting documents
	11/09/24 Commonwealth DCCEEW determination of the Modification as a Controlled Action under the EPBC Act	Modification to be determined under Bilateral Arrangements between Commonwealth DCCEEW and DPHI
DPHI Crown Lands	9/6/23 Email	Introduction email for proposal
	9/6/23 Email	Initial advice from Crown Lands on process and applicable Crown Lands personnel
	27/6/23 Emails	Crown Lands provide feedback on S265 compensation agreement and S81 consent agreement
	4/7/23 Email	Provision of Mining Lease Figure
NSW DCCEEW - Biodiversity and Conservation Science Directorate	19/6/24 Emailed Letter	Introduction letter for the Modification and request for meeting
	23/6/24 Email Response from BCD	BCS are able to review the Biodiversity Development Assessment Report through the Modification assessment process, but are unable to provide comments on the proposed Modification at this preliminary stage

Stakeholder	Method of Consultation	Comments/ Issues
Mining, Exploration and Geoscience	12/6/24 Email Letter	Introduction letter for the Modification
Resource Regulator	12/6/24 Email Letter	Introduction letter for the Modification
NSW DCCEEW- Water	20/5/24 Website and email enquiry	Phone conversation with DCCEEW-Water representative and further email provided to introduce the project
	27/5/24 Email	Email response from DCCEEW-Water on water licencing and setback distances from Modification disturbance footprint
NSW DCCEEW - Heritage	3/4/23 Emailed Letter Modification introduction and request for updated RAPs list	12/4/23 Email response from Heritage NSW confirmed project RAP contact details
EPA	19/6/24 Emailed Letter	Introduction letter for the Modification
Subsidence Advisory NSW	14/6/23 Emailed Letter	Introduction letter for the Modification
	11/07/23 Email from SA NSW	Process for review under the <i>Coal Mine Subsidence Compensation Act 2017</i>
	23/9/24 SA NSW determination	Conditional approval under s22 of the <i>Coal Mine Subsidence Compensation Act 2017</i> Minor adjustments to S22 approval to reflect site context provided on 19/9/24.
LMCC	4/7/24 Emailed Letter	Introduction letter for the Modification
	8/7/24 Email	LMCC Planning Officer response providing guidance on what LMCC will seek the Modification Report to consider including alternatives, not net loss to conservation land, biodiversity loss and local offsets, water quality and bushfire aspects
Neighbouring Industry		
TransGrid	9/6/22, 17/7/22	Introduction letter for the Modification
	18/10/23 Email from TransGrid	TransGrid reference number 2022-559 Works acceptable on provided conditions
	01/08/24	Project progress provided
Origin Energy	19/6/24 Email Letter	Introduction letter for the Modification and intended usage of haul road for mobilisation and hauling construction materials
	24/06/24 Email from Origin	Response to MOD 4 notification letter

5.1.1 Near Neighbour Consultation

Centennial discussed the Modification proposal with near neighbours during the preparation of the Modification Report. A newsletter will be sent to all near neighbours on Gradwells Road notifying them of the submission of the Modification application and the DPHI public exhibition period.

5.1.2 SSD 5145 Modification 2

Centennial NCS wrote to the DPIE (now DPHI) on 14 May 2020 to introduce Modification 2. Feedback provided by the DPIE included:

- Noise and air quality impacts for residents adjacent to Gradwells Road;
- Ensuring public roads are kept free of materials tracked by trucks; and
- For any areas of ground disturbance, consideration of Aboriginal cultural heritage and surface water management.

A letter was sent to LMCC on 22 May 2020 to introduce the proposed Modification 2. LMCC responded to the letter on 11 June 2020 and acknowledged that the proposed modification has the potential to impact the public road network including Wangi Road and Wilton Road.

As part of Modification 2 NCS engaged with landholders identified as experiencing operational noise emissions above the project noise trigger levels.

SSD-5145 Modification 2 was withdrawn by Centennial.

5.1.3 Community Consultative Committee

Mandalong Mine hosts CCC meetings which provides a forum for discussions between Centennial and representatives of the community, stakeholder groups and Council. The meetings provide information to the community with updates on operations, approvals, environmental monitoring results, land management, community partnerships as well as an overview of upcoming events. The CCC meetings also provide members with an opportunity to raise any concerns and voice their opinions.

The Modification was presented to the Mandalong Mine CCC meeting on 25 June 2024.

5.1.4 Complaints and Incidents

Centennial operates a community information and complaints line with procedures in place to receive, record, respond to and address any community complaints or enquiries.

A review of the Mandalong Mine Annual Reviews for the period of 2015 to 2024 indicates that complaints in relation to the CES have mostly been associated with noise.

No complaints have been received in 2024 to 30 July. In 2023, six complaints were received in relation to noise from the CES with a further two noise complaints of a similar nature received in 2022. There were also two noise complaints received in 2020, with investigations identifying the noise was a result of truck loading during the night at the CES. In 2017 Mandalong Mine received a complaint from a resident of Gradwells Road. The resident stated that mine vehicles have been observed speeding whilst proceeding to and from the CES. In 2016, a complaint was made in relation to night-time noise from the CES. It is noted that the majority of complaints during the period of 2015 to December 2023 have been made by one resident on Gradwells Road. One complaint regarding CES operations (related to noise impacts) was received between January and December 2024. The nature of complaints and responses during this period are described in **Table 12**.

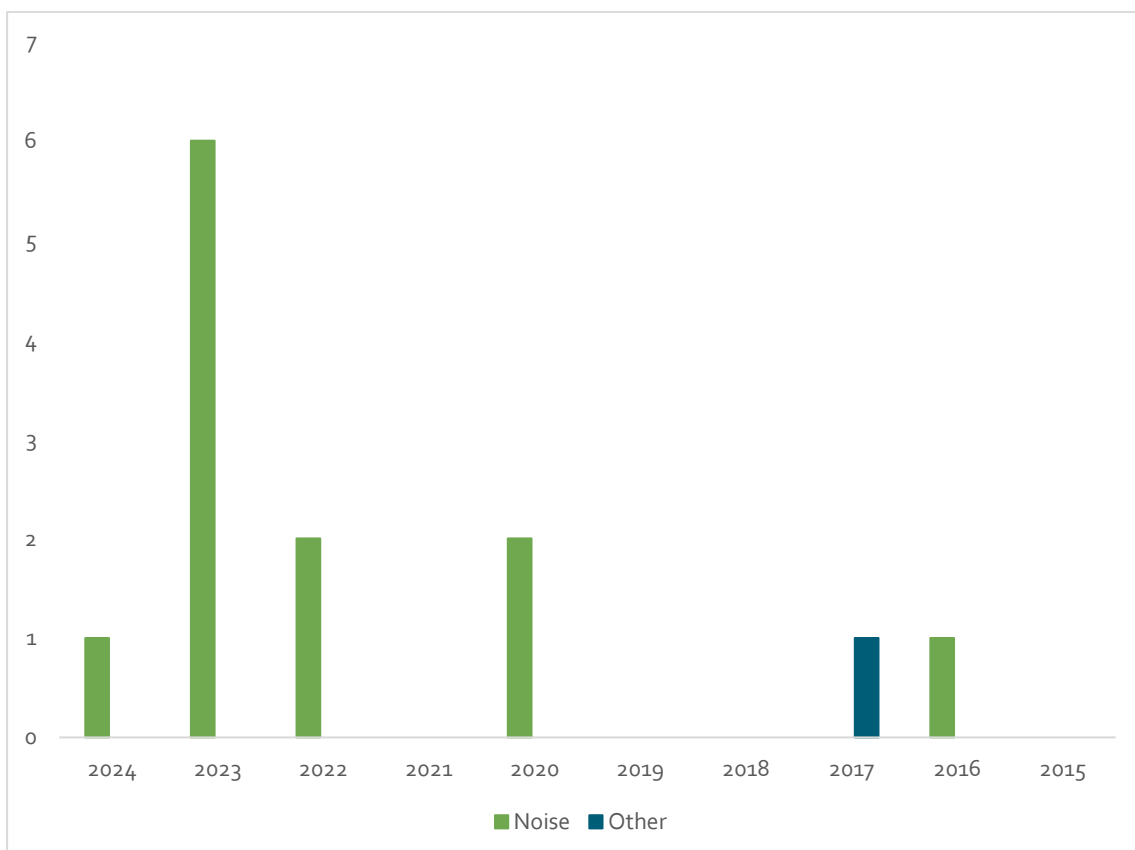
Graph 1 presents an analysis of complaints received during the period of 2015 to 15 November 2024 in relation to the CES.

Table 12 Nature of complaints and responses

Date of Complaint	Nature	Response
27 August 2024	A complaint regarding night-time noise from the Cooranbong Site was received by the Mandalong Environment and Community Superintendent at 2.43pm on 27/08/24.	Audio files for the time of complaint were reviewed, with noise attributed to a general hum from the CHP and stone entering the ROM bin. A follow up call to discuss the findings with the complainant occurred on 29/08/24.
25 September 2023	Centennial Mandalong received a complaint from a resident of Mandalong regarding loud and constant noise from the CES.	Centennial Mandalong has identified the source of the noise and has implemented measures to minimise noise, lessening its impact on neighbouring residents.
11 September 2023	Centennial Mandalong received a complaint from a Dora Creek resident regarding loud night-time noise from the CES.	Centennial Mandalong has identified the source of the noise and has planned to implement measures to minimise noise, lessening its impact on neighbouring residents.
20 August 2023	Centennial Mandalong received a complaint from a Dora Creek resident regarding loud night-time noise from the CES.	Centennial Mandalong has identified the source of the noise and has planned to implement measures to minimise noise, lessening its impact on neighbouring residents.
11 August 2023	Centennial Mandalong received a complaint from a Dora Creek resident regarding loud night-time noise from the CES.	Centennial Mandalong has identified the source of the noise and has planned to implement measures to minimise noise, lessening its impact on neighbouring residents.
23 May 2023	Centennial Mandalong received a complaint from a resident of Dora Creek regarding excessive noise related to the work conducted at the CES.	The CES Superintendent will assess the reversing and conveyor alarms at the site to minimise disturbance to neighbouring residents. Furthermore, long-term noise mitigation strategies for the Cooranbong will be explored.
27 April 2023	A complaint regarding traffic noise associated with deliveries to the CES was received by Centennial Mandalong on 27 April 2023 from a Dora Creek resident.	A contractor truck completed a delivery to the Cooranbong Site at the time of the complaint. Communication will be sent to Cooranbong site personnel and contractors to reduce speed / noise impacts while travelling on Gradwells Road.
24 August 2022	A complaint was received by Centennial Mandalong from a Dora Creek resident on 24 August 2022. The resident has been experiencing vibration of the windows in their home during the early morning hours over the last three weeks.	An investigation has since determined that the Cooranbong CHP has not been operational during this period. In future the resident will record the date and time of the vibration events and provide the information to Centennial for comparison with Cooranbong operations.
18 August 2022	A complaint regarding night-time noise from the CES was received by Centennial Mandalong on 18 August 2022.	An investigation was completed which determined the source of the noise as being associated with the Cooranbong ROM bin overhaul works.

Date of Complaint	Nature	Response
		A tool-box talk was provided by night-shift supervisors to ensure measures are undertaken to prevent noise during the bin overhaul works. The ROM bin overhaul works were completed on 19/8/22.
18 August 2020	A noise complaint was made by a Cooranbong resident in relation to night-time truck loading at the CES. At the time of the complaint, coal was being moved into the reclamation bin from the Cooranbong export stockpile.	Centennial ceased the reclaiming of coal immediately and has scheduled a review of the activity. Noise attenuation modifications are being investigated for the relevant trucks. The resident has been offered the installation of a 'noise logger' which would monitor noise emissions on their property.
11 March 2020	A noise complaint was made by a resident from Dora Creek, in relation to a truck loading during the night at the Cooranbong Site.	Centennial ceased loading trucks immediately and did not resume until the following morning. The complainant was satisfied with the response and will contact Mandalong if there are future issues.
28 February 2017	Mandalong Mine received a complaint from a resident of Gradwells Road at Dora Creek on 28 February 2017. The resident stated that mine vehicles have been observed speeding whilst proceeding to and from the CES.	A Tool Box Talk was provided to all Mandalong and Cooranbong employees and contractors regarding the importance of driving safely on Gradwells Road.

Graph 1 CES Complaints Analysis 2015 - 2024



5.2 LOCAL AND REGIONAL ISSUES AND TRENDS

This section provides a high-level review of the different values and perceptions of the communities in the local LGAs and broader region. The information was gathered from recent Response to Submissions Reports, SIA's and analysis of submissions received during the public exhibition of recent SSD project applications made in the Lake Macquarie LGA, as well as a review of media articles and news reports.

Eraring Power Station – Battery Energy Storage System

The Eraring Power Station in Lake Macquarie will remain open for an additional two years beyond the original closure date of 2025, in a deal between the NSW state government and Origin (ABC News 2024). Origin is constructing a large-scale battery energy storage system (BESS) at Eraring. The BESS will support further renewable project development by charging during the day when renewable energy sources such as solar generation is discharging into the grid. Stage one of the BESS is now under construction and will have a capacity of 460MW and a dispatch duration of two hours. The system is anticipated to come online in the final quarter of 2025. Origin has approval for the development of a battery storage system of up to 700MW capacity with a four-hour dispatch (Origin Energy Limited 2024).

The Hunter Transmission Project

The Hunter Transmission Project (HTP) involves building a new above ground 500 kilovolt (kV) transmission line of around 115 km between Bayswater and a new substation in the Olney State Forest, near Eraring. The Project aims to help create a 500 kV ring of transmission infrastructure that will provide the backbone of NSW new electricity grid for future generations.

The HTP will unlock the electricity supply from the central west Orana and New England Renewable Energy Zones and allow it to be imported to the new electricity grid via Bayswater. It will then be delivered to consumers in the Hunter, Illawarra and Sydney (EnergyCo 2023).

Ash Recycling Facilities, Eraring Power Station

Origin owns and operates the Eraring and associated Eraring Ash Dam (ERAD) on Rocky Point Road within the Lake Macquarie LGA.

The proposed Ash Recycling Facilities modification involves the following:

- Modifications to the existing ash recycling infrastructure currently authorised including construction of up to four additional 600 t ash storage silos to provide additional ash storage capacity and enable export of up to 150,000 tpa of stored ash product;
- Integration of works authorised under local development consent DA/1937/2014/D (the existing Daracon operations) into Origin's Project Approval 07_0084, and upgrades to those works to increase throughput capacity to 300,000 tpa, including construction of three additional 450 t ash storage silos; and
- Other supporting infrastructure.

Summary of Local and Regional Trends

The key issues and trends identified in the Lake Macquarie LGA and broader region is summarised in **Table 13**. Regional discussion papers, media articles and the findings of stakeholder engagement and SIA's completed for projects in these areas were analysed to inform the current regional issues and community perceptions.

Table 13 Summary of Regional & Local Issues / Trends

Issue/ Trend	Description
Social	• Concerns over liveability, devaluation of properties and compulsory acquisition for the transmission line
Air Quality	• Concerns regarding management of air quality issues to protect long term air quality

Issue/ Trend	Description
	Additional dust and emissions from trucks transporting ash
Water Quality	- Pollution of Lake Macquarie from the road transport of ash - Impacts to water quality and impacts to aquatic fauna - Negative impacts to the environment caused by reducing natural water flows - Pollution of Lake Macquarie from the storage of ash within the ERAD
Noise	- Noise associated with increased traffic - Noise and vibration impacts associated with construction and works outside standard working hours - Noise associated with long term operation and activities - Concerns regarding sleep disturbance and additional noise impacts from CES truck loading and additional vehicle movements
Visual	- Visual prominence of buildings from key viewing locations - Concerns over loss of mature vegetation and associated impacts
Subsidence	Projects located within a declared Mine Subsidence District
Greenhouse Gas Emissions and Climate Change	- The perception that coal mining is against the best interests of the Australian community and every opportunity should be taken to accelerate the exit from the coal mining industry - Concerns regarding expanding a coal mine and the need to find alternative sources of energy than coal - Apprehensions over the expansion of coal-fired power stations
Ecology	- The impact on ecological values from the clearing of vegetation - The impact on fish and aquatic habitats due to waterway crossings such as causeways, culverts and similar structures - Impacts on threatened species, including <i>Tetratheca juncea</i>, <i>Grevillea parviflora</i> subsp. <i>parviflora</i> and <i>Melaleuca biconvexa</i> - Harm to threatened biodiversity caused by mining of new longwall mining areas - Impacts to local fauna from habitat removal and light spill - Loss of biodiversity in the Olney State Forest
Aboriginal Heritage	- Concerns in relation to Aboriginal heritage specifically the potential for management plans and mitigation strategies not being adhered to - Minimise impacts on key Aboriginal cultural heritage sites and landscape features in State Forests
European Heritage	Concerns in relation to damage of significant European cultural heritage material
Traffic and Transport	- Existing road infrastructure and the ability to accommodate heavy vehicles - Pedestrian and motorist safety - Impacts to road surface from additional vehicle movements - Intensified traffic volumes causing congestion along local roads - Safety issues associated with the proposed route and haulage of ash including potential dust emissions - Concerns in relation to the safe and efficient operation of the major road network in the Mandalong area - Traffic and transport impacts on local roads
Agriculture	Concerns that water containing sediment and nutrient loads off construction sites will impact on properties that are committed to an organic chemical free environment

Issue/ Trend	Description
Bushfire	Fears that exploration drilling on total fire ban days could result in bushfire
Recreation	Impacts on recreational areas in the Watagan and Olney State Forests
Human Health	- Health risks to recreational lake users due to impacts to water quality - Expressed concern over the potential impact of reduced air quality on physical and emotional wellbeing
General	General objections to coal mining and coal-fired power stations

Source: Eraring Energy 2008, EJE Architecture 2010, Transport for NSW 2021, AECOM 2018, Centennial 2018, Centennial 2019, Centennial 2021, adw johnson 2023, Premise 2023, EnergyCo 2024

Summary of Findings

The desktop review identified key environmental issues and trends in the Lake Macquarie LGA, including:

- Use of Lake Macquarie for recreation and the potential impacts from mining on the water quality;
- Air and water quality impacts from local development, including from the storage of ash within the ERAD;
- Noise and road safety impacts associated with increased traffic volumes; and
- Broader regional concerns around greenhouse gas emissions and Climate Change, ecology, Aboriginal Heritage, Cultural Heritage, impact on agriculture, bushfire and the general impacts from coal mining and coal-fired power stations.

5.3 SCOPE OF IMPACT ASSESSMENT

Social impacts and opportunities have been identified and assessed for the social locality that are associated with the direct activities related to the Modification. The impact assessment considered the findings of stakeholder engagement, complaints analysis, the social baseline assessment, local and regional issues/ trends and technical SIA expertise.

The social impact themes considered further in the SIA (see **Section 5.5**) are derived from both the SIA Guideline, and experience/ expertise in SIA development. These themes are as follows:

- Way of life:
 - Live, work, play;
- Livelihoods:
 - Employment opportunities and economic benefits; and
 - Businesses;
- Accessibility:
 - Access to infrastructure, services and facilities;
 - Delivery of social infrastructure and services; and
 - Road and pedestrian safety;
- Surroundings:
 - Amenity i.e., acoustic, visual and air quality;

- Environmental values; and
- Natural and Built Environment;
- Health and wellbeing:
 - Amenity, i.e., noise;
- Decision-making systems:
 - Complaints and grievance mechanisms;
 - Influencing decisions;
 - Resource competition between industries; and
- Community:
 - Community cohesion and strength.

5.4 APPROACH TO MANAGEMENT

Mitigation and management measures have been identified for all potential social impacts and opportunities associated with the Modification. These measures are a combination of:

- Standard mitigation / enhancement measures. These are commonly applied mitigation measures such as the discussion of environmental monitoring results at CCC meetings and complaints response procedures e.g. the operation of a community information and complaints hotline; and
- Modification-specific mitigation / enhancement measures. These are measures that have been specifically identified and tailored to address the particular social impacts of the Modification.

5.5 DISCUSSION OF SOCIAL IMPACTS

5.5.1 Way of Life

The Lake Macquarie coastal lake is located approximately 2 km from the CES and is used for a number of recreational activities. There are also several state forests, including the Olney State Forest, Awaba State Forests and the Watagans National Park (refer to **Section 4.4**).

A key goal of the Lake Macquarie LEP is to “*recognise the importance of Lake Macquarie and its waterways, including the coast, as an environmental, social, recreational and economic asset to Lake Macquarie City and the Hunter and Central Coast regions*” (LMCC, 2014). The proposed Modification will not impact on the nearby recreational areas, state forests or the Lake Macquarie water body.

As discussed in the Modification Report, the increase in the CES stockpile capacity and footprint will allow for additional coal to be stockpiled, which will assist in ensuring a continued supply of thermal coal to nearby domestic power generators who rely on coal deliveries from Mandalong Mine (i.e. Eraring Power Station and Vales Point Power Station) and the NCS CHP. This in turn will increase the security of base load power generation which could lead to an improvement in peoples way of life in NSW. There will also be economic benefits from the reliable supply of coal to domestic power generators, which could result in affordable electricity for NSW.

The CES is linked to the continued operation of Mandalong Mine and NCS, which delivers significant economic benefit to the community via local spend and coal royalties to the NSW government.

The Economic Assessment for the Modification included a Cost Benefit Analysis that quantified major environmental, cultural and social impacts. The Cost Benefit Analysis concluded that for the Modification to be questionable from an economic efficiency perspective, any residual values that were not quantified would need

to be valued at greater than \$23M and \$18M for Australia and NSW, respectively. The Economic Assessment also found that the Modification will result in an increased local wages and non-wage operational expenditure in the Lake Macquarie LGA.

5.5.2 Accessibility

The Social Locality is well serviced with social infrastructure and facilities in the Lake Macquarie LGA, as outlined in **Section 4.5.5**. This includes medical and emergency facilities with two private hospitals, ambulance stations, fire stations and various community health and disability services. The area has a number of education facilities including nearby primary and secondary schools as well as several childcare facilities. The Modification is not anticipated to impact on any service or social infrastructure within the Lake Macquarie LGA.

The M1 Pacific Motorway provides easy access to Lake Macquarie from Newcastle in the north and the Central Coast and Sydney to the south.

The Modification is not proposing to change any site access arrangements and as such there will be no increase in traffic on local roadways. It is, however, evident from stakeholder engagement and a review of current trends and emerging issues that traffic congestion and safety are of concern to local residences in general. As noted in **Section 5.1.4** however, there has only been one complaint received from a local resident in 2017 regarding mine vehicles speeding along Gradwells road.

Given there has been no recent complaints received over traffic on Gradwells road and the CES has a relatively small workforce required for the CES, it is highly unlikely that there will be any congestion or traffic issues on Gradwells Road associated with the Modification.

Centennial will continue to manage traffic in and around NCS to ensure environmental and safety risks associated with traffic generated from construction and operational activities are appropriately managed.

Traffic controls will be detailed within the Construction Environmental Management Plan (CEMP) for the Modification. The measures described within the CEMP will be adopted to ensure construction traffic impacts for the Modification are appropriately managed.

Centennial will continue to implement procedures for the Modification to ensure the safe movement of pedestrians and vehicles, and to minimise impacts on the local roads.

5.5.3 Livelihoods

The Modification will have a positive social impact on livelihoods as employment and business opportunities will continue to be realised for the Modification. Local spend by NCS over the period from 2019 is summarised in **Section 4.6**.

Furthermore, the increased stockpile capacity will facilitate the storage of greater coal volumes during periods of mining downtime at Mandalong Mine (i.e. including during longwall changeouts or unplanned outages) and permit greater security and certainty of coal supply continuity for domestic power generators. This will provide certainty for NCS employees, contractors and suppliers.

5.5.4 Community

The Modification will only require 4 additional FTE's and as such is not expected to impact on population growth, community structure or cohesion in the Social Locality. Employment in mining within the areas of interest are relatively lower than occupations such as 'Health Care and Social Assistance' and 'Construction' (ABS 2021). The additional 4 FTE's would likely be sourced from the existing labour market. Furthermore, there should be no additional stress placed on housing availability or accommodation as a result of the Modification.

As outlined in **Section 4.6**, Centennial is committed to providing sponsorship and donations for community activities, groups and associations and will continue to do so for the Modification.

5.5.5 Health and Wellbeing

Technical assessments were undertaken for noise and vibration, air quality, visual and lighting, Aboriginal heritage, biodiversity and surface water. These assessments are appended to the Modification Report.

The studies identified negligible impacts on nearby neighbours and the community for air quality, visual and lighting, with predicted impacts remaining below current criteria and guidelines.

Regardless of whether noise, vibration and air quality impacts from the Modification comply with NSW Guidelines criteria, the nearby neighbours have previously identified issues over noise and air quality (refer to **Section 5.1**). Both noise and air quality have the potential to affect ones health and wellbeing through frustration and annoyance, sleep disturbance and concern over personal health.

Baseline data identified in **Section 4.5.4** and **Appendix A**, have highlighted that Dora Creek and Cooranbong have a relatively high proportion of people living with long term health conditions compared to NSW (including arthritis, asthma, cancer, dementia, diabetes, heart disease and mental health). The proportion of people living in Cooranbong with one condition is 24.7%, two conditions is 7.9% and three or more conditions is 3.9% (higher than the NSW proportions). This can be an indication of the health vulnerability of the local community.

Noise

The Noise assessment identifies an increase in noise at sensitive receivers on Gradwells Road.

Furthermore, the findings of the SIA consultation indicate that noise from loading of trucks at night is of particular concern to residences located within the vicinity of the CES, especially given the semi-rural setting, as discussed in **Section 5.1.1**. This is confirmed with the number of complaints over noise from the CES received since 2016, as outlined in **Section 5.1.4**. It is noted, however, that the majority of these complaints were received from one resident and that there was a reduction in noise complaints received during 2024 (see **Section 5.1.4**).

The NSC and CES have established management measures in place to mitigate, minimise and manage potential noise impacts on the local community, as outlined in the Centennial Northern Region Noise Management Plan. The Noise Management Plan will be updated to include the additional mitigation measures described in the Modification Report and will continue to be implemented for the Modification.

Existing noise management controls include:

- Operating mobile plant in a quiet, efficient manner and regular training of operators;
- Regular maintenance of plant and equipment in accordance with the manufacturer's specifications to ensure optimal operating conditions;
- Installation of frequency modulated reversing alarms or "quakers" on mobile plant;
- Switching off vehicles and plant when not in use;
- Regular inspections and maintenance of haul road surfaces;
- Limiting truck speeds on private haul roads;
- Selecting low noise plant for operation on site;
- Procurement of quieter equipment whenever new items or maintenance work are required;
- Use of real-time noise monitoring to provide more informative data and enable more timely response to elevated noise levels from site operations; and
- Community Information hotline and complaints response.

Additional at-source noise attenuation proposed for the Modification includes:

- Lining of haul road truck trays with sound dampening material to reduce noise during loading; and

- Application of sound attenuation kit on the PR776 (or equivalent) dozer used at the site.

Air Quality

The air quality impact assessment concluded that air quality would remain within SSD-5145 air quality criteria, with potential air quality impacts limited to the immediate local area. As such there will be negligible health impacts anticipated on nearby neighbours.

The NCS has an approved Northern Region Air Quality and Greenhouse Gas Management Plan (NRAQGHGMP), to ensure operational and construction air quality impacts on the local community are minimised, appropriate management measures identified and response protocols detailed should air quality criteria be exceeded. The NRAQGHGMP outlines mitigation measures and controls to manage potential air quality impacts including:

- Use of water sprays in crushing plant and on unsealed roads and stockpiles, as required;
- Restriction of speed limits to 40 km/ hour at CES;
- Use of a truck wheel wash;
- Enclosed conveyor system to Eraring;
- Regular maintenance of plant and equipment to ensure optimal operating conditions;
- Covering of loads on haulage trucks entering and leaving the CES;
- Ongoing air quality monitoring including real-time dust monitors to provide immediate results and enable a timely response to incidents; and
- Publication of NCS environmental monitoring data and reporting.

5.5.6 Surroundings

Mining activities in close proximity to residential areas can contribute to social impacts such as a reduced residential and rural amenity, typically as a result of visual, dust or noise.

As discussed in **Section 4.3**, coal mining has been a part of the local industry in the Lake Macquarie LGA since the earliest times of European settlement. There are a number of major coal-related projects in the vicinity of the CES including Eraring, Newstan Colliery, Mandalong Mine and the Awaba Colliery (service facilities). Hence mining and residential has co-existed within the area for a long period.

There are a number of private residences located to the south of CES, however the intervening topography and dense bushland generally shields views of the site from these locations. There was little concern raised during stakeholder consultation over potential visual impacts from the Modification (refer to **Section 5.1.1**).

The Visual Assessment completed for the Modification concluded the visual and lighting effects will be negligible. The extended stockpile has been located to minimise the visual and lightings impact on the semi-rural aesthetics in the area to the south of CES and as such, should not impact on the visual character of the local community.

Existing screening and lighting controls will continue to minimise visual impacts, which includes:

- Maintaining vegetation screening for existing infrastructure;
- Directing lighting away from sensitive receptors for existing and proposed CES lighting infrastructure and plant; and
- Ensuring external lighting complies with *Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*.

Stakeholder engagement, and the findings of the Modification Report highlighted the concern for bushfire risks. Current bushfire management is in accordance with the Newstan Colliery and NCS Bushfire Management Plan.

Fuel reduction will be undertaken where appropriate by slashing in high risk areas without damaging woodland regeneration in adjacent areas. Additional management measures will include the Modification disturbance area to allow for bushfire Asset Protection Zone around modified infrastructure.

5.5.7 Culture

Centennial acknowledges the Traditional Custodians of the Lake Macquarie area in which it operates and recognises the cultural heritage, value and importance of the Lake Macquarie region to the Traditional Custodians.

The Aboriginal Cultural Heritage Assessment completed for the Modification did not identify any Aboriginal cultural heritage sites within the proposed disturbance footprint for the extended stockpiles. The nearest known cultural heritage site (artefact scatter) is located 580 m from the site to the north west. As the CES is an existing facility and a detailed onsite survey has been undertaken, no additional impacts to the cultural heritage or value of the area to the Traditional Custodians are expected as a result of the Modification. Consultation with NCS RAPs did not identify any concern over cultural heritage impacts as a result of the Modification (refer to **Section 5.1**).

Management of Aboriginal Cultural Heritage will continue as outlined within the '*Centennial Northern Region Aboriginal Cultural Heritage Management Plan*'. This will include ongoing consultation with the local Aboriginal communities regarding Aboriginal cultural heritage matters as well as identifying consistent minimum standards and processes for Aboriginal cultural heritage identification, monitoring and management across Centennials northern operations.

5.5.8 Cumulative

There are a number of major coal and coal-related power generation projects in the vicinity of the CES which would contribute to cumulative impacts (see **Section 4.3**).

The potential for significant cumulative social impacts as a result of the Modification is however, assessed as low. As there is no significant increase in workforce proposed, there will be negligible additional impacts anticipated on population growth, demand for social infrastructure and services or housing.

There is potential for cumulative noise from the CES, Mandalong Mine and Eraring Power Station impacting the nearby neighbours and landholders. As outlined in **Section 5.1**, consultation with near neighbours highlighted concerns over potential increases in noise levels, which could impact the semi-rural atmosphere, cause sleep disturbance and change their way of life (e.g. sitting outside).

The Noise Assessment did not identify any significant cumulative noise considerations for the Modification at sensitive receptor locations that are not subject to a negotiated noise agreement with Centennial.

Existing controls in place to mitigate and minimise potential noise impacts associated with the NCS will continue to be implemented for the Modification, as discussed in **Section 5.5.5**.

5.5.9 Decision-making Systems

The NCS has a number of processes and mechanisms to interact with the community and to allow members of the community to provide feedback, raise issues and lodge complaints or grievances. Key mechanisms include:

- The CCC, which provides a forum for open discussion between the community and company representatives;
- Community information and complaints telephone hotline;
- Centennial website, which contains information about operations and provides contact details including an email address;
- Ongoing engagement with nearby neighbours; and

- Publication of NCS environmental monitoring data and reporting on the Centennial website, to provide meaningful information on the performance and effectiveness of environmental controls.

There will be no changes to the abovementioned processes and mechanisms for the Modification.

5.5.10 Consequences of the Modification not Proceeding

Alternatives options for the Modification were considered in the Modification Report, including different locations for the additional stockpile. The preferred option for the Modification, i.e. extension of the CES stockpile to the west, was selected to make use of existing CES infrastructure and to minimise additional land disturbance. The selected option provided the best outcome to minimise impacts to biodiversity, noise, visual, surface water and heritage, which in turn minimises potential impacts to the community.

The 'Do Nothing' option, i.e. continue with current stockpile arrangements, would result in the benefits not being realised for the reliable supply of coal to Centennial customers. The 'Do Nothing' option was not viable as this would impact the productivity of the underground mining operations at Mandalong Mine, compared to the Modification case.

5.6 SOCIAL IMPACT SIGNIFICANT ASSESSMENT

The assessment of impact significance has been adapted from the methodology described in the SIA Guideline. This assessment presents a fair analysis of positive and negative impacts, however the evaluation of significance is complex, balancing the subjectivity, scale and sensitivity of impacts and benefits. **Table 14** to **Table 17** present the framework for establishing the significance of social impacts and opportunities.

Table 14 Defining Likelihood Levels of Social Impacts

Likelihood Level	Meaning
Almost Certain	Definite or almost definitely expected (e.g. has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very Unlikely	Improbable or remote probability

Source: Adapted from SIA Guideline – Technical Supplement (DPE, 2023b)

Table 15 Dimensions of Social Impact Magnitude

Dimensions	Details needed to enable assessment
Extent	Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any vulnerable people? Which location(s) and people are affected? (e.g. near neighbours, local, regional, future generations).
Duration	When is the social impact expected to occur? Will it be time-limited (e.g. over particular project phases) or permanent?
Intensity or Scale	What is the likely scale or degree of change? (e.g. mild, moderate, severe)
Sensitivity or Importance	How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change

Dimensions	Details needed to enable assessment
Level of Concern / Interest	How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or intensity

Source: Adapted from SIA Guideline – Technical Supplement (DPE, 2023b)

Table 16 Defining Magnitude Levels for Social Impacts

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

Source: Adapted from SIA Guideline – Technical Supplement (DPE, 2023b)

Table 17 Social Impact Significance Matrix

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

Source: SIA Guideline – Technical Supplement (DPE, 2023b)

Table 18 describes the potential social impacts and opportunities of the Modification, provides tailored social management / enhancement measures and presents the outcomes of the significance assessment. The assessment takes into consideration the mitigation and management measures already implemented at the CES, as discussed above.

Table 18 Potential Social Impacts and Opportunities of the Modification

Potential Social Impact/Benefit	Affected Stakeholder	Phase ¹	Existing Management Measures	Unmitigated Risk*	Additional Management Measures	Mitigated Risk*	Rationale
Way of Life							
Continued delivery of coal to the nearby local power stations resulting in ongoing and reliable supply of electricity	Broader community	OP	Ongoing supply contracts with local power stations	Medium (D3) Positive	N/A, ongoing use of existing management measures	High (C4) Positive	The Economic Assessment completed for the Modification has forecast the potential direct and indirect economic benefits of the Modification.
Economic benefits from reliable supply of domestic electricity	Broader Community	OP	Ongoing supply contracts with local power stations	Medium (D3) Positive	N/A, ongoing use of existing management measures.	High (C4) Positive	The Economic Assessment has assessed the economic benefits of the Modification.
Affordable electricity	Broader Community	OP	Ongoing supply contracts with local power stations	Medium (D3) Positive	N/A, ongoing use of existing management measures.	High (C4) Positive	The Economic Assessment completed for the Modification has forecast the potential direct and indirect economic benefits of the Modification.
Accessibility							
Continuation of traffic on Gradwells Road leading to landowner frustration and annoyance	Nearby residents	OP	- Community information and complaints line - CCC meetings - Publication of NCS environmental monitoring data and reporting	Low (D2) Negative	Community engagement with local residents regarding the Modification.	Low (D1) Negative	Findings of community engagement indicated traffic is of concern to local residents. The Modification will result in an additional 4 FTE's and hence a significant increase in traffic on Gradwells road is not anticipated as a result of the Modification. Construction traffic associated with the Project will be addressed in the CEMP which will be prepared post Modification approval.
Livelihoods							
Employment during construction	Employees and contractors	CP	N/A	Low (D1) Positive	Ongoing support for local employment and contracting arrangements	Low (B1) Positive	The Economic Assessment completed for the Modification has forecast the potential direct and

Potential Social Impact/Benefit	Affected Stakeholder	Phase ¹	Existing Management Measures	Unmitigated Risk [*]	Additional Management Measures	Mitigated Risk [*]	Rationale
	Broader Community						indirect economic and employment benefits of the Modification for the Social Locality.
Increase efficiency of CES operations and ongoing employment	Employees and contractors	OP	N/A	Medium (D ₃) Positive	Additional stockpile capacity will provide greater flexibility for NCS operations	High (B ₃) Positive	The Economic Assessment completed for the Modification has forecast the potential direct and indirect economic and employment benefits of the Modification for the Social Locality. Ongoing provision of employment is a benefit to existing employees, contractors and hence livelihoods. The Modification would also support the continuation of indirect employment opportunities through its supply arrangements.
Health and Wellbeing							
Increased noise and vibration impacts from machinery operating on the stockpiles and during loading of trucks, impacting nearby neighbours and landholders	Nearby residents	OP	- Management and monitoring of noise in line with the NCS Noise Management Plan - Community information and complaints line and complaints response - Regular maintenance of plant and equipment to ensure efficient operating condition - Switching off vehicles when not in use	High (B ₃) Negative	- Lining of CES haul trucks to minimise loading noise - Engagement with local residents regarding the Modification - Near neighbour impact agreements	Medium (D ₃) Negative	A review of recent complaints identified noise as a concern to local residents. Potential impacts were assessed in the Modification Noise Impact Assessment. The assessment concluded that significant noise impacts would not occur at receiver locations that do not have a negotiated noise agreement with Centennial.
Increased dust from stockpiles impacting air quality and associated health implications	Nearby residents	OP	- Community information and complaints line - Air quality management in line with the Air	Medium (C ₃) Negative	Implementation of existing air quality management measures for the modified stockpile	Medium (D ₃) Negative	Potential impacts were assessed in the Modification Air Quality Impact Assessment.

Potential Social Impact/Benefit	Affected Stakeholder	Phase ¹	Existing Management Measures	Unmitigated Risk [*]	Additional Management Measures	Mitigated Risk [*]	Rationale
	Residents of Dora Creek		Quality and Greenhouse Gas Management Plan • Use of water sprays on the stockpile, as required • Enclosed conveyor system to Eraring • Regular maintenance of plant and equipment to ensure optimal operating conditions • All haulage trucks entering and leaving the CES have their loads covered • Community information and complaints line • CCC meetings • Publication of NCS environmental monitoring data and reporting				The assessment concluded that the Modification would not likely result in significant air quality impacts to sensitive receivers.
The Modification has the potential to exacerbate landowner frustration and annoyance related to amenity impacts from the extension of the coal stockpile	Nearby residents	OP	• Community engagement with local residents regarding the Modification • Community information and complaints line; and • CCC meetings • Publication of NCS environmental monitoring data and reporting	Medium (D3) Negative	• N/A, ongoing use of existing management measures.	Low (D2) Negative	General amenity impacts were identified in community engagement with nearby residents completed for the Modification.

Potential Social Impact/Benefit	Affected Stakeholder	Phase ¹	Existing Management Measures	Unmitigated Risk*	Additional Management Measures	Mitigated Risk*	Rationale
Surroundings							
Visual and lighting impacts from the stockpile extension on nearby landholders	Nearby residents	OP	- Lighting controls for existing CES lighting infrastructure and plant - Vegetation screening for existing infrastructure	Medium (C2) Negative	- Siting the modified stockpile footprint considering receiver locations to the south of CES - Implement lighting for the modified stockpile to minimise offsite impacts	Low (D2) Negative	Potential impacts were assessed in the Modification Visual Impact Assessment. The assessment concluded the visual and lighting effects will be negligible. The extended stockpile has been located to minimise the visual and lightings impact on the semi-rural aesthetics in the area to the south of CES and as such, should not impact on the visual character of the local community.
Bushfire risk to nearby landholders and the natural and built environment	Nearby residents	OP	- Management in accordance with the Newstan Colliery and NCS Bushfire Management Plan - Fuel reduction will be undertaken where appropriate by slashing in high risk areas without damaging woodland regeneration in adjacent areas	High (C4) Negative	Modification disturbance area to include allowance for bushfire Asset Protection Zone around modified infrastructure	Medium (D3) Negative	Stakeholder engagement, and the findings of the Modification Report highlighted the concern for bushfire risks.
Culture							
Disturbance to aboriginal heritage site	Broader Community	OP	Management in line with the Centennial Northern Region Aboriginal Cultural Heritage Management Plan	Medium (D4) Negative	Communication of archaeological cultural heritage management requirements and procedures to Modification construction workforce	Low (E3) Negative	Potential impacts were assessed in the Aboriginal and Cultural Heritage Impact Assessment completed for the Modification. No heritage sites were identified within the proposed Modification Disturbance Area.

Potential Social Impact/Benefit	Affected Stakeholder	Phase ¹	Existing Management Measures	Unmitigated Risk [*]	Additional Management Measures	Mitigated Risk [*]	Rationale
Cumulative							
Cumulative noise with CES, Great Northern Railway and Eraring Power Station, impacting nearby neighbours and landholders	Nearby residents	OP	- Community information and complaints line - CCC meetings - Publication of NCS environmental monitoring data and reporting - Noise monitoring to quantify the noise impact and assess cumulative noise levels against regulatory requirements	High (C ₄) Negative	- Community engagement with local residents regarding the Modification - Lining of CES haul trucks to minimise loading noise - Noise attenuation for PR776 (or equivalent) dozer used at the site - Near neighbour impact agreements	Medium (D ₃) Negative	Potential impacts were assessed in the Modification Noise Impact Assessment. The assessment concluded that the Modification would not result in significant cumulative noise impacts for sensitive receivers.

** Based on likelihood, dimensions and magnitude*
¹ CP – Construction Phase, OP - Operations Phase, MC - Mine Closure

5.7 SUMMARY

The outcomes of the significance evaluation indicate that the potential significant areas of social impact and benefit relate to the following areas:

- Noise impacts as a result of increased use of dozers on the extended CES stockpile;
- Landowner frustration and annoyance related to amenity impacts from the extension of the coal stockpile;
- Visual impacts due to lighting infrastructure required for operations of the extended CES stockpile;
- Exacerbated community concerns associated with CES traffic on Gradwells Road; and
- Air quality impacts associated with expanding the existing CES stockpile.

6. MONITORING AND REPORTING

The social impacts of the Modification will be managed and opportunities enhanced through the ongoing implementation of existing management plans and community programs in place at NCS.

Additional mitigation and management measures identified to address potential social impacts and opportunities associated with the Modification are summarised in **Table 19**.

Table 19 Additional Monitoring and Mitigation Measures

Mitigation Measures	Frequency/ Timing	Target/ Outcomes	Performance Indicator	Monitoring and Reporting
Community				
Notification of Modification construction activities to sensitive receptors	At least 7 days prior to commencement of relevant works	Make local residents aware of the start of Modification construction activities	No construction complaints recorded	CES complaints response procedures Centennial website CCC updates
Accessibility				
Consideration of construction traffic impacts in the CEMP	Prior to any construction work being carried out	Minimise impacts to local road network during construction	No traffic complaints recorded	CES complaints response procedures Centennial website CCC updates
Culture				
Northern Region HHMP and ACHMP to be reviewed	Within 3 months of the Modification approval date	Northern Region HHMP and ACHMP reviewed	HHMP and ACHMP documents approved by regulatory agencies	HHMP and ACHMP reviewed in accordance with SSD-5145 conditions
All staff and contractors involved in the works will be made aware of the legislative protection requirements for all heritage items	Prior to any construction work being carried out	Awareness of NCS heritage obligations	No heritage-related incidents during development of the modified stockpile	Annual Reviews Training Records
Health and Wellbeing				
Consideration of Health and Wellbeing impacts in the CEMP	Prior to any construction work being carried out	Awareness of environmental and approval obligations for Modification construction work Confirm requirements for compliance reporting, incident	No construction complaints recorded Non-compliances with CEMP or SSD-5170 impact criteria	CES complaints response procedures Centennial website CCC updates

Mitigation Measures	Frequency/ Timing	Target/ Outcomes	Performance Indicator	Monitoring and Reporting
		and complaint response		
Lining of CES haul trucks	Prior to operation of modified stockpile	Minimise noise during truck loading	No noise complaints recorded Environmental monitoring Recorded non-compliances with CES noise impact criteria at sensitive receiver locations	CES complaints response procedures Centennial website CCC updates Annual Reviews
Landholder noise agreement	Prior to construction of modified stockpile	Secure negotiated agreements with all receivers where significant noise impacts are predicted	No noise complaints recorded Environmental monitoring Recorded non-compliances with CES noise impact criteria at sensitive receiver locations	CES complaints response procedures Centennial website CCC updates Annual Reviews
Siting of mobile equipment in shielded locations. Revision of internal Stockpile Management Plan and associated training	Prior to modified stockpile commissioning and during operation of the modified stockpile	Minimise noise during start-up and operation of mobile equipment operation on the modified stockpile	No noise complaints recorded Environmental monitoring Recorded non-compliances with CES noise impact criteria at sensitive receiver locations	CES complaints response procedures CCC updates Annual Reviews
Surroundings				
CEMP (construction hours and scheduling of noise-enhancing construction activities)	Prior to any construction work being carried out	Awareness of environmental and approval obligations for Modification construction work Confirm requirements for compliance reporting, incident and complaint response	No construction complaints recorded Non-compliances with CEMP or SSD-5170 impact criteria	CES complaints response procedures CES website CCC updates
Update to NCS Water Management Plan (WMP) to include changes to CES Water Management System required for the Modification	Prior to any construction work being carried out	Management clean and dirty water within and surrounding CES	Environmental monitoring Non-compliances with WMP or SSD-5170 impact criteria	WMP reviewed in accordance with SSD-5145 conditions

Mitigation Measures	Frequency/ Timing	Target/ Outcomes	Performance Indicator	Monitoring and Reporting
Update to NCS Noise Management Plan (NMP) to include changes to CES stockpile for the Modification	Prior to any construction work being carried out	Management noise impacts from CES	Environmental monitoring Non-compliances with NMP or SSD-5170 impact criteria	NMP reviewed in accordance with SSD-5145 conditions
Update to Northern Region Air Quality and Greenhouse Gas Management Plan (NRAQGHGMP) to include changes to CES stockpile for the Modification	Prior to any construction work being carried out	Management air quality impacts from CES	Environmental monitoring Non-compliances with NMP or SSD-5170 impact criteria	NRAQGHGMP reviewed in accordance with SSD-5145 conditions
Biodiversity Offsets	Prior to any disturbance for the Modification	Offsetting of biodiversity impacts	Retirement of up to 84 ecosystem and 534 species credits in accordance with the NSW Biodiversity Offset Scheme and <i>Biodiversity Conservation Act 2016</i>	Centennial website CCC updates Annual Reviews
Update to Northern Region Biodiversity Management Plan (BMP) include changes to CES stockpile for the Modification	Prior to any construction work being carried out	Management of biodiversity impacts from CES	Biodiversity management procedures Biodiversity Offsetting arrangements Environmental monitoring Non-compliances with conditions of DCCEEW-Cmth EPBC Act determination Non-compliances with BMP or SSD-5170 biodiversity management obligations	BMP reviewed in accordance with SSD-5145 conditions

7. CONCLUSION

This SIA has considered:

- The Social Locality of the Modification;
- Likely social impacts and opportunities, both positive and negative;
- Any other activities or projects that may combine to produce cumulative impacts; and
- Whether the Modification meets the objectives of relevant planning instruments.

The SIA has considered the impacts of the Modification on the needs, issues and values of the surrounding communities, namely the Lake Macquarie LGA, Dora Creek and Cooranbong. The SIA has adequately considered potential socio-economic impacts of the Modification consistent with the NSW SIA Guideline and the associated SIA Technical Supplement. Socio-economic impacts of the Modification are generally associated with environmental impacts including noise.

The Modification will have low to moderate social impact, noting that there would be:

- No predicted notable change to the social and economic profile of the community except for the potential for continued employment; and
- Low to moderate cumulative changes in amenity, infrastructure including housing, and the economic profile of the region.

Mitigation and management measures have been identified for all potential social impacts and opportunities associated with the Modification. These measures are a combination of:

- Standard mitigation / enhancement measures. These are commonly applied mitigation measures such as the discussion of environmental monitoring results at CCC meetings and complaints response procedures e.g. the operation of a community information and complaints hotline; and
- Modification-specific mitigation / enhancement measures: These are measures that have been specifically identified and tailored to address the particular social impacts of the Modification.

The Modification will have a positive social impact on livelihoods as employment and business opportunities will continue to be realised for the Modification. Furthermore, the increased stockpile capacity will facilitate the storage of greater coal volumes during periods of mining downtime at Mandalong Mine (i.e. including during longwall changeouts or unplanned outages) and permit greater security and certainty of coal supply continuity for domestic power generators. This will provide certainty for NCS employees, contractors and suppliers.

Approval of the Modification would create four additional FTE positions. The additional four FTE's would likely be sourced from the existing labour market. As such, there should be no additional stress placed on housing availability or accommodation as a result of the Modification.

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9. ABBREVIATIONS

Abbreviation	Meaning
AEMO	Australian Energy Market Operator
NRAQHGMP	Northern Region Air Quality and Greenhouse Gas Management Plan
CCC	Community Consultative Committee
Centennial	Centennial Northern Coal Services Pty Limited
CES	Cooranbong Entry Site
CHP	Coal Handling Plant
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCCEEW-NSW	NSW Department of Climate Change, Energy, the Environment and Water
DCCEEW-Cmth	Commonwealth Department of Climate Change, Energy, the Environment and Water
DPE	Department of Planning & Environment
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
ERAD	Eraring Ash Dam
ha	Hectare
JBA	James Bailey and Associates
LEP	Local Environmental Plan
LGA	Local Government Area
LMCC	Lake Macquarie City Council
M	metres
Mandalong	Mandalong Mine
MEG	Mining, Exploration and Geoscience
Mining Act	<i>Mining Act 1992</i>
Mtpa	Million tonnes per annum
NCS	Centennial Northern Coal Services
NRNMP	Northern Region Noise Management Plan
Origin	Origin Energy
PHIDU	Public Health Information Development Unit
RASs	Registered Aboriginal Stakeholders
SEPPs	State Environmental Planning Policies
SIA	Social Impact Assessment
SIA Guideline	Social Impact Assessment Guideline
SSD	State Significant Development
TfNSW	Transport for NSW
UoN	University of Newcastle
WMP	Water Management Plan

APPENDIX A

SOCIAL BASELINE DATA

1. POPULATION AND DEMOGRAPHY

Table A-1 Population Growth, 2011-2021

Geographic Area	2011	2016	2021	Change 2011-2021 (%)
Cooranbong	5,030	5,449	7,077	40.7
Dora Creek	1,671	1,643	1,739	4.1
Lake Macquarie LGA	189,006	197,371	213,845	13.1
NSW	6,917,658	7,480,228	8,072,163	16.7

Source: ABS 2011, ABS 2016, ABS 2021

Table A-2 Aboriginal and Torres Strait Islander Population – 2011-2021

Geographic Area	2011	2016	2021	Change 2011-2021 (%)
Cooranbong	101	185	335	231.7
Dora Creek	40	82	116	190.0
Lake Macquarie LGA	5,593	8,031	11,759	110.2

Source: ABS 2011, ABS 2016, ABS 2021

Table A-3 Population Projections, 2021-2041

Geographic Area	2021	2041	Change	Annual %
Lake Macquarie LGA	209,107	244,462	35,354	0.78
NSW	8,166,757	9,872,934	1,706,176	0.95

Source: DPE 2023

Table A-4 Population Mobility 2021

Geographic Area	Same Usual Address in 2021 as:	
	1 Year Ago (%)	5 Years Ago (%)
Lake Macquarie LGA	83.2	59.3
NSW	79.4	53.9

Source: ABS 2021

Table A-5 Age and Gender Indicators, 2021

Geographic Area	% Males	Median Age (persons) (years)	0-4 years Median Age (persons) (%)	15-19 years Median Age (persons) (%)	>85 years Median Age(persons) (%)
Cooranbong	48.1	39	6.8	5.7	4.7
Dora Creek	51.2	51	3.4	4.8	2.8

Geographic Area	% Males	Median Age (persons) (years)	0-4 years Median Age (persons) (%)	15-19 years Median Age (persons) (%)	>85 years Median Age(persons) (%)
Lake Macquarie LGA	48.8	42	5.6	5.8	2.9
NSW	49.4	39	5.8	5.7	2.3

Source: ABS 2021

2. CULTURAL DIVERSITY

Table A-6 Country of Birth (Top Responses), 2021

Geographic Area	Australia (%)	New Zealand (%)	England (%)	Philippines (%)	India (%)
Lake Macquarie LGA	85.5	1.2	2.5	0.4	0.5
NSW	65.4	1.5	2.9	1.3	2.6

Source: ABS 2021

3. FAMILY AND HOUSEHOLD COMPOSITION

Table A-7 Household Composition, 2021

Geographic Area	Households (%)			Total Households
	Family	Lone Person	Group	
Cooranbong	73.9	23.4	2.8	2,503
Dora Creek	68.5	27.4	4.2	698
Lake Macquarie LGA	72.7	24.8	2.5	80,679

Source: ABS 2021

Table A-8 Family Composition, 2021

Geographic Area	Couple Family		One Parent Family (%)	Other Family (%)
	No Children (%)	With Children (%)		
Cooranbong	40.7	44.3	13.9	0.8
Dora Creek	48.3	31.5	16.0	2.0
Lake Macquarie LGA	40.4	40.8	17.5	1.3

Source: ABS 2021

4. HOUSING AND ACCOMMODATION PROFILE

Table A-9 Median Weekly Rent, 2011-2021

Geographic Area	2011 (\$)	2016 (\$)	2021 (\$)	Change 2011-2021 (%)
Cooranbong	220	310	380	53.3
Dora Creek	270	313	380	33.8
Lake Macquarie LGA	255	320	375	38.1

Source: ABS 2011, ABS 2016, ABS 2021

Table A-10 Median Rent Dwellings occupied by Aboriginal/ Torres Strait Islander people, 2011-2021

Geographic Area	2011 (\$)	2016 (\$)	2021 (\$)	Change 2011-2021 (%)
Cooranbong	220	330	400	58.1
Dora Creek	290	360	401	32.1
Lake Macquarie LGA	250	320	370	38.7

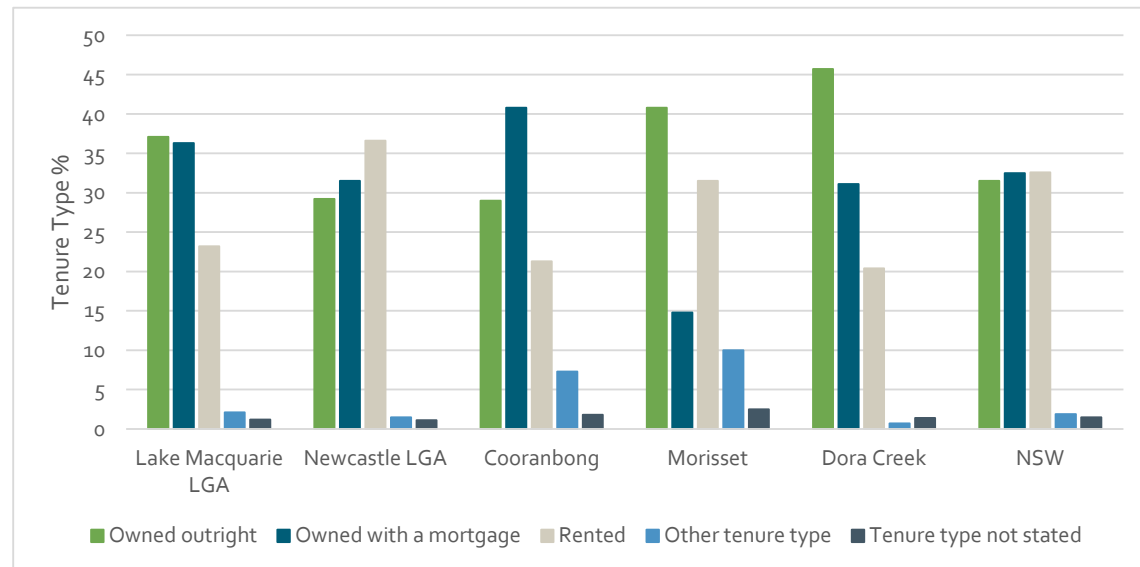
Source: ABS 2011, ABS 2016, ABS 2021

Table A-11 Rented Dwellings in the Lake Macquarie LGA by Selected Landlord Type, 2021

Selected Landlord Type	Percentage (%)
State or Territory Housing Authority	3.8
Community Housing	0.75
Total	4.55

Notes: Notes: Rented Dwellings by Selected Landlord Type is calculated based on the number of residents of State Housing Authority and Community Housing over the total number of dwellings. Data retrieved from 2021 Census of Population and Housing, General community profile – Tenure and Landlord Type by Dwelling Structure (ABS 2021).

Graph A-1 Tenure Type, 2021



Source: ABS 2021

Table A-12 Dwelling Type, 2021

Geographic Area	Separate House	Semi-detached	Flat or Apartment	Other
% Total Dwellings				
Cooranbong	85.4	10.2	3.7	0.1
Dora Creek	96.9	0.4	2.1	0.0
Lake Macquarie LGA	85.2	9.7	4.4	0.5

Source: ABS 2021

Household and Dwelling Projections

Table A-13 Household Projections 2021-2041

Geographic Area	2021	2026	2036	2041	Change 2021-2041 (%)
Lake Macquarie LGA	82,805	87,140	96,655	100,982	19.8
NSW Total	3,105,098	3,264,801	3,710,075	3,924,847	26.4

Source: DPE 2023

5. EMPLOYMENT AND INDUSTRY

Table A-14 Participation in the Labour Force, 2021

Geographic Area	In the labour force (%)	Not in the labour force (%)	Not stated (%)	In the labour force NSW (%)
Cooranbong	57.2	38.9	3.8	58.7
Dora Creek	51.4	43.1	5.9	
Lake Macquarie LGA	58.3	37.5	4.2	

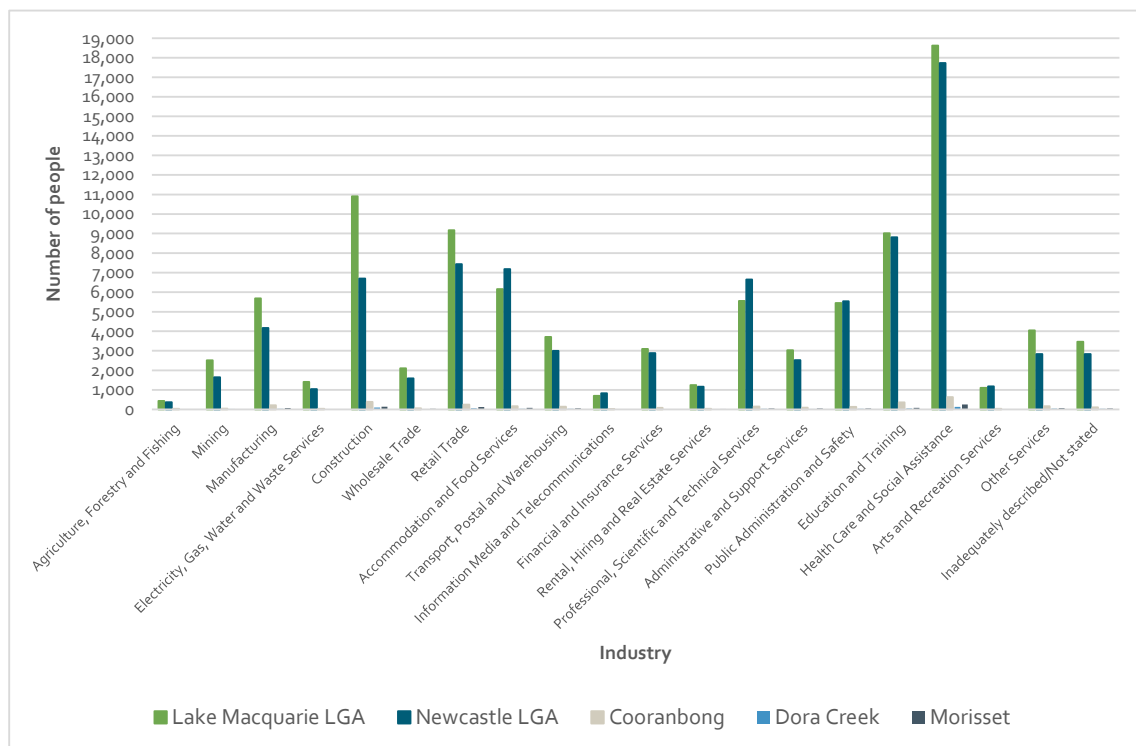
Source: ABS 2021

Table A-15 Employment Status, 2021

Geographic Area	Worked Full-Time (%)	Worked Part-Time (%)	Away From Work (%)	Unemployed (%)
Cooranbong	53.7	33.7	8.1	4.4
Dora Creek	49.7	35.2	9.4	6.9
Lake Macquarie LGA	54.0	34.3	7.2	4.6
NSW	55.2	29.7	10.2	4.9

Source: ABS 2021

Graph A-2 Industry of Employment, 2021



Source: ABS 2021

Table A-16 Occupation of Employed People (over 15 years), 2021

Geographic Area	Professionals (%)	Technicians and Trade Workers (%)	Community and Personal Service Workers (%)	Clerical and Administrative Workers (%)	Managers (%)	Labourers (%)
Cooranbong	23.2	17.1	12.1	12.1	9.9	10.1
Dora Creek	16.6	16.6	12.7	11.0	12.9	11.5
Lake Macquarie LGA	21.5	15.8	13.2	13.1	10.9	9.1
NSW	25.8	11.9	10.6	13.0	14.6	8.2

Source: ABS 2021

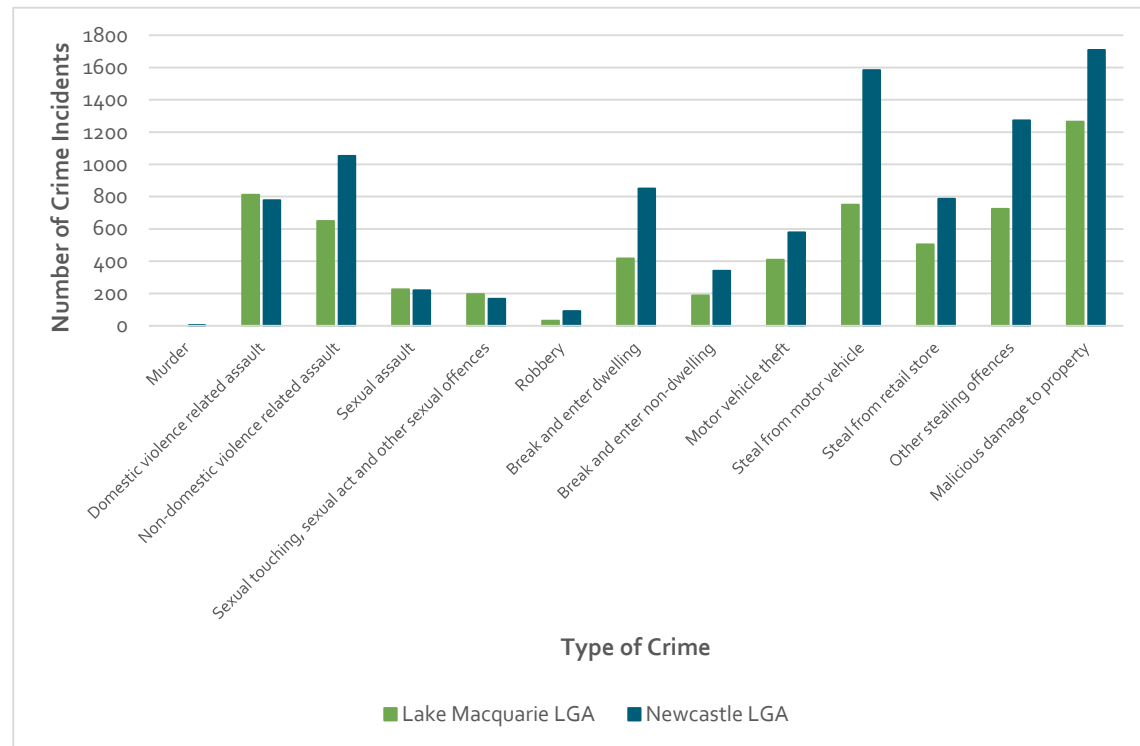
6. HEALTH AND VULNERABILITY

Table A-17 Type of Long-Term Health Conditions, 2021

Geographic Area	Arthritis (%)	Asthma (%)	Cancer (Including remission) (%)	Diabetes (Excluding Gestational Diabetes) (%)	Heart Disease (Including Heart Attack or Angina) (%)	Mental Health Condition (Including Depression or Anxiety) (%)
Lake Macquarie LGA	11.9	10.2	3.8	5.6	5.5	12.0
Cooranbong	10.7	9.6	3.4	5.6	5.5	10.8
Dora Creek	15.7	10.1	5.6	6.3	7.5	10.5
NSW	8.4	7.8	2.8	4.8	3.9	8.0

Source: ABS 2021

Graph A-3 Number of Recorded Criminal Incidents for Major offences



Source: BOCSAR 2022

Diversity and Vulnerability

Table A-18 Language Used at Home

Geographic Area	English Only Used At Home (%)	Households Where A Non-English Language Is Used (%)
Lake Macquarie LGA	90.9	7.2
Cooranbong	90.4	7.9
Dora Creek	90.4	5.5
NSW	67.6	29.5

Source: ABS 2021

Disadvantage

Table A-19 Median Weekly Income, 2021

Geographic Area	Weekly Median Income (\$)		
	Personal	Family	Household
Lake Macquarie LGA	759	2,050	1,623
Cooranbong	732	2,032	1,639
Dora Creek	726	1,674	1,401

Geographic Area	Weekly Median Income (\$)		
	Personal	Family	Household
NSW	813	2,185	1,829

Source: ABS 2021

7. SOCIAL INFRASTRUCTURE AND SERVICES

7.1 EDUCATION

Table A-20 School Enrolments in Morisset, Dora Creek and Cooranbong

School	Type	Location	Number of Students (#)
Avondale School	Combined	Cooranbong, NSW	867
Cooranbong Public School	Primary	Cooranbong, NSW	275
Bonnells Bay Public School	Primary	Bonnells Bay, NSW	400
Brightwater Christian College	Combined	Brightwaters, NSW	55
Dora Creek Public School	Primary	Dora Creek, NSW	116
Heritage College Lake Macquarie	Combined	Morisset, NSW	407
Morisset High School	Secondary	Morisset, NSW	706
Morisset Public School	Primary	Morisset, NSW	171
St John Vianney's Primary School	Primary	Morisset, NSW	152

Source: localsearch 2023

Children's Services

Table A-21 Children's Services in Morisset and Cooranbong

Service	Location
Community Kids Morisset Early Education Centre	9 Kam Cl Morisset NSW 2265
Dinky Di Childrens Learning Centre	48 Gateway Blv Morisset NSW 2265
Morisset Early Education Centre	134 Bridge St Morisset NSW 2264
Avondale Early Learning Centre	119 Avondale Rd Cooranbong NSW 2265
Cooranbong Valley Community Pre-school	614 Freemans Drv Cooranbong NSW 2265

Source: localsearch 2023

7.2 HEALTH AND EMERGENCY SERVICES

Lake Macquarie Hospitals and Health Services

Lake Macquarie Private Hospital is located 15 km south of Newcastle. Lake Macquarie Private Hospital is a 187 bed acute medical and advanced surgical hospital and home to the Hunter Cancer Council. It is the Hunter Regions only comprehensive private oncology service providing Medical Oncology, Radiation Oncology, Research, Education and Support Services on the one campus (Ramsay Health Care, 2023).

Belmont Hospital is located approximately 15 km south of Newcastle and operates 24 hours a day, seven days a week. The hospital provides services such as an Emergency Department, medical ward, surgical ward, short term resident accommodation services, sub-acute unit, coronary care unit, Belmont midwifery group practice, operating theatres, outpatient clinics, imaging, lakeview detox (drug and alcohol) and pathology (NSW Health, 2023).

A number of other community health services are located in the Lake Macquarie LGA, including Over 55's Programs, Awabakal Medical Service, Go4Fun, Autoimmune Resource and Research Centre (ARRC), Hunter Brain Injury Respite Options Inc. (Hunter Biro) and Epilepsy Action Australia (Lake Macquarie City Council, 2023b).

Ambulance Services

Table A-22 Ambulance Stations in the Lake Macquarie LGA

Ambulance Station	Address	Suburb
Belmont Ambulance Station	8 Herbert Street	Belmont
Boolaroo Ambulance Station	1 Main Road	Boolaroo
Cardiff Ambulance Station	45 Crockett Street	Cardiff
Morisset Ambulance Station	135 Dora St	Morisset
Toronto Ambulance Station	7 Thorne Street	Toronto

Source: NSW Ambulance 2023

Fire Services

Table A-23 Fire Stations in the Lake Macquarie LGA

Fire Station	Address	Suburb
Morisset Fire Station	68 Newcastle Street, Morisset NSW 2264	Morisset
Wangi Wangi Fire Station	26 Donnelly Road, Arcadia Vale NSW 2283	Arcadia Vale
Toronto Fire Station	42 Mount Waring Road, Toronto NSW 2283	Toronto
Swansea Fire Station	10 Lake Road, Swansea NSW 2281	Swansea
Belmont Fire Station	635 Pacific Highway, Belmont NSW 2280	Belmont
Teralba Fire Station	54 William Street, Teralba NSW 2284	Teralba
Charlestown Fire Station	3 Charles Street, Charlestown NSW 2290	Charlestown
Tingira Heights Fire Station	70 Violet Town Road, Tingira Heights NSW 2290	Tingira Heights

Source: Fire and Rescue NSW 2023

Disability Services

Table A-24 Disability Services Available in Lake Macquarie LGA

Service	Description
Ability Dance	Educational dance programs with dancers representing diversity in age, ethnicity and physical ability. Ability Dance embodies the message of equality and accessibility through music and movement
Amputees and Associates Newcastle and Northern Region (AANNR)	Established in 1976 by a group of Amputees within the Hunter Region and is a registered charity. AANNR is Incorporated and has Charity Authority to fund raise and is affiliated with the NSW Amputee Association

Service	Description
Biala	Aged care and disability support programs
Disability Advocacy NSW	Disability Advocacy NSW can provide short to medium term, non-legal, issue-based advocacy support to people with disability who have serious and urgent issues
Disability Services Australia	Disability Services Australia offers a range of services providing opportunities for people to reach their potential at home, at work and in their community life
Empowered Community Services	A National Disability Insurance Agency registered provider that provides services in Newcastle, Lake Macquarie and the Upper Hunter Region
Guide Dogs NSW/ACT	Guide Dogs NSW/ACT provides a variety of supports to people who are blind or vision impaired that increase independence and minimise the impact of vision loss
Hunter Down Syndrome Support Group	A voluntary group providing support for all individuals with Down syndrome, their families, and carers and friends in the Hunter Region NSW
Lake Macquarie Disabled Tenpin Bowlers	Tenpin bowling for the disabled
Lake Macquarie Support Service Inc	Experienced workers who provide person centered services for people living with disabilities and their families
LeapFrog Ability	LeapFrog Ability provides rapid response, flexible support services to people and families living with a disability or who are disadvantaged
Life Without Barriers	Life Without Barriers offers a range of supports to people at home and in the community
Lifestyle Solutions	Lifestyle Solutions provides services to people with disability, young people and children in Out of Home Care, their families and communities
LotUs Assist	LotUs Assist is a boutique service that specialises in National Disability Insurance Scheme (NDIS) Support Coordination and Plan Management
Nextt Health	Nextt Health specialise in supporting people with Autism, Intellectual Disability, Mental Health and other cognitive support needs
ParaQuad NSW	ParaQuad provides vital care, support and clinical services to people with spinal cord injuries, their families and carers
Star Club Equestrian Program	Star Club Equestrian Program provides equestrian opportunities to people with an Intellectual Disability (including, but not limited to, Down's Syndrome, ADHD, ASD, mild-severe Intellectual Disability, Global Development Delay and more)
Wheeling & Able	Wheeling & Able provides financial support to assist children and young people with a disability living in the Hunter to access services and equipment to aid their independence, mobility and wellbeing

Source: Lake Macquarie City Council 2023b

APPENDIX B
SIA GUIDELINE
REQUIREMENTS REVIEW

Table B-1 Review Questions

No.	Review Questions	Response
General		
1.	Does the lead author meet the qualification and experience requirements?	A copy of the lead Author's curriculum vitae is included in Appendix C
2.	Has the lead author provided a signed declaration?	Signed declaration is provided page (i)
3.	Would a reasonable person judge the SIA report to be impartial, transparent and suitably rigorous given the nature of the project?	Yes. The SIA has been prepared by an independent consultancy firm
Project's social locality and social baseline		
4.	Does the SIA report identify and describe all the different social groups that may be affected by the project?	Yes. Section 3.4
5.	Does the SIA report identify and describe all the built or natural features that have value or importance for people, and explain why people value those features?	Yes. Section 4.4
6.	Does the SIA report identify and describe historical, current, and expected social trends or social changes for people in the locality, including their experiences with this project and other major development projects?	Yes. Section 5.2
7.	Does the social baseline study include appropriate justification for each element, and provide evidence that the elements reflect both relevant literature and the diversity of views and likely experiences?	The extent, duration, intensity, sensitivity and level of concern/ interest was considered in assessing the social impacts in Section 5.6
8.	Does the social baseline study demonstrate social-science research methods and explain any significant methodological or data limitations?	Yes. Section 3.2 and 3.3
Identification and description of social impacts		
9.	Does the SIA report adequately describe likely social impacts from the perspectives of how people may experience them, and explain the research used to identify them? When undertaken as a part of SIA scoping and initial assessment, has the plan for the SIA report been detailed?	The SIA methodology is outlined in Section 3 . A formal scoping assessment for the minor Modification was not necessary.
10.	Does the SIA report apply the precautionary principle to identifying social impacts, and consider how they may be experienced differently by different people and groups?	Technical studies completed for the Modification Report informed the SIA. Section 5.4, Table 11 considers the stakeholders that will be potentially affected.
11.	Does the SIA report describe how the preliminary analysis influenced project design and EIS engagement strategy?	Yes. Section 2.1 and 5.1

No.	Review Questions	Response
Community engagement		
12.	Were the extent and nature of engagement activities appropriate and sufficient to canvass all relevant views, including those of vulnerable or marginalised groups?	Yes. Section 5.1
13.	How have the views, concerns and insights of affected and interested people influenced both the project design and each element of the SIA report?	Yes. Section 5 considers the findings of stakeholder engagement. Design alternatives are discussed in Section 2.1
Predicting and analysing social impacts		
14.	Does the SIA report impartially focus on the most important social impacts to people at all stages of the project, without any omissions or misrepresentations?	Yes. Section 5 and Table 17 describes the potential social impacts and opportunities of the Modification for all phases.
15.	Does the SIA report analyse the distribution of both positive and negative social impacts, and identify who will benefit and who will lose from the project?	Yes. Section 5 and Table 17 describes the potential social impacts and opportunities of the Modification
16.	Does the SIA report identify its assumptions, and include sensitivity analysis and alternative scenarios? (including 'worst-case' and 'no project' scenarios where relevant)	Sections 2.1, 3.3 and 5.5.10
Evaluating significance		
17.	Do the evaluations of significance of social impacts impartially represent how people in each identified social group can expect to experience the project, including any cumulative effects?	Yes Section 5 and 5.5.8 describes cumulative impacts
18.	Are the evaluations of significance disaggregated to consider the likely different experiences for different people or groups, especially vulnerable groups?	Yes. Section 4.5.4 describes health and vulnerability. Table 8 describes health and vulnerability data.
Responses, monitoring and management		
19.	Does the SIA report propose responses that are tangible, deliverable, likely to be durably effective, directly related to the respective impact(s) and adequately delegated and resourced?	Yes. Section 5.4
20.	Does the SIA report demonstrate how people can be confident that social impacts will be monitored and reported in ways that are reliable, effective and trustworthy?	Yes Section 6 describes monitoring and reporting
21.	Does the SIA report demonstrate how the proponent will adaptively manage social impacts and respond to unanticipated events, breaches, grievances and non-compliance?	Yes. Section 5.5.9 describes decision making systems

APPENDIX C

CURRICULUM VITAE

FIONA BAILEY

Fiona Bailey holds a Bachelor of Science and has over 25 years of professional experience in environment and community engagement. Fiona has worked as an Environment and Community professional at a number of metalliferous and coal mines in NSW as well as in the construction industry. Fiona is currently a Senior Environmental and Social Scientist for JBA having worked for the company for more than 12 years. Fiona has extensive experience in environmental and social impact assessments (SIA's), stakeholder and community engagement as well as the preparation of various post approval documents.

Areas of Expertise:

- Environment and Social Impact Assessment
- Stakeholder and Community Engagement
- Environmental Management
- Social Baseline
- Research and Data Analysis
- Report Writing

Qualifications, Courses & Memberships:

- Bachelor of Science, University of New England, 1998
- Member of the Environment Institute of Australia and New Zealand Inc. (EIANZ)
- Member of International Association and Public Participation (IAP2)
- Social Impact Assessment in the Extractives: Critical Perspective Course, University of Queensland, Sustainable Minerals Institute, 2024
- Essentials of Community Engagement, IAP2, 2023
- Effective Negotiations and Influencing, ENS International
- Hazard Identification and Risk Management, National Safety Council of Australia
- OHS Consultation, WorkCover NSW
- Environmental Auditor Training, NATA
- People Performance Growth Leadership Program
- Workplace Leadership and Time Management, Australian Institute of Management

Social Impact Assessment:

- Social Baseline Study and Social Impact Assessment for the Boggabri Mine Modification Amendment
- Social Impact Management Plan for Boggabri Mine
- Social Impact Assessment for Cooranbong Entry Site Modification (yet to be submitted)
- Social Impact Assessment for Rix's Creek North Continuation Project (in progress)
- Social Impact Assessment for Dartbrook Mine Modification (in progress)
- Social Baseline Study and Social Scoping Report for Rix's Creek North Continuation Project



Social Impact Assessment cont...

- Review of social impacts and drafting of social sections in the Environmental Impact Statement for the Bowmans Creek Windfarm, Bylong Coal Project, Shenhua Watermark Project, Bengalla Continuation Project and Drayton Extension Project
- Community and Service Provider surveys for the Bylong Project Social Impact Assessment
- Community engagement for the Social Impact Assessment for the Drayton South Project
- Social Baseline Study and Community Needs Analysis for Bengalla Mine
- Review of social impacts and drafting of social sections in several Mine Modification Reports
- Preparation of Annual Reviews for various mining companies, including data analysis, graphics and reporting
- Review and respond to community concerns in Submissions Reports for various Environmental Impact Statements and Modification Reports including data analysis and graphic presentation of Submissions received

Community Engagement:

- Community engagement and consultation for numerous Social Impact Assessments and Environmental Impact Statements
- Stakeholder Engagement Plan for Rix's Creek Mine, Bengalla Mine, Dartbrook Mine and Boggabri Mine
- Community Engagement Strategy for New Hope Group exploration program
- Community engagement materials for Community Information Sessions for Bowmans Creek Wind Farm
- Involvement in the Upper Hunter Mine Community Network Forum, a collaboration between the Mines in the Upper Hunter to build community relations, including hosting the annual Bursting with Energy Upper Hunter Mine Expo
- Facilitation of Community Consultative Committee for Dartbrook Mine and United Collieries
- Engagement with Indigenous Groups for Hunter 8 Alliance Rail Project
- Negotiation and establishment of Land Access Agreements to facilitate mining at Dartbrook Mine and CSA Mine
- Preparation of Sustainability Report/s for the CSA Mine
- Preparation of Community Consultation materials, including Newsletters, for various Mines
- Senior Environmental and Community Coordinator for CSA Mine, United Collieries, Dartbrook Mine and the Hunter 8 Alliance Rail Project, responsible for near neighbour relations, complaints management, stakeholder engagement, land access arrangements, community capacity building and sponsorships