

Northern Coal Services

Social Impact Assessment

Northern Coal Logistics Project

March 2014

SOCIAL IMPACT ASSESSMENT

CENTENNIAL COAL: NORTHERN COAL LOGISTICS PROJECT

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1. Introduction

1.1 Project Overview

James Marshall & Co has been commissioned by Centennial's Northern Coal Services Pty Limited (Northern Coal Services) to conduct a Social Impact Assessment (SIA) for the Northern Coal Logistics Project (the Project) located at Fassifern and Dora Creek on the western side of Lake Macquarie, New South Wales (NSW).

The Project comprises both a continuation of existing operations and an upgrade of the existing surface coal handling and processing infrastructure at the Newstan Colliery Surface Site and the Mandalong Mine – Cooranbong Entry Site (Cooranbong Entry Site), along with the existing private haul roads and rail loading facilities. These facilities are integral to the on-going handling, processing and transport of coal from the underground workings of Newstan Colliery and Mandalong Mine (including the proposed Newstan Colliery Extension of Mining Project and Mandalong Southern Extension Project) to domestic and export markets. The Project will allow for improved and flexible coal handling arrangements at Newstan Colliery and Mandalong Mine to deliver the range of coal products required to meet domestic and export market demands.

Newstan Colliery Surface Site is an existing coal handling and processing facility owned and operated by Centennial Newstan Pty Limited (Centennial Newstan). It is located on the western side of Lake Macquarie approximately 140 kilometres north of Sydney in NSW. The Newstan Colliery Surface Site is located approximately four kilometres north of the township of Toronto and in close proximity to the townships of Fassifern and Wakefield.

The Cooranbong Entry Site is an existing coal handling facility owned and operated by Centennial Mandalong Pty Limited (Centennial Mandalong). It is also located on the western side of Lake Macquarie approximately 130 kilometres north of Sydney NSW and two kilometres north of the township of Dora Creek.

The Cooranbong Private Haul Road, owned by Centennial Mandalong, links the Newstan Colliery Surface Site and the Cooranbong Entry Site via the Newstan-Eraring Private Haul Road, owned by Eraring Energy. The Newstan-Eraring Private Haul Road links the Newstan Colliery Surface Site to the Eraring Power Station. The Awaba Private Haul Road links the Awaba Colliery Surface Site to the Newstan-Eraring Private Haul Road. Figure 1 shows the regional setting of the Project Application Area, including the Newstan Colliery Surface Site, Cooranbong Entry Site and private haul roads.

The Project in conjunction with Centennial's Newstan Extension of Mining Project and Mandalong Southern Extension Project, stems from the long-term strategy Centennial has developed for its future operations in the Newcastle Coalfield to provide the infrastructure and flexibility required to meet future opportunities in both the domestic and export coal markets.

Newstan Colliery and Mandalong Mine currently cumulatively produce up to 10 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal. Given that this is approximately 50 percent of Centennial's annual ROM coal production, these mining operations represent a major component to the success of Centennial Coal.



Figure 1: Regional Locality

The Project proposes to:

- Re-develop and upgrade the existing coal preparation and handling infrastructure at the Newstan Colliery Surface Site to enable continued utilisation for the receipt, handling and processing of up to 8 Mtpa of ROM coal from the Newstan Colliery (up to 4.5 Mtpa), the Awaba Colliery (up to 0.88 Mtpa) and the Mandalong Mine (up to 6 Mtpa);
- Continue to utilise the existing coal handling infrastructure at the Cooranbong Entry Site to enable the receipt, handling and processing of up to 6 Mtpa of ROM coal from Mandalong Mine;
- Increase the volume of coal transported from the Cooranbong Entry Site to Newstan Colliery Surface Site, via truck using existing private haul roads, from 4 Mtpa to up to 6 Mtpa;
- Increase the volume of coal transported from the Cooranbong Entry Site to Eraring Power Station, using the existing dedicated overland conveyor, from 4 Mtpa to up to 6 Mtpa;
- Increase the volume of coal transported from the Newstan Colliery Surface Site to Eraring Power Station, via truck using existing private haul roads, from 2 Mtpa to up to 4.5 Mtpa;
- Increase the volume of coal transported from the Newstan Colliery Surface Site rail loading facilities by train to the Port of Newcastle and/or Port Kembla (for export) and/or Vales Point Power Station from 3 Mtpa to up to 8 Mtpa;
- Continue to transport up to 0.5 Mtpa of middlings by truck via private haul roads from Newstan Colliery Surface Site to Cooranbong Entry Site for subsequent supply to the Eraring Power Station via a dedicated overland conveyor.
- Continue to transport up to 0.88 Mtpa of material (including coal and stone from construction activities undertaken as part of the Newstan Colliery Extension of Mining Project) by truck via private haul roads from the Awaba Colliery Surface Site to the reject emplacement areas at the Newstan Colliery Surface Site;
- Transport reject material from the Newstan Colliery Surface Site to the Newstan Colliery Northern Reject Emplacement Area (NREA), the Newstan Colliery Southern Reject Emplacement Area (SREA) and/or Hawkmount Quarry via existing private haul roads;
- Increase the volume of water discharged via licenced discharge points at the Newstan Colliery Surface Site and Cooranbong Entry Site;
- Provide employment for up to 120 full-time personnel;
- Provide a life of operation of 30 years from the granting of development consent; and
- Operate 24 hours per day, seven days per week.

1.2 Project Application Area

The application area for the Project is on the western side of Lake Macquarie within the Lake Macquarie Local Government Area (LGA). As shown in Figure 2, the Project Application Area includes:

- The existing Newstan Colliery Surface Site, encompassing the coal preparation and handling infrastructure, reject emplacement areas, water management infrastructure and rail loading infrastructure, near Fassifern. The exceptions to this are the mine ventilation shafts and ventilation fans, which form part of the Newstan Extension of Mining Project;
- The proposed extension to the Newstan Colliery Surface Site to accommodate new coal handling and processing infrastructure;
- The existing surface infrastructure at the Cooranbong Entry Site near Dora Creek, comprising the coal handling plant (CHP), coal stockpiles, workshop building and water management infrastructure. The exceptions to this are the mine ventilation shaft, ventilation fan and the Borehole Dam, which form part of the Mandalong Southern Extension Project;

- The existing Hawkmount Quarry comprising a disused quarry located immediately to the east of the Cooranbong Private Haul Road between Newstan Colliery Surface Site and Cooranbong Entry Site; and
- The existing Cooranbong Private Haul Road, Awaba Private Haul Road and Newstan-Eraring Private Haul Road which link the Newstan Colliery Surface Site, Awaba Colliery Surface Site, Cooranbong Entry Site and Eraring Power Station.

While the majority of land within the Project Application Area is already highly disturbed and developed, the Project does comprise two areas of proposed surface disturbance:

- (a) Newstan Colliery Surface Site – an area of approximately 7.5 hectares within the Newstan Colliery Surface Site is proposed to be disturbed for the re-development and upgrade of the coal handling and processing infrastructure.
- (b) Hawkmount Quarry – an area of approximately 13.9 hectares within the Hawkmount Quarry site is proposed to be disturbed for the purposes of reject emplacement.

All other existing and proposed operational areas within the Project Application Area are already highly disturbed and developed.

1.2.1 Life of Operation

To service the coal handling, processing and transport requirements of Centennial's Newstan Extension of Mining Project and Mandalong Southern Extension Project, Northern Coal Services proposes a life of operation for the Project of 30 years from the granting of development consent.

1.2.2 Operational Hours

Northern Coal Services proposes to undertake the coal handling, processing and transportation operations of the Project 24 hours a day, seven days per week.

1.2.3 Operational Employment

The coal handling, processing and transportation operations of the Project will require approximately 120 full-time personnel (Centennial employees and contracting staff). All personnel will be based at either the Newstan Colliery Surface Site or the Cooranbong Entry Site and will utilise existing buildings, amenities and car parking facilities.

1.2.4 Surface Infrastructure

The Project will utilise the existing surface infrastructure and facilities at the Newstan Colliery Surface Site and the Cooranbong Entry Site, along with the existing private haul roads. Additional infrastructure is proposed and is detailed below.

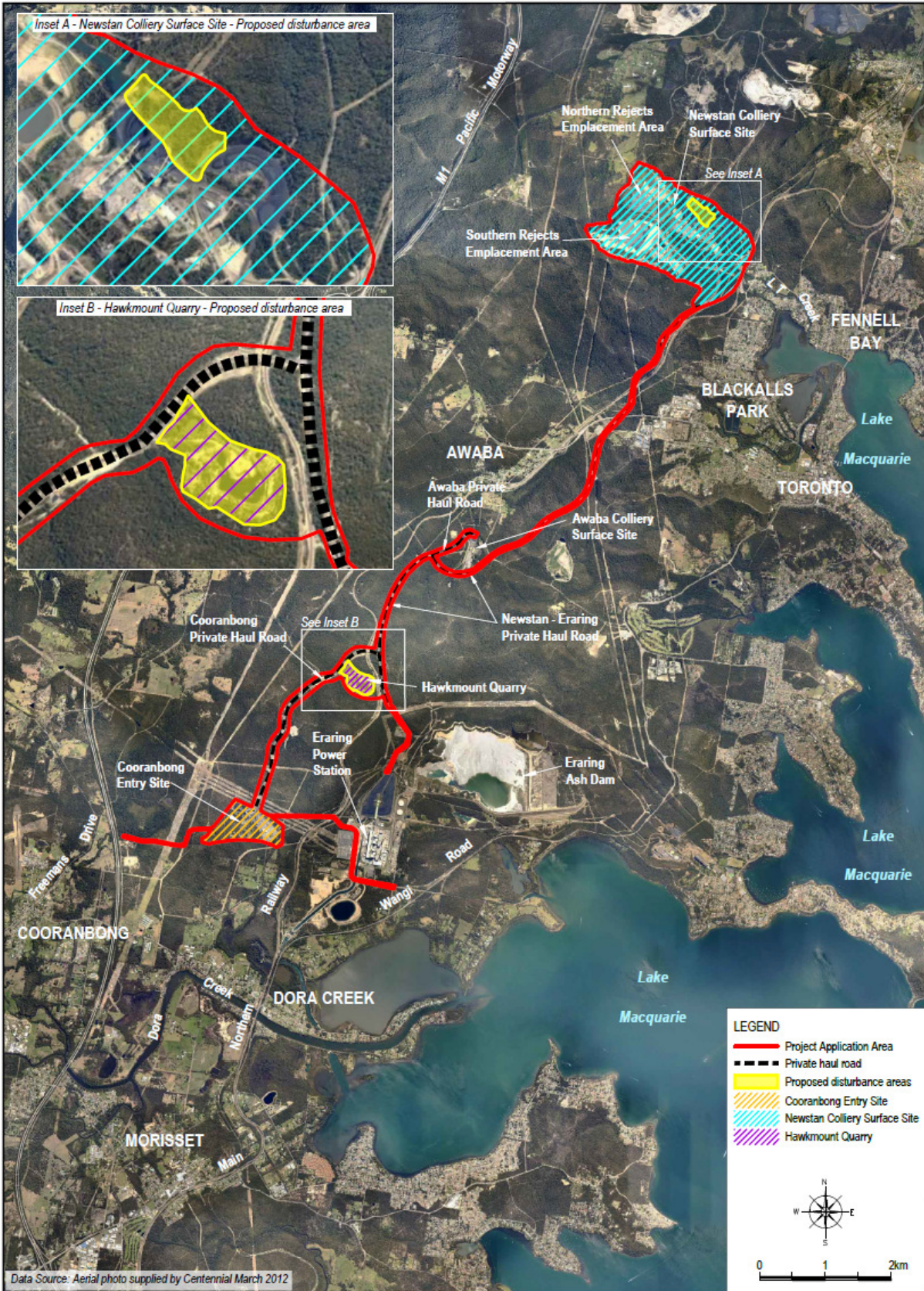


Figure 2: Project Application Area

2. Project Elements

As stated above the main elements to the project include:

- Newstan Colliery Surface Site
- Cooranbong Entry Site
- Hawkmount Quarry and
- Existing haul roads.

Each of the elements is discussed below.

2.1 Newstan Colliery Surface Site

The Project proposes the continued use of all surface infrastructure and operations at the Newstan Colliery Surface Site (with the exception of the ventilation shafts and ventilation fans given that they will become part of Centennial's Newstan Extension of Mining Project), which was approved as part of Newstan Colliery in 1999 under Development Consent DA 73-11-98. The Newstan Colliery Surface Site comprises coal handling and processing infrastructure, reject emplacement areas, water management infrastructure and rail lauding facilities adjacent to Miller Road on the outskirts of Fassifern. The Northern Coal Logistics Project also proposes to undertake re-development and upgrade works at the Newstan Colliery Surface Site, comprising:

- Extensions to existing coal stockpile areas and installation of new coal stockpile areas;
- The installation and operation of an additional new Coal Preparation Plant (CPP); and
- The installation and operation of new Coal Handling Plant (CHP) infrastructure.

The re-developed Newstan Colliery Surface Site will include a high level of automation, which will enable the coal handling and preparation activities to be more efficient (for example, will reduce the multiple handling of ROM and product coal) and involve less mobile equipment movements (for example, front end loaders and dozers). The re-developed site will have the capacity to receive, process and dispatch up to 8 Mtpa of ROM coal from the Newstan Colliery (up to 4.5 Mtpa), the Awaba Colliery (up to 0.88 Mtpa) and Mandalong Mine (up to 6 Mtpa).

The design and installation of the new coal handling and preparation infrastructure will also include the incorporation of dust suppression systems and stockpile sprays, enclosed conveyor gantries for noise and dust reduction and light and sound barrier walls.

Figure 3 illustrates the conceptual layout of the re-developed site, and the below sub-sections overview some of the primary infrastructure items/modules proposed for construction or continued use at the Newstan Colliery Surface Site.

2.1.1 Coal Handling Plant and Coal Preparation Plant

Coal will be delivered from the underground workings of the Newstan Colliery to the surface at the Newstan Colliery Surface Site via the drift conveyor and drive house, which will form part of Centennial's Newstan Colliery Extension of Mine Project. Once the coal reaches the surface it will become part of the Northern Coal Logistics Project. Coal will also be received at the Newstan Colliery Surface site from the Cooranbong Entry Site and Awaba Colliery Surface Site via the private haul roads.

The new CHP will include the installation of a new road receival facility, transfer and sizing stations, transfer conveyors, a radial arm stacker, extension of the existing ROM coal stockpile, a new ROM coal reclaim tunnel and ROM coal surge bin reclaim tunnels and an automated train loading system. The existing CPP will continue to operate in its current configuration, with some upgrades. A new CPP will be constructed and will include the installation of new coal preparation equipment, including large, fine and ultra-fine circuits, that has been designed to maximise recovery of semi soft coal product in all size fractions and minimise the production of tailings.

2.1.2 Reject Emplacement Areas

The Project's production waste management strategy incorporates the emplacement of coarse rejects at the existing NREA (nearing completion) and SREA at the Newstan Colliery Surface Site, along with at the Hawkmount Quarry. It also incorporates the continued disposal of tailings within the existing tailings dam at the SREA.

2.1.3 Mechanical Workshops and Service Buildings

The mechanical workshops and service buildings will continue to be utilised for maintenance work (major maintenance and rebuilding activities to be undertaken on a contract basis off-site). Spillage and runoff from these facilities will continue to be managed by a sump and oil separator.

2.1.4 Administration Buildings and Bathhouse

Personnel will continue to utilise the existing administration buildings and bathhouse facilities, which are capable of catering for the current and proposed manning levels.

2.1.5 Car Park

Personnel, contractors and visitors will continue to utilise the existing sealed car parking area, which is accessed off the adjoining Miller Road and provides approximately 300 parking spaces. An additional onsite area provides approximately 40 car parking spaces for the heavy vehicle transport contracting company. There are additional overflow car parking areas contained within the site if required.

2.1.6 Other Infrastructure Items

Other items of infrastructure at the Newstan Colliery Surface Site include the following:

- Control room;
- Equipment and materials laydown areas;
- Diesel refuelling station and hydrocarbon storage;
- Machinery washdown bay;
- Fire fighting and emergency equipment store;
- Compressor shed;
- Water management infrastructure;
- Solcenic tanks;
- Firefighting and emergency equipment store;
- Electrical sub-stations; and
- Emergency services helipad.

2.1.7 Servicing

The Newstan Colliery Surface Site is serviced via connections to Hunter Water Corporation's (HWC) reticulated potable water system, Ausgrid's reticulated electricity network and Telstra's telecommunications networks. Sewage from the bathhouse and other surface facilities is pumped to an on-site wastewater treatment plant. Effluent from this treatment plant is pumped via a holding tank to the Maturation Dam in the NREA.



Figure 3: Proposed Re-development of Newstan Colliery Surface Site

2.2 Cooranbong Entry Site

The Project proposes the continued use of the coal handling infrastructure at the Cooranbong Entry Site approximately two kilometres north of Dora Creek. It was approved as part of the Mandalong Mine in 1998 under Development Consent DA 97/800.

The primary items of existing infrastructure proposed for continued use at the Cooranbong Entry Site are shown on Figure 4 and summarised below.

2.2.1 Coal Handling Plant

ROM coal delivered to the Cooranbong Entry Site from Mandalong Mine will continue to be handled and processed through the coal handling plant (CHP), which comprises aerial conveyor systems, a rotary breaker and sizer, a crushing plant, coal bins and coal stockpiles.

2.2.2 Mechanical Workshops and Service Buildings

The mechanical workshops and service buildings will continue to be utilised for maintenance work (major maintenance and rebuilding activities to be undertaken on a contract basis off-site). Spillage and runoff from the workshop will continue to be managed by a sump and oil separator.

2.2.3 Administration Buildings and Bathhouse

Personnel will continue to utilise the existing administration buildings and bathhouse facilities, which are capable of catering for the current and proposed manning levels.

2.2.4 Car Park

Personnel and visitors will continue to utilise the existing sealed car parking area, which is accessed off the adjoining Gradwells Road and provides around 200 parking spaces. Approximately 14 employees are currently based at the Cooranbong Entry Site and the Project does not propose increased manning levels at this site for operational purposes. On this basis, the existing car parking is capable of accommodating the current and proposed manning levels.

2.2.5 Other Infrastructure Items

Other items of infrastructure at the Cooranbong Entry Site proposed for continued use include the following:

- Equipment and materials storage areas;
- Machinery washdown bay;
- Fuel and hydrocarbon storage;
- Fire fighting and emergency equipment store;
- Compressor building;
- Electrical sub-station;
- Water management infrastructure; and
- Emergency services helipad.

2.2.6 Servicing

The Cooranbong Entry Site will continue to be serviced via the existing connections to HWC's reticulated potable water system, Ausgrid's reticulated electricity network, and Telstra's reticulated telecommunications networks. Sewage generated by on-site staff amenities at the Cooranbong Entry Site will continue to be collected (pump out system) on a regular basis by a licensed contractor for off-site disposal.



Figure 4: Mandalong Mine - Cooranbong Entry Site

2.3 Hawkmount Quarry

The Project's production waste management strategy incorporates the emplacement of coarse rejects at the existing Hawkmount Quarry. The quarry has not been used for extraction purposes for several years, and there is no evidence of any closure or rehabilitation activities.

Hawkmount Quarry is located adjacent to and accessed from the Cooranbong Private Haul Road owned by Centennial Mandalong. It is estimated it will provide an additional 400,000 cubic metres of capacity for coarse rejects emplacement.

2.4 Private Haul Roads

The Project proposes the continued use of the existing private haul roads that link Awaba Colliery Surface Site, Newstan Colliery Surface Site, Cooranbong Entry Site, Hawkmount Quarry and Eraring Power Station. As shown on Figure 2, the Cooranbong Private Haul Road links the Newstan Colliery Surface Site and the Cooranbong Entry Site via the Newstan-Eraring Private Haul Road. This initial section of the haul route is approximately 3.4 kilometres long and is owned by Centennial Mandalong. The Newstan-Eraring Private Haul Road linking Newstan Colliery Surface Site to Eraring Power Station is approximately 13 kilometres long and is owned by Eraring Energy. These private haul roads are sealed to minimise dust and noise generation and have been constructed to include surface water drainage and management.

In addition, the Project proposes the continued use of the private haul road linking Awaba Colliery Surface Site to the Newstan-Eraring Private Haul Road. At present, Centennial Newstan has approval to transport up to 880,000 tpa of material from Awaba Colliery Surface Site to Newstan Colliery Surface Site utilising this haul road.

3. Social Impact Assessment – Overview and Methodology

3.1 Overview

A SIA is a systematic, staged approach of enquiry which focuses on the human element of the environment to identify who may be affected by the Project and how they are affected – i.e. the extent of change that will be experienced in the community. The SIA must therefore take into account the scope of the Project and how the Project will impact on the needs, issues, values and aspirations of community stakeholders. The purpose of the SIA is to:

- Assess the social impacts of the Project including any impacts on local infrastructure and services.
- Assist in establishing the full facts about the Project, to support a well-informed decision about the appropriateness of the Project.
- Recommend mitigation measures to minimise adverse impacts and maximise benefits of the Project.
- Assess the impacts of the Project on future generations.
- Inform the community and facilitate participation by the community in the planning and assessment process.
- Facilitate the consideration of alternative Project proposals.
- Enhance existing data to inform the planning and development assessment process.

The broad steps in compiling a SIA are:

1. Profiling: This involves understanding the scale and scope of the Project, assessment and identifying the stakeholders (determined by the areas of affectation).
2. Scoping: This involves identifying the likely impacts arising from the Project and includes consultation and feedback from identified stakeholders. Consultation is undertaken in a range of ways and may include informal consultation, stakeholder engagement, surveys etc.
3. Assessment: This section explores the likely impacts that will arise. The scope of the assessment is determined by the likely impacts and as a guide may include (but not be limited to):
 - Changes to the population and characteristics of the area.
 - The community structure, its character or beliefs.
 - The health and safety of those living and working in the vicinity of the Project.
 - An assessment of safety as it relates to crime, anti-social and nuisance behaviour.
 - Social cohesion, in particular the quality of life of those living in the vicinity of the Project.
 - Cost of living, including housing affordability.
 - Accessibility.
 - Sense of place and community.
 - The impact on existing services.
4. Management: All impacts should be identified and those that are identified as having an adverse or detrimental affect need to be managed and mitigated where possible. It is not always possible to manage all adverse impacts however identification of these impacts and how they can be managed must be taken into account. Similarly, impacts that are identified as being positive need to also be identified and capitalised upon where possible and appropriate. This allows for an assessment as to whether the proposal meets net community benefit criteria.
5. Monitoring: Strategies to monitor identified impacts may need to be identified to ensure that management strategies are adhered to and those cumulative impacts are identified, monitored and taken into account with further development.

3.2 Director Generals Requirements (DGRs)

The DGRs that were issued on 20 March 2012 and subsequently re-issued on 7 August 2013 request that social and economic impacts be addressed within the EIS. The relevant DGRs and where they have been addressed are outlined in Table 1.

Table 1: Director General’s Requirements for Social and Economic Impact

Assessment	Found
<ul style="list-style-type: none"> Potential direct and indirect economic benefits of the development for local and regional communities and the State. 	Refer Economic Impact Assessment.
<ul style="list-style-type: none"> Potential impacts on local and regional communities, including: <ul style="list-style-type: none"> ➤ any increased demand for local and regional infrastructure and services (such as housing, childcare, health, education and emergency services); and ➤ impacts on social amenity. 	This Document. Section 4 and 5
<ul style="list-style-type: none"> A detailed description of the measures that would be implemented to minimise the adverse social and economic impacts of the development, including any infrastructure improvements or contributions and/or voluntary planning agreement or similar mechanism. 	Section 4 and 6
<ul style="list-style-type: none"> A detailed assessment of the costs and benefits of the development as a whole, and whether it would result in a net benefit for the NSW community. 	This document. Refer Economic Impact Assessment

4. Community Profile

The Project is located on the western side of Lake Macquarie within the Lake Macquarie Local Government Area.

4.1 Overview

The Project Application Area is located in the Lake Macquarie LGA which is part of the Hunter Region. Lake Macquarie LGA is located in the Hunter Region of NSW, about 110 kilometres north of Sydney. Lake Macquarie LGA is bounded by Newcastle City in the north, the Tasman Sea in the east, Wyong Shire in the south and Cessnock LGA in the west. Lake Macquarie is a rural and residential area with some industrial land use. The LGA encompasses a total land area of about 750 square kilometres, of which a large proportion is National Park, State Forest and nature reserves.

Lake Macquarie was first inhabited by the Awabakal tribe over 8,000 years ago. Lake Macquarie's original inhabitants derived their name from the lake, with the word Awabakal meaning people of the calm surface. The calm surface also heavily influenced the first white settlers to the area in 1800 as they developed a strong fishing industry on the lake. The oldest existing town, Catherine Hill Bay, retains the original cottages built by the area's first coal miners in the late 1800s.

Residential areas are dispersed around the lake and the largest population centres are located north of the lake (in suburban Newcastle) including Charlestown, Glendale and Cardiff. The other main population centres are Belmont, Morisset, Mount Hutton, Swansea, Toronto and Warners Bay. The Lake Macquarie LGA is one of the fastest growing cities in the Hunter, and one of the largest cities in NSW. In summary:

- Lake Macquarie’s population is approaching 200,000 people.
- Lake Macquarie is the Hunter’s largest city, accounting for 37% of the Lower Hunter population.
- Lake Macquarie is the fourth most populous city in NSW, and the eighth most populous city in Australia.
- The population of Lake Macquarie is expected to grow by 60,000 – 70,000 people over the next 25 years, which will create a demand for 36,500 new dwellings.

In its Lifestyle 2030 Strategy, the vision for the City, held by Council and the community, is that it is a place:

- Where the environment is protected and enhanced.
- Where the scenic, ecological, recreational, and commercial values and opportunities of the Lake and coastline are promoted and protected.
- With a prosperous economy and a supportive attitude to balanced economic growth, managed in a way to enhance quality of life and satisfy the employment and environmental aims of the community.
- That recognises, encourages, develops its diverse cultural life and talents, protects, and promotes its heritage.
- That encourages community spirit, promotes a fulfilling lifestyle, enhances health and social well-being, encourages lifestyle choices, and has opportunities to encourage participation in sport and recreation.
- That promotes equal access to all services and facilities and enables all citizens to contribute to and participate in the City's economic and social development.
- That promotes affordable housing.

To guide future development in the City the four core values of the Strategy are:

Sustainability: This means integrating the management of environmental, economic, social, and cultural elements to ensure that all resources of the Lake Macquarie Local Government Area (LGA), as well as those sourced from other places, are respected, preserved, enjoyed, and utilised in a sustainable manner both for current and future generations.

Equity: This means fairly distributing and improving access to employment, housing, urban services, community facilities, environmental quality and recreation and providing for a range of lifestyle opportunities to suit all members of the community.

Efficiency: This means facilitating infrastructure and a land use structure that provide a more comprehensive approach to the design of movement networks, open space and water management systems and other services across a wide range of living, employment and leisure opportunities that are capable of adapting over time to social, economic or environmental change.

Liveability: This means developing a well designed, attractive and functional land use pattern that results in diverse, accessible, compatible and vibrant environments that support security, safety, identity, historic continuity and cultural diversity, and allows for the efficient and timely provision of necessary infrastructure. The general population and demographic characteristics are listed below.

Table 2: Selected Medians for Lake Macquarie LGA 2001 - 2011

	2001	2006	2011
Median age of persons	38	40	41
Median total personal income (\$/weekly)	313	392	517
Median total family income (\$/weekly)	849	1,113	1,396
Median total household income (\$/weekly)	705	920	1,114
Median mortgage repayment (\$/monthly)	867	1,300	1,733
Median rent (\$/weekly)	145	185	256
Average number of persons per bedroom	1.1	1.1	1.1
Average household size	2.6	2.6	2.5

Source: ABS 2011 Census Data

4.2 Characteristics of the Project Application Area

The residential areas within proximity to the various elements of the Project Application Area are:

- Fassifern and Blackalls Park (approximately 580 m to the south east of the Newstan Colliery Surface Site and 560 m to the west of the Newstan-Eraring Private Haul Road at its closest point);
- Wakefield – rural residential properties (to the north and north west of the Northern Reject Emplacement Area (NREA) and Southern Reject Emplacement Area (SREA));
- Awaba (approximately 650 m to the west of the Newstan-Eraring Private Haul Road at its closest point); and
- Dora Creek (approximately 2 km to the south of the Cooranbong Entry Site).

The location of the nearest residential areas to the Project Application Area are shown in Figures 5, 6 and 7. As described above the Project aims to increase coal handling capability at its various sites. This will involve additional surface infrastructure at the Newstan Colliery Surface Site.

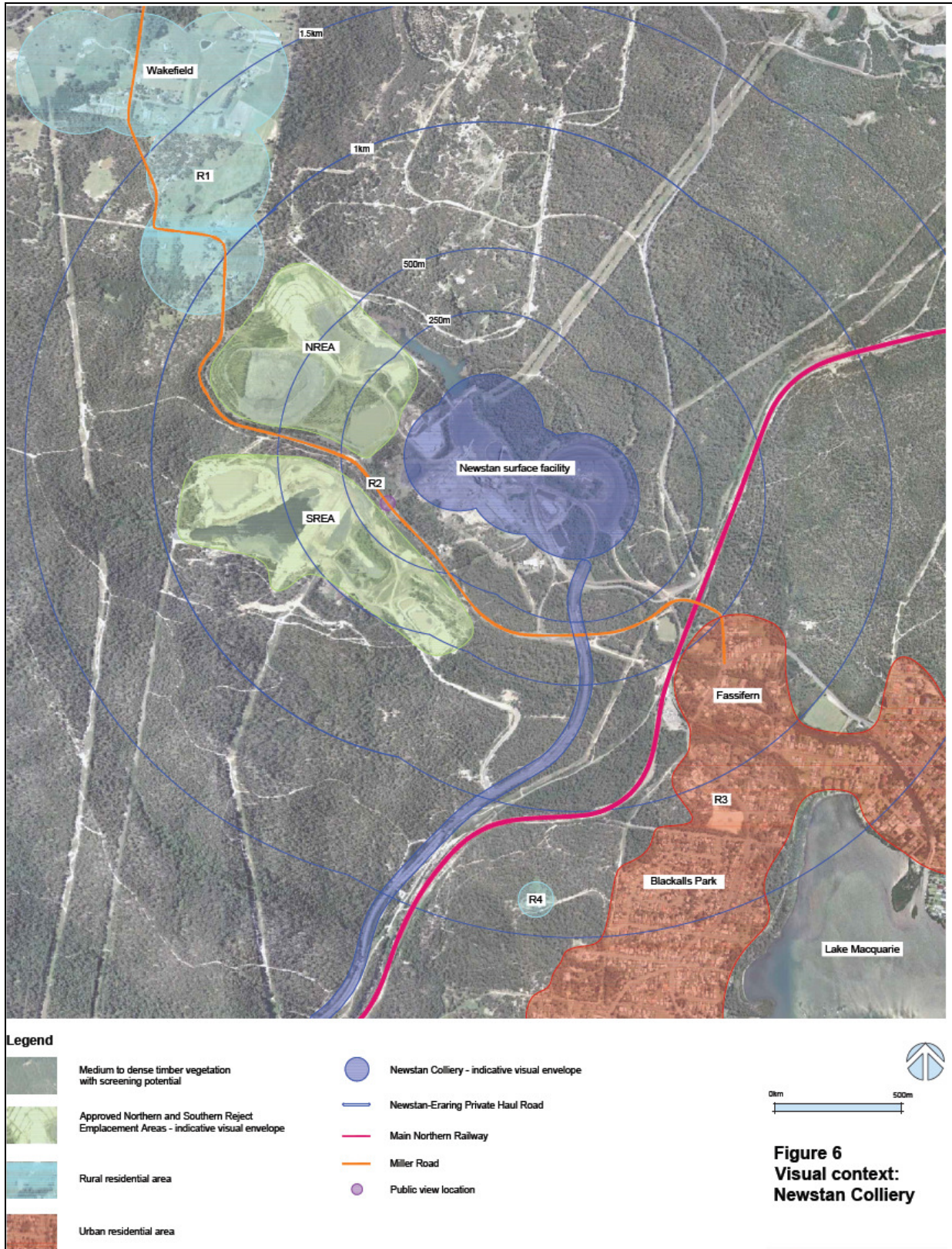


Figure 5: Newstan Colliery Surface Site and Relationship to Nearby Residential Areas.

Source: Green Bean Design Visual Impact Assessment

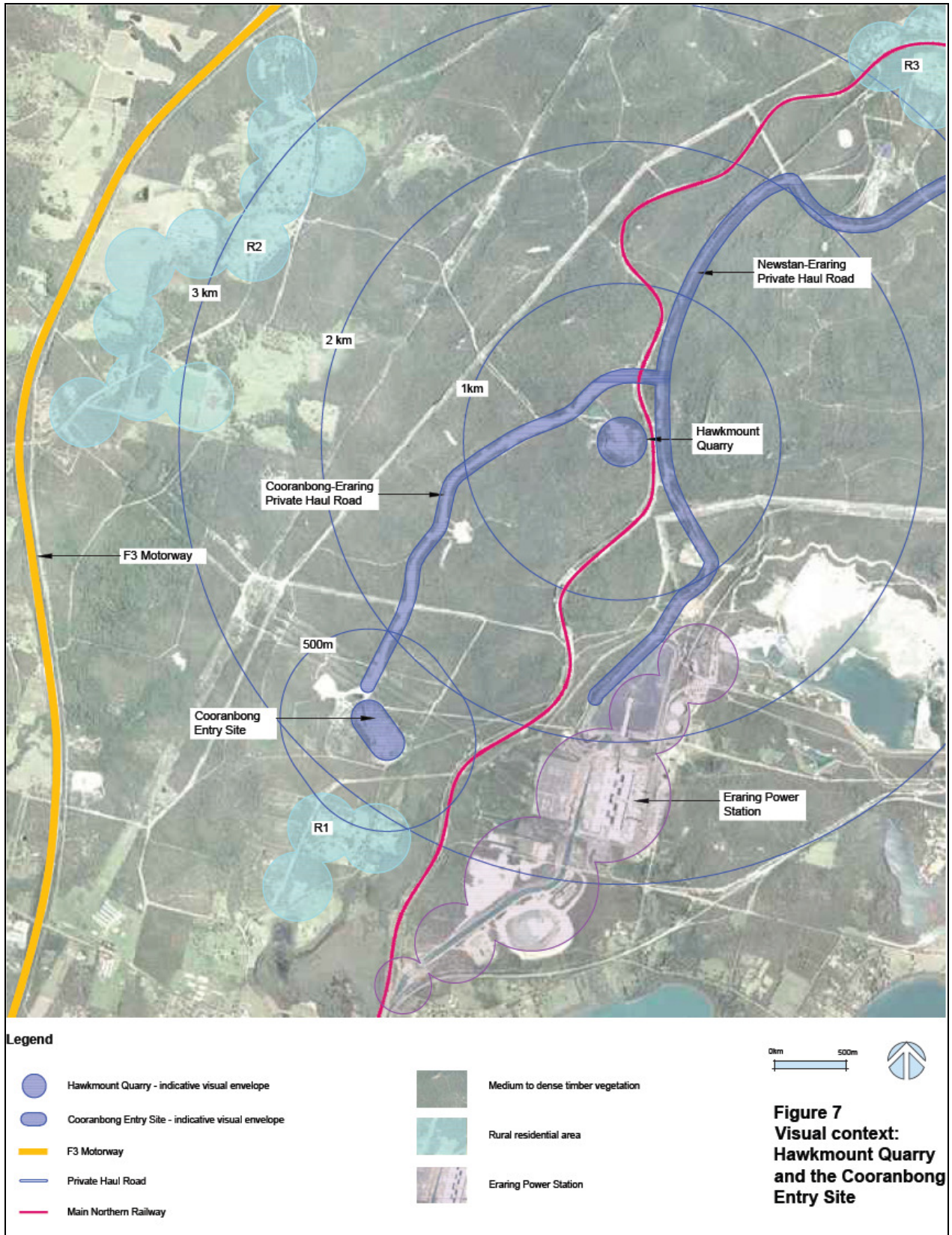


Figure 6: Hawkmount Quarry and Cooranbong Entry Site and Relationship to Residential Areas.

Source: Green Bean Design Visual Impact Assessment

**Figure 7
Visual context:
Hawkmount Quarry
and the Cooranbong
Entry Site**

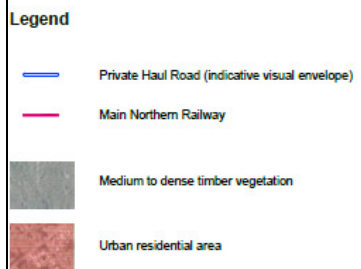
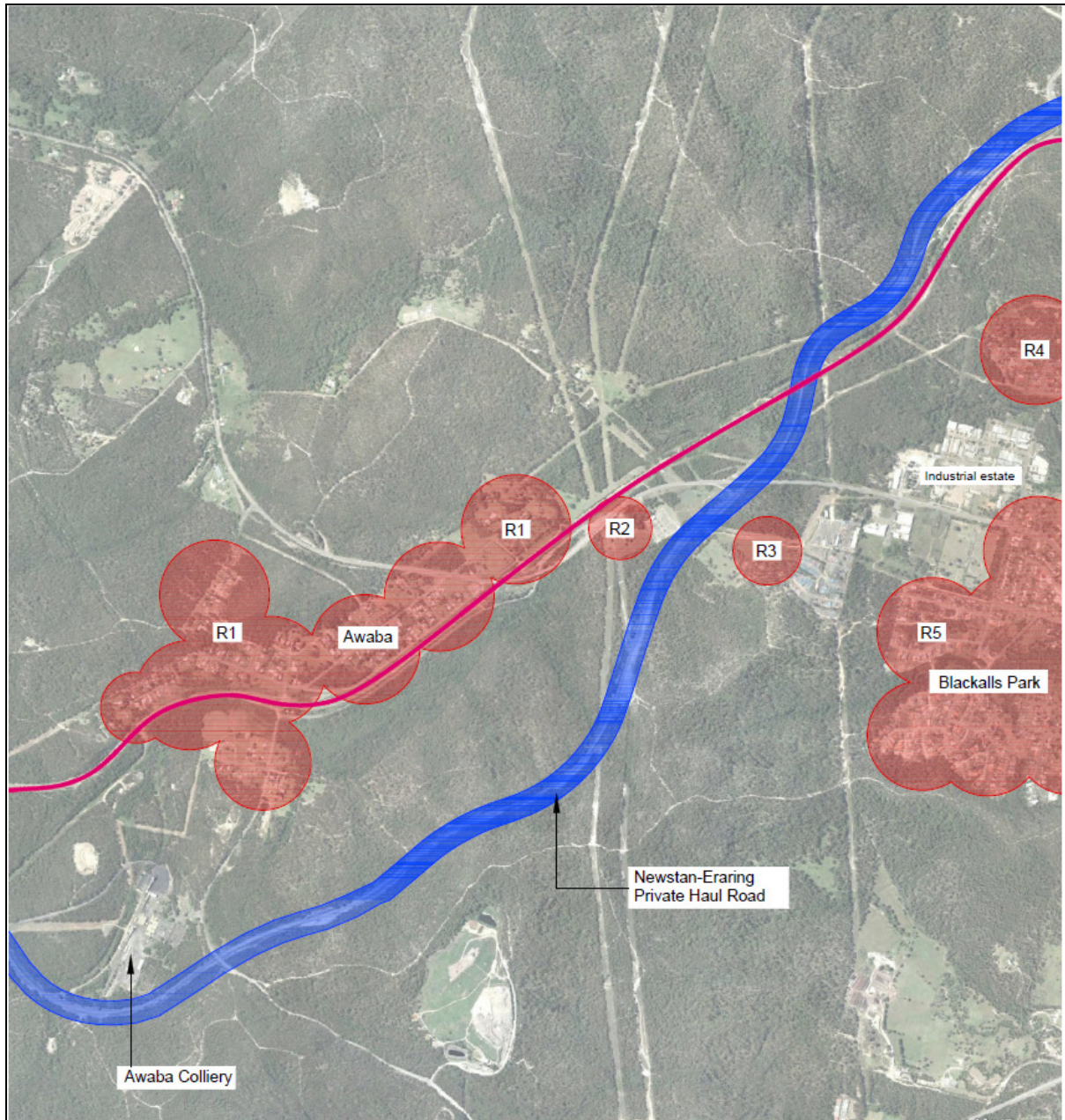


Figure 8
Visual context:
Newstan-Eraring
Private Haul Road

Figure 7: Newstan Eraring Private Haul Road and Relationship to Residential Areas.
 Source: Green Bean Design Visual Impact Assessment.

Table 3: Basic Population Profile

	Dora Creek	Awaba	Fassifern	Blackalls Park	Wakefield
Population	1,671	352	621	2,763	176
Median age of persons	47	37	42	40	45
Median total personal income (\$/weekly)	\$503	\$480	\$515	\$986	\$629
Median total family income (\$/weekly)	\$1,129	\$1,403	\$1,368	\$1,159	\$1,478
Median total household income (\$/weekly)	\$919	\$1,125	\$1,194	\$986	\$1,437
Median mortgage repayment (\$/monthly)	\$1,733	\$1,733	\$1,560	\$1,517	\$2,600
Median rent (\$/weekly)	\$270	\$165	\$208	\$260	\$235
Average household size	2.4	2.8	2.5	2.5	3
Unemployment	5.4%	6.6%	6.6%	5.6%	5.8%

Source: ABS 2011 Census Data

Table 4: Occupation

Dora Creek %		Awaba %		Fassifern %		Blackalls Park %		Wakefield %	
Technicians and Trades Workers	19.4	Technicians and Trades Workers	19.9	Technicians and Trades Workers	18.3	Technicians and Trades Workers	20.1	Technicians and Trades Workers	16.8
Professionals	16.2	Professionals	15.8	Professionals	16.5	Labourers	14.4	Clerical and Administrative Workers	15.8
Labourers	13.8	Machinery Operators And Drivers	13.5	Clerical and Administrative Workers	14.7	Professionals	13.9	Professionals	14.7
Clerical and Administrative Workers	12.5	Community and Personal Service Workers	12.3	Machinery Operators And Drivers	11.7	Community and Personal Service Workers	12.9	Managers	10.5
Sales Workers	9.9	Clerical and Administrative Workers	11.7	Labourers	11.0	Clerical and Administrative Workers	11.5	Community and Personal Service Workers	10.5
Machinery Operators And Drivers	9.2	Labourers	11.1	Managers	9.5	Sales Workers	10.4	Machinery Operators And Drivers	10.5
Community and Personal Service Workers	8.9	Sales Workers	9.9	Community and Personal Service Workers	9.2	Machinery Operators And Drivers	9.1	Labourers	9.5
Managers	8.6	Managers	5.8	Sales Workers	9.2	Managers	5.7	Sales Workers	8.4

Source: ABS 2011 Census Data

Table 5: Industry of Employment

Dora Creek %		Awaba %		Fassifern %		Blackalls Park %		Wakefield %	
Residential Care Services	4.5	Hospitals	7.0	Hospitals	6.2	Cafes, Restaurants and Takeaway Food Services	5.5	Grocery, Liquor and Tobacco Product Wholesaling	9.4
School Education	4.0	Supermarket and Grocery Stores	5.8	School Education	5.5	School Education	5.2	Coal Mining	6.2
Cafes, Restaurants and Takeaway Food Services	2.8	School Education	5.2	Residential Care Services	4.8	Supermarket and Grocery Stores	4.2	Architectural, Engineering and Technical Services	5.2
Hospitals	2.7	Coal Mining	4.7	Coal Mining	4.0	Residential Care Services	4.0	Sheep, Beef Cattle and Grain Farming	4.2
Poultry Farming	2.5	Heavy and Civil Engineering Construction	4.7	Supermarket and Grocery Stores	3.7	Hospitals	3.2	Other Mining Support Services	4.2

Source: ABS 2011 Census Data

A summary of the key population characteristics of these areas are listed below:

- All suburbs have a fairly consistent socio-economic profile.
- Residents are more likely to be technicians and trades workers or professionals and the predominant industry of employment is hospitals, residential care, education, retail and coal mining.
- The median age of the population across the Project Application Area is generally older than that of the LGA with the exception of Awaba. The oldest populations are in Dora Creek, Wakefield and Fassifern.
- Awaba, Fassifern and Wakefield's population has been relatively stable as only limited development has occurred.

On review of the census data since 1996, it is evident that the community is generally becoming more professional. Some factors that influence change across the west lakes area is the in-migration of people who generally have a higher socio-economic status than that of residents of 12 – 18 years ago (e.g. in Blackalls Park).

The historical traditions of employment are also shifting. Residents are now employed in a diverse range of occupations and across a range of employment sectors. Therefore, despite the long history of mining in this area, the change in the population and demographic characteristics means that residents may now have different attitudes and values to some longer term residents.

With this in mind, longer term residents describe Newstan Colliery as being a source of change to the local environment and amenity of the area. For example, residents of Fassifern, Blackalls Park and more broadly those with an interest in LT Creek (for example the LT Creek Sustainable Neighbourhood Committee), state that Newstan Colliery is the source of dust, noise and pollution (silt / sediment) in LT Creek. Dust and noise extending along the haul roads and rail corridors has also been raised as a concern.

A survey undertaken by the LT Creek Sustainable Neighbourhood Committee has identified what residents like about living in the area are:

- Peace and quiet.
- Proximity to lake, creeks, and bush land.
- Proximity to amenities, shops, doctors etc.
- Having good neighbours.

It was also identified that the most important issues in the neighbourhood are:

- Litter.
- Siltation, water pollution, and urban run-off.
- Mining and air pollution.
- Stormwater and drainage infrastructure.

Awaba residents have enjoyed access to surrounding bush and describe changes to the environment through subsidence; reduced access after the construction of the haul road as having an adverse impact on their way of life. Dora Creek residents have expressed concern regarding water quality

due to discharge from industry (including the Cooranbong Entry Site and Eraring Power Station) as a key area of concern and an area where not much information about the impact of industry has been made available. The key outcome from consultation has found that residents do not want a change to their social amenity and the general environmental conditions where they live.



Lower reaches of LT Creek at Fennel Bay.



Awaba Village has a distinct rural character.



Residential areas around the western shore of Lake Macquarie have views of power station infrastructure.



Power station infrastructure.

Figure 8: Selected Characteristics of the Area.

4.3 Stakeholder Analysis

Social impact relates to the degree of change that is brought about by the Project. The degree of change may be real or perceived. For example, despite noise and air quality criteria being met, any change to the environment (ie that is brought about by increased noise and dust) is usually regarded, by affected residents, as an adverse impact. Residential social amenity is sometimes determined by the intrinsic value that residents (and visitors) have of an area – i.e. the factors that have attracted residents to live in the area may be described as peace and quiet; and if this value is adversely impacted upon as an outcome of the Project a loss in value is often articulated.

A long term consultation strategy has been employed for Centennial Coal activities throughout its northern region. As a result the primary stakeholder groups can be defined as follows:

- Any resident whose property will be directly impacted upon by the siting of infrastructure. Impacts include visual, noise, dust, odour, access, etc.
- Change in general social amenity brought about by noise, dusts / air quality and visual impacts even if residents are not directly impacted upon.
- Reduced access to publicly accessible areas.
- Residents and groups who have been impacted upon by the existing mining operations who will experience impacts from the proposal. This includes Blackalls Park and Fassifern residents and interest groups such as the LT Creek Sustainable Neighbourhood Committee.

5. Potential Social Impacts

5.1 Overview

The potential for social impacts has been identified as an outcome of long term consultation and assessed against the elements of the Project including the various specialist reports prepared to support the Environmental Impact Statement (EIS).

The potential for change to the social amenity of the area caused by the Project is determined to be noise, air quality and visual impacts. The health of LT Creek and Muddy Lake are also considered important features of the local community. This determination is made because:

- The Project is largely a continuation of existing surface activities associated with the approved Newstan Colliery and Mandalong Mine operations.
- The only additional surface disturbance proposed is two relatively small areas at the existing Newstan Colliery Surface Site (7.5 hectares) and the existing Hawkmount Quarry (13.9 hectares). All other existing and proposed operational areas within the Project Application Area are already highly disturbed and developed.
- Noise, air quality, visual and water impacts will exceed the Project Application Area boundary and potentially impact on the social amenity of the surrounding area.

The specialist consultant's reports for noise, air quality, visual and water impact assessments has been reviewed and summarised in Tables 6, 7, 8 and 9.

Table 6: Air Quality

Areas of Potential Impact / Concern: Adverse Impact on Health and Amenity		SIA Response	
Cause	Potential Outcome	Management / Control	Comment
<p>Wind erosion of coal stockpile.</p> <p>Wind erosion of REA.</p> <p>Coal transport and handling.</p> <p>Coal reject handling.</p> <p>Wheel generated dust (from vehicles).</p>	<p>Dust, odour, loss of habitat.</p>	<ul style="list-style-type: none"> • Controls identified in the Air Quality Impact Assessment. 	<p>SLR (2014) have conducted an Air Quality Impact Assessment and the modelling exercise for the Project indicates that:</p> <ul style="list-style-type: none"> • Deposited dust concentrations were unlikely to exceed the relevant criterion at any of the identified sensitive receptors for all modelled scenarios for both the Newstan Colliery Surface Site and the Cooranbong Entry Site. • Concentrations of TSP and PM_{2.5} were unlikely to exceed the relevant criterion at any of the identified sensitive receptors for all modelled scenarios for both the Newstan Colliery Surface Site and the Cooranbong Entry Site. • The PM₁₀ concentrations were unlikely to exceed the relevant criterion at any of the identified sensitive receptors surrounding the Cooranbong Entry Site for both modelled scenarios. • To achieve the relevant PM₁₀ criterion at all of the identified sensitive receptors surrounding the Newstan Colliery Surface Site, it was recommended that: <ul style="list-style-type: none"> ➤ Train loading operations will be automated once it is proposed to export 6 Mtpa from the Newstan Colliery Surface Site; or ➤ Coal transfers between the CPP and the rail loop stockpile will be automated once it is proposed to export 6 Mtpa AND train loading operations will be automated once it is proposed to export 8 Mtpa from the Newstan Colliery Surface Site. • Odour concentrations were predicted to be below the relevant criterion at all the identified sensitive receptors during Project operations for all modelled scenarios for both the Newstan Colliery Surface Site and the Cooranbong Entry Site.

Table 7: Noise

Areas of Potential Impact / Concern: Adverse Impact on Health and Amenity		SIA Response	
Cause	Potential Outcome	Management / Control	Comment
Operational noise from haulage trucks, train loading, stockpile management. Construction noise	Adverse impact on social amenity during day, evening and night time.	<ul style="list-style-type: none"> Controls identified in the Noise Impact Assessment. 	<p>SLR (2014) have undertaken a Noise Impact Assessment and found that:</p> <ul style="list-style-type: none"> Operational noise levels are predicted to exceed the project-specific noise criteria at night during calm conditions by up to 1 dBA and by up to 4 dBA during night time temperature inversions at NC3. Once the mitigation works to the existing CPP and transfer tower are completed, a 2 dBA exceedance is predicted during night time temperature inversions at NC3. Once a second CPP is constructed at the Newstan Colliery Surface Site a 2 dBA exceedance is predicted at night during calm conditions and a 5 dBA exceedance during night time temperature inversions at NC3. If the new CPP is clad in noise attenuating panels, a 2 dBA exceedance is predicted during night-time temperature inversions at NC3. Manual loading of trains can continue to be undertaken at the Newstan Colliery Surface Site with only a 2 dBA exceedance at NC3 during a night time temperature inversion so as long as the proposed mitigation measures are completed and the new CPP is constructed and clad with noise attenuating panels. The noise modelling results demonstrate that once the mitigation measures to the existing CPP and transfer tower are completed, the Project can continue to operate with manual loading of trains with the only minor exceedance predicted at NC3 at night during a temperature inversion. The construction of an automatic train loading facility provides little benefit to the overall noise predictions and as such, is not required to be constructed to manage noise levels on site. Instead, the automatic train loading facility will be constructed when operational efficiencies require it or to meet other environmental criteria.

Table 8: Visual

Areas of Potential Impact / Concern: Adverse Impact on Health and Amenity		SIA Response	
Cause	Potential Outcome	Management / Control	Comment
Visual impact from infrastructure, lighting.	Adverse impact on residential amenity.	<ul style="list-style-type: none"> • Visual Impact Assessment. • Treatment of infrastructure to minimise impacts. 	<p>The Visual Impact Assessment (Green Bean Design 2014) states that the magnitude of potential landscape effect associated with the Northern Coal Logistics Project has been determined as low. The low magnitude of landscape effect is largely due to the location and extent of existing mining operations within, and beyond, the Project Application Area.</p> <p>Existing landscape characteristics within and surrounding the Project Application Area are generally robust and would have the ability to absorb any significant change without altering the existing landscape character.</p> <p>The Northern Coal Logistics Project will have a low to negligible visual impact on private residential dwellings beyond the Project Application Area. The negligible to low visual significance results from the screening influence of sloping and ridgeline landforms, together with moderate to dense tree cover, that surrounds the Project Application Area as well as private residential dwellings.</p> <p>The Northern Coal Logistics Project is considered to have limited potential to increase the significance of cumulative visual impact due to the extent of existing visual screening surrounding the Project Application Area and the location of proposed constructed elements relative to existing infrastructure.</p>

Table 9: Water Impact

Areas of Potential Impact / Concern: Adverse Impact on Health and Amenity		SIA Response	
Cause	Potential Outcome	Management / Control	Comment
Ground and surface water entering into creeks and waterways resulting in pollution, loss of habitat, increased siltation.	Adverse impact on residential amenity.	<ul style="list-style-type: none"> • Water Impact Assessment. • Treatment of infrastructure to minimise impacts. 	<p>The Water Impact Assessment (GHD 2014) states that:</p> <ul style="list-style-type: none"> • The general water quality of LT Creek has been greatly improved as a result of infrastructure works and upgrades to sediment control, clean water dams and the piping of LT Creek at Newstan Colliery. Therefore there is no identified impact from surface water run-off water due to piping of LT Creek at Newstan and the re-direction of surface water run-off into the clean water dam. There will be no impact from construction discharge. Therefore licensed discharges are better controlled and the health of LT Creek will continue to improve. • Water discharge quality from the Cooranbong Entry Site into Muddy Creek has been highlighted due to the chemical species and metals present in water extracted from the Cooranbong Longwall Void. Therefore water quality improvement measures are required to maintain low total suspended solids and to reduce metal concentrations (particularly nickel). It is recommended that the storage volume of the Borehole Dam should be increased along with baffles retrofitted in the storage to provide an increase residence time to occur.

5.2 Comment of Social Impacts Relating To DGRs

Given the information above an assessment of change to the social environment can be made and compared against the DGRs relating to this Project.

5.2.1 Assessment of potential impacts on local and regional communities, including:

- any increased demand for local and regional infrastructure and services (such as housing, childcare, health, education and emergency services); and
- impacts on social amenity.

The SIA has found that there will be no increased demand for local and regional infrastructure and services resulting from this Project. Employees are established in their communities and no demand for any services or additional infrastructure has been identified.

As determined from the specialist consultants reports, the potential impacts that exceed the Project Application Area appear to be limited to air quality, noise, visual and water impacts which are again summarised in 5.2.1.1, 5.2.1.2, 5.2.1.3 and 5.2.1.4 below.

5.2.1.1 Air Quality Impact

A number of scenarios have been modelled and it was found that the Project could achieve compliance across all criterion of certain mitigation measures for PM₁₀ were in place. Relevant PM₁₀ criterion can be achieved at all identified sensitive receptors surrounding the Newstan Colliery Surface Site if the train loading operations are automated once it is proposed to export 6 Mtpa from the Newstan Colliery Surface Site; or coal transfers between the CPP and the rail loop stockpile will be automated once it is proposed to export 6 Mtpa and train loading operations will be automated once it is proposed to export 8 Mtpa from the Newstan Colliery Surface Site.

The Air Quality Impact Assessment (SLR: 2014) states that deposited dust concentrations were unlikely to exceed the relevant criterion at any of the identified sensitive receptors for all modelled scenarios for both the Newstan Colliery Surface Site and the Cooranbong Entry Site.

This is a positive outcome for the Project and has been achieved via the implementation of a number of dust mitigation strategies across the Project Application Area. Ongoing monitoring will be required as the impact of dust at Fassifern is stated to be an ongoing issue.

5.2.1.2 Noise Impact

Noise emissions from the Project are predicted to largely be contained within the Project Application Area with the exception of potential noise exceedance at receptor NC3 (refer Figure 9 below). Noise management strategies will need to be considered at this residence.

It is noted that an extensive noise mitigation strategy has been employed across all of the elements of the Project (SLR; 2014: 66). Furthermore, it must be noted that assumptions in the report have been made modelling noise emissions from the subject site that include the following:

- All acoustically significant plant and equipment operates simultaneously.
- Mobile noise sources, such as delivery and product despatch trucks, were modelled at typical locations and assumed to operate in repetitive cycles.
- All existing mitigation measures identified have been implemented.

Therefore the risk of exceedance is minimal and adaptive management practices can be implemented to further minimise any risk of noise impact at NC3.

5.2.1.3 Visual Impact Assessment

Impact Assessment (Green Bean Design 2014) states that the magnitude of potential landscape effect associated with the Northern Coal Logistics Project has been determined as low. No social impact is identified.

5.2.1.4 Water Impact Assessment

LT Creek has been a cause of concern for the community. It is understood that the health of LT Creek has been greatly improved due to significant infrastructure works and upgrades. Consultation with the community regarding the LT Creek will be ongoing via the Community Consultative Committee (CCC) and LT Creek Sustainable Neighbourhood Committee.

Water discharge quality from the Cooranbong Entry Site into Muddy Creek has been highlighted due to the chemical species and metals present in water extracted from the Cooranbong Longwall Void. It is recommended that the storage volume of the Borehole Dam should be increased along with baffles retrofitted in the storage to provide an increase residence time to occur.

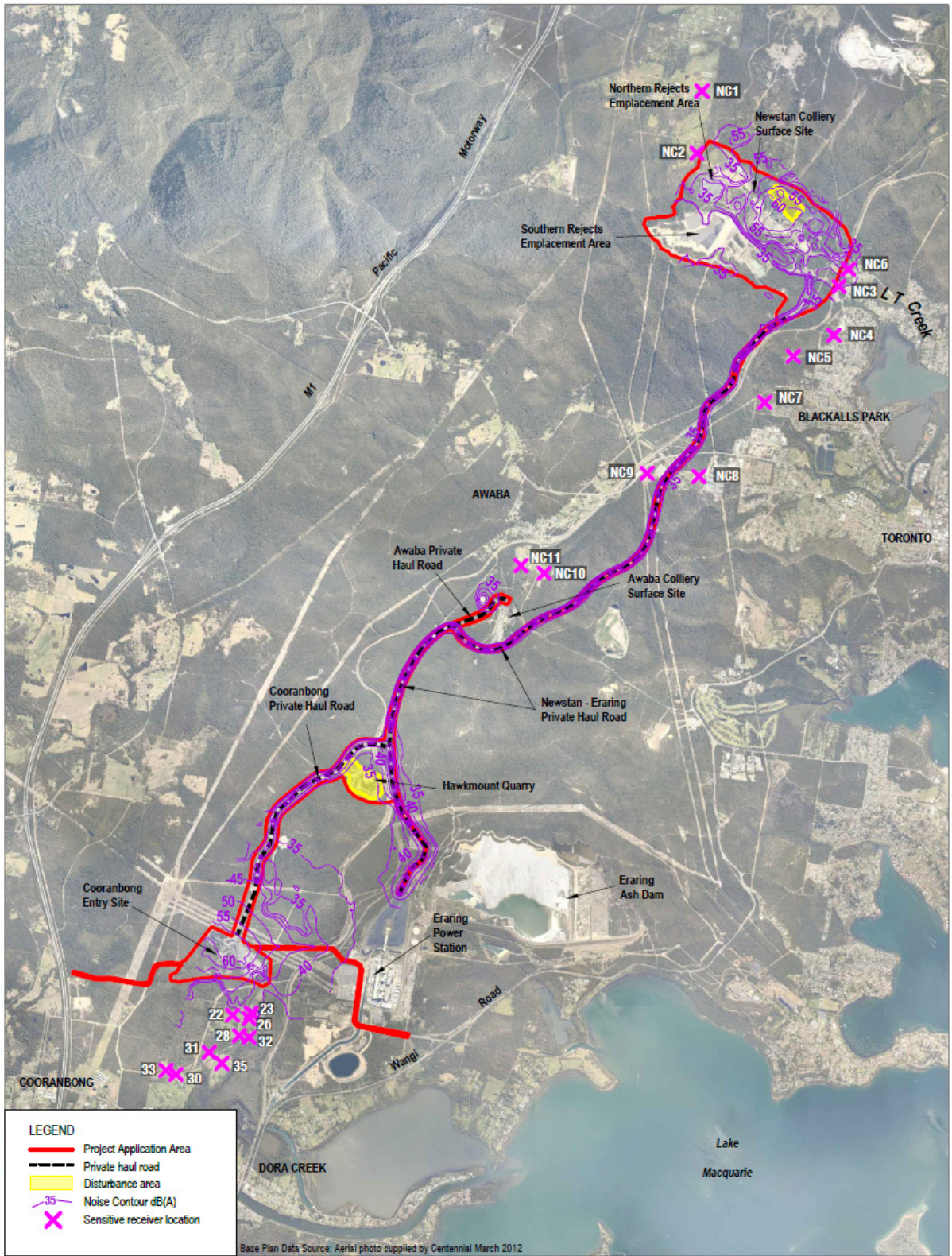
5.2.2 Assessment of the costs and benefits of the development as a whole, and whether it would result in a net benefit for the NSW community.

The Project will result in overall benefit to the regional and NSW economies. This is achieved via:

- The Project will provide 120 full-time equivalent (FTE) employment positions worth approximately \$381.6 million over the life of the Project. Whilst no set construction period is identified construction works at the Newstan Colliery Surface Site will require up to 195 FTE construction contractors with a benefit of approximately \$23.3 million over the life of the Project.

Construction works will be undertaken throughout the life of the Project to meet operational efficiencies and to ensure that air quality and noise amenity criteria are met. The mining industry is acknowledged as an important component of the regional economy. The salaries paid to these employees and contractors provide material economic stimulus and activity in the local and regional economies. Furthermore, is the value brought via participation in the social economy such as involvement in schools, volunteering, club membership, local committees etc.

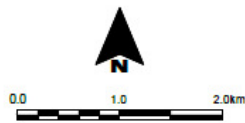
- The Project will also provide ongoing revenue streams to Federal (e.g. corporate income taxes), State (e.g. royalties, payroll tax) and Local (e.g. rates) governments over the period of operation. It is estimated that this contribution will be \$26.0 million.
- The Project has been developed to maximise coal handling capability while minimising the potential for impacts outside of the Project Application Area and surrounding community.



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Centennial Coal
NORTHERN COAL LOGISTICS PROJECT
 Noise Contour Map -
 Scenario 6 Predicted Operational Noise
 LAeq(15min)-Night-time Prevailing Winds
APPENDIX G

Figure 9: Predicted Operational Noise Contour Map.

5.3 Ongoing Management and Monitoring

There has been an extensive program of infrastructure upgrades to improve operational performance and minimise the environmental and subsequent community impact relating to the various elements of this Project.

Moving forward, the existing CCC is considered to be the most appropriate forum in which to engage the community regarding the ongoing operation of the Project. The impact of dust on residents living in and around Fassifern has been identified as a key source of concern as has the health of LT Creek. Ongoing monitoring to ensure compliance will therefore be required and reported to the community via the CCC.

Direct consultation will be required with the resident at receptor NC3. It is understood however that the Noise Impact Assessment has considered the worst case scenario and conventional mitigation measures to address any potential issue would be adequate.

6. Conclusion

The Project comprises the continuation of existing operations and an upgrade of the existing surface coal handling and processing infrastructure at the Newstan Colliery Surface Site and the Cooranbong Entry Site, along with the existing private haul roads and rail loading facilities. These facilities are integral to the on-going handling, processing and transport of coal from the underground workings of Newstan Colliery and Mandalong Mine (including the proposed Newstan Colliery Extension of Mining Project and Mandalong Southern Extension Project) to domestic and export markets.

A potential adverse impact to social amenity is limited to the area around the Newstan Colliery Surface Site. Receptor NC3 has been identified as being potentially impacted by noise exceedance. However it is noted that a conservative methodology to identifying the potential exceedance has been employed and all conditions occurring simultaneously are highly unlikely. Regardless, strategies to mitigate potential impacts have been identified.

Air quality criteria have also been assessed using a conservative methodology and like noise, all conditions occurring simultaneously are highly unlikely. It is found that air quality criteria for PM₁₀ can be met with automated loading and transfer facilities when production meets both 6 Mtpa and 8 Mtpa at the Newstan surface site.

Visual impacts are low and risk of water impact to LT Creek have been greatly reduced due to infrastructure upgrades to the Newstan surface site and strategies to reduce the potential adverse impact at the Cooranbong Entry Site have been identified.

The SIA has found that the overall impact of the Project is generally contained within the Project Application Area, which is largely due to Newstan Colliery and the Cooranbong Entry Site having undertaken an extensive infrastructure upgrades at its sites. As a result, there is:

- No requirement to purchase property as a means of managing impact on social amenity.
- Generally no impact on surrounding land use.
- No notable change is predicted to the social and economic profile of the community except for the potential for incidental economic benefit via localised spending as a result of construction related employment / ongoing employment.
- No change to the social fabric of the area.

- No change to how residents or visitors utilise the area.

It is therefore determined that the Project can achieve an overall benefit to the community and local and regional economy with minimal adverse social impact.