Centennial Angus Place Pty Limited

Social Impact Assessment

Angus Place Mine Extension Project

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1. Introduction

1.1 Overview of Methodology

James Marshall and Co has been commissioned by Centennial Angus Place Pty Limited to undertake a Social Impact Assessment (SIA) of the proposed Angus Place Mine Extension Project (Project). A SIA is a systematic, staged approach of enquiry that identifies who may be affected by the project and how they are affected. It takes into account the scope of the development and how the development will impact on the needs, issues, values and aspirations of community stakeholders. Therefore 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 core steps are:

1. Profiling: This involves understanding the scale and scope of the project, parameters of the Social Impact Assessment and identifying the stakeholders (determined by the areas of affectation).
2. Scoping: This involves identifying the likely impacts arising from the development 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 development.
    - 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 development.
    - Cost of living, including housing affordability.
    - Accessibility.
    - Sense of place and community.
    - The impact on existing services, including tourism etc.

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.

1.2 Director Generals Requirements (DGR's)

The DGR's that were issued on 6 November 2012 request that a Social and Economic Impact Assessment be completed. The assessment criteria are outlined in Table 1. Supplementary requirements to these DGR's were issued on 30 August 2013 stating that a description of the short-term and long-term social and economic implications and/or impacts of the Project are also required.

Table 1: Director Generals Requirements Social and Economic Impact

Assessment	Found
• Potential direct and indirect economic benefits of the development for local and regional communities and the State.	Refer Economic Assessment Prepared by Aigis Group. Refer Section 2 of this report.
• 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, particularly impacts on local residents of and other nearby landowners and residents.	Refer Section 5 of this report.
• 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.	Refer Section 5 of this report.
• 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.	Refer Economic Assessment Prepared by Aigis Group

1.3 Project Overview

The Angus Place Colliery pit top is located five kilometres north of the village of Lidsdale, eight kilometres northeast of the township of Wallerawang and 15 kilometres northwest of the city of Lithgow. Angus Place is within the Lithgow City Council Local Government Area (LGA). The

underground longwall mine is east of the pit top, situated directly below a sandstone plateau of undulating unpopulated bushland which is part of the Newnes State Forest.

Angus Place is bordered by Baal Bone Colliery (Xstrata Coal Pty Ltd) and Invincible Colliery (CET Resources Pty Ltd) to the north, Springvale Colliery (Centennial Springvale Pty Ltd) to the south and the Wolgan Valley and Newnes State Forest to the north-east. Collectively, existing land uses in the vicinity of the colliery include pastoral farming, open cut and underground coal mining, power generation and commercial forestry.

Centennial Angus Place Pty Limited is seeking approval for its Project based on resource modeling within the Angus Place Colliery Holding Boundary. This involves an extension to current mining practices through longwall extraction methods which would extend the mine life by up to 25 years. The Project will continue to use existing surface and underground facilities at Angus Place. The Project will:

- continue to extract up to 4 million tonnes per annum (Mtpa) of run of mine (ROM) coal from the Lithgow Seam underlying the Project Application Area;
- extend the life of the mine for an additional 25 years with rehabilitation to be undertaken post this period.
- develop underground access headings and roadways from the current mining area to the east to allow access to the proposed mining area;
- undertake secondary extraction by retreat longwall mining for the proposed longwall panels LW1001 to LW1019;
- continue to use the existing ancillary surface facilities at the Angus Place pit top;
- continue to manage the handling of ROM coal through a crushing and screening plant at the Angus Place pit top and the subsequent loading of the coal onto the existing road haulage trucks for dispatch to offsite locations;
- continue to operate and maintain the existing ancillary surface infrastructure for ventilation, electricity, water, materials supply, and communications at the Angus Place pit top and on Newnes Plateau;
- install and operate seven additional dewatering borehole facilities on Newnes Plateau and the associated power and pipeline infrastructure;
- upgrade and extend the existing access tracks from Sunnyside Ridge Road to the dewatering borehole facilities;
- install and operate dewatering reinjection boreholes and pipeline infrastructure at the existing ventilation facility site (APC-VS2);
- construct and operate a downcast ventilation shaft (APC-VS3) and upgrade the existing access track to the proposed facility from Sunnyside Ridge Road;
- manage predicted increase in mine inflows using a combination of direct water transfer to the Wallerawang Power Station, via the Springvale Delta Water Transfer Scheme (SDWTS), and discharge water through Angus Place Colliery's licensed discharge point LDP001 and Springvale Mine's LDP009;
- continue to undertake exploration activities, predominately borehole drilling and core sampling, to refine the existing geological model of the site;
- continue to undertake existing and initiate new environmental monitoring programmes;
- continue to operate 24 hours per day, seven days per week, 52 weeks per year;
- continue to provide employment to a full time workforce of up to 225 employees and 75 contractors;
- progressively rehabilitate disturbed areas at infrastructure sites no longer required for mining operations;

- undertake life-of-mine rehabilitation at the Angus Place pit top and the Newnes Plateau infrastructure disturbance areas to create final landforms commensurate with the surrounding areas and the relevant zonings of the respective areas; and
- transfer the operational management and physical infrastructure regarding coal processing and distribution infrastructure to the proposed Western Coal Services Project.

The surface lands adjacent to and above the Angus Place underground workings are situated on the Newnes State Forest, which comprises of narrow gorges with high ridgelines, steep sided slopes and sandstone cliffs above incised valleys, hilly areas with relatively flat crests and spurs and moderately sloped ephemeral drainage lines. Streams, such as Kangaroo Creek, the Wolgan River, Carne Creek and their tributaries can be found in the vicinity. At a far lower elevation, pastoral farming lands and private land surrounds the existing Angus Place pit top. The Coxs River and Lambs Creek exist within the western portion of the Colliery Holding Boundary. Figure 1 shows the Project Application Area.

1.4 Mining Method

Centennial Angus Place Pty Limited is proposing to continue to use longwall mining methods for the Project. A conceptual mine plan, showing proposed areas of longwall mining, is provided in Figure 2. The eastern portion of the Project Application Area (refer Figure 1), referred to as Angus Place East, has been identified as an area suitable for longwall mining due to the underground geotechnical conditions.

It is proposed to extract the coal from the Lithgow seam within the Angus Place East area by longwall mining generally in accordance with the mining layout shown on Figure 2. The longwalls are in an east north-east to west south-west orientation, which generally aligns with the horizontal stress direction. Computer generated models have indicated that this orientation would maximise resource recovery at the western end of the longwall blocks whilst continuing to utilise Angus Place's existing longwall equipment.

The final dimensions of the longwall blocks will be contingent on the occurrence of sensitive surface features on Newnes Plateau and subsidence predictions to be undertaken during the EIS. Surface features, such as swamps, cliff-lines, significant rock features, water courses and sites of cultural significance, which are sensitive to mine induced subsidence are apparent within the Project Application Area and Figure 3 illustrates the locations of the proposed longwalls with respect to significant surface features.

These sensitive surface features will ultimately influence the siting and the layout of the mine plan that will be proposed in the EIS, i.e., the mine plan will avoid potentially adverse impacts, wherever practical and feasible in the final mine plan.

1.5 Coal Transport

ROM coal will continue to be transported underground from the longwall face to the ROM stockpile at the pit top by a high capacity conveyor system. Coal will then be sized and dispatched using trucks on dedicated private haul roads (Wallerawang Haul Road and Mount Piper Haul Road) to the Mount Piper or Wallerawang Power Stations. The construction and operation of a new private haul road linking the Springvale Coal Services site with the Mount Piper Haul Road is being proposed as part of the Springvale Coal Services Project.

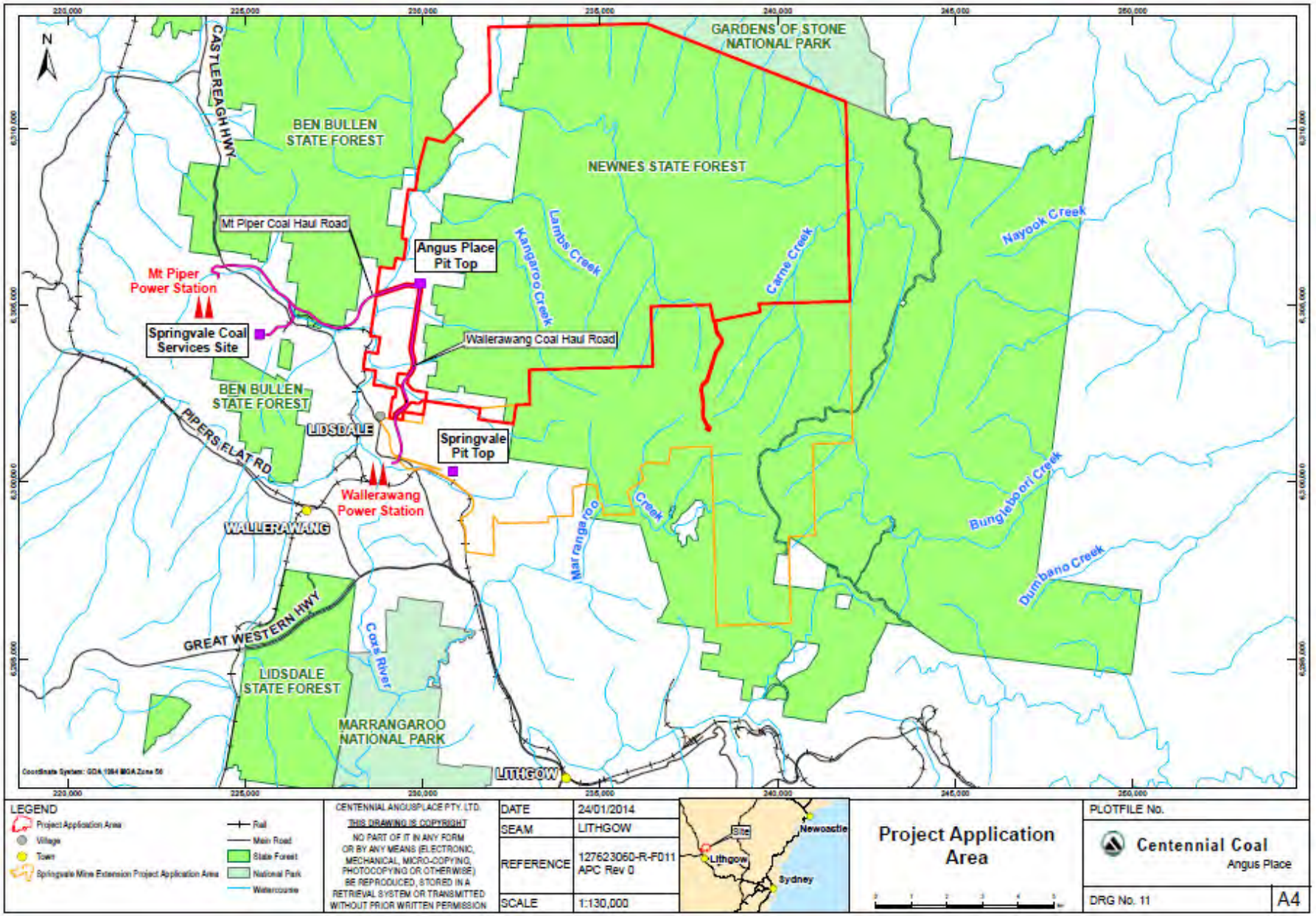

Figure 1: Project Application Area

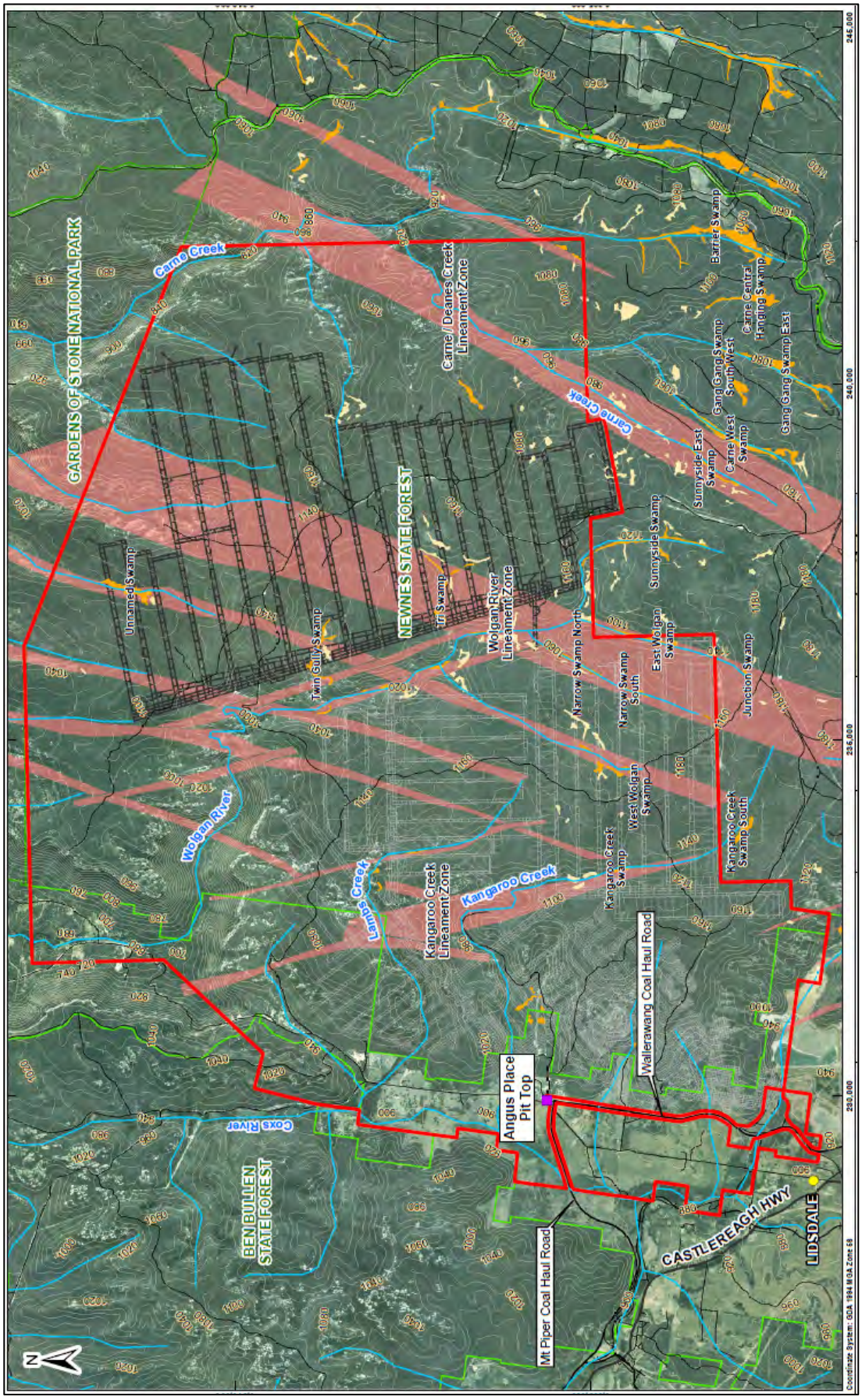

Figure 2: Preferred Mine Plan

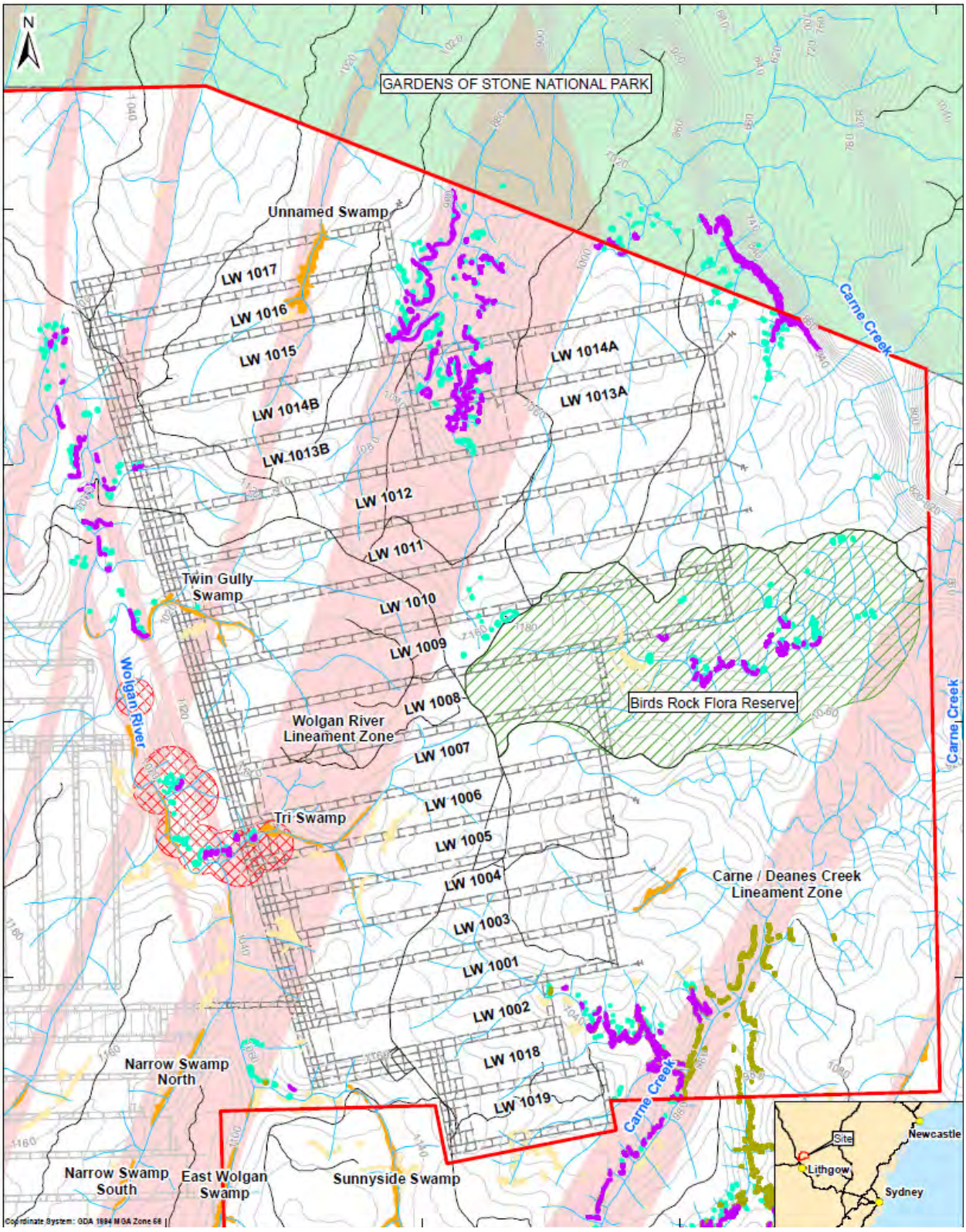

Figure 3: Significant Surface Features

2. Community Profile.

2.1 Overview

The Angus Place Colliery is located in the Lithgow Local Government Area (LGA). The Lithgow LGA is a relatively large geographical area of 4,551 sq km, located about 140 kilometres west of the Sydney CBD and within the eastern part of the Central West Region. The LGA is made up of one large urban centre called Lithgow, two townships called Portland and Wallerawang and numerous villages, hamlets and rural localities of varying proximity to Lithgow.

The vision for the LGA was developed in collaboration with the community and adopted by Council in 2006. It sets a vision for the next 10 to 20 years for the Local Government Area. The overarching vision statement is:

A centre of Regional excellence that:

- *Encourages community growth and development*
- *Contributes to the efficient and effective management of the environment, community and economy for present and future generations.*

According to the most recent Australian Bureau of Statistics (ABS) Census (2011), the Lithgow LGA population on Census night was 20,161 which represent a 2.04% increase in population since 2006. The majority of the population live in Lithgow urban area (11,143 people), Wallerawang (1,855 people) and Portland (1,829 people). The remainder of the population (approximately 26%) live across the smaller villages, hamlets and rural localities across the LGA.

The LGA's population has undergone slight fluctuations since 1996. There was a small decrease in population recorded between the 1996 and 2001 census period and a slight increase in population between the 2001 and 2011 census period. The fluctuating population would be attributed to a number of factors which include:

- the changing employment characteristics of the area meaning that there is constant in/out migration, in particular families with young children;
- a trend for younger people (18 – 24 years of age) to move out of the area to seek lifestyle, education and/or employment opportunities;
- in-migration of mature age people seeking a rural lifestyle (tree change).

The major change in Lithgow's population has occurred in rural areas. Between 1996 – 2009 over 55% (699) of all dwelling approvals has occurred within rural areas, increasing the population in these areas by approximately 1,678 persons. The trend towards rural living is usually from people moving from outside of the LGA, seeking alternative lifestyle choices or securing land to be used as a place to visit (there are a large number of land holders who are not resident of the area). As with most regional area in NSW and Australia, Lithgow's population is ageing; however is increasing at a higher rate than NSW and Australia. As illustrated in Table 2 the median age of the LGA is now 42 years and is much higher in some rural areas. The out migration of young people will exacerbate this trend.

The population are also earning a higher income and there is an increase in the amount paid for housing loans and rent. The key industry of employment is mining which offers a high wage when compared with other sectors. Retail, manufacturing, power generation, public safety all remain strong employment sectors and there is an emerging growth in scientific and technical services, administration and health and social services. Table 2 summarises population characteristics of the LGA between 2001 and 2011.

Table 2: Time Series Data (2001 – 2011) – Lithgow LGA

Selected Medians	2001	2006	2011
Population	19,332	19,756	20,161
Median age of persons	37	40	42
Median Total personal Income ($ weekly)	$295	$356	$455
Median total family income ($ weekly)	$822	$1,027	$1,190
Median total household income ($ weekly)	$642	$751	$894
Median mortgage repayment ($ monthly)	$750	$1,083	$1,452
Median Rent ($ weekly)	$110	$135	$170
Average household size	2.5	2.4	2.3

The following are summary characteristics of residents and workers living in the Lithgow LGA:

- There are fewer young people living in the LGA.
- Lithgow has a population which is aging at a relatively faster rate than the NSW average.
- Marginal population growth to 2017 is forecast for Lithgow, after which the population is forecast to decline.
- The largest employer in Lithgow LGA is mining, followed by retail trade, accommodation and food services, public administration and safety, health care and social assistance.
- The majority of workers in Lithgow (84.9% or 5,820 persons) live and work within the LGA.
- 15.1% of total workers live outside the LGA and travel into Lithgow for work, with the majority travelling from the Blue Mountains.
- 24.5% of the resident workforce leaves Lithgow LGA to work, mostly to the Blue Mountains followed by Bathurst.
- Those who travel to the Blue Mountains mainly work in health care, accommodation and food services, retail trade and public administration and safety. Most of those working residents who travel to Bathurst work in manufacturing, agriculture, and education and training.
- Only a very small proportion of working residents travel to Sydney and Penrith.
- The majority of working residents in Lithgow LGA work in mining, manufacturing, retail trade, accommodation and food services, public administration and safety, health care and social assistance.
- Those working residents that leave Lithgow LGA to work mainly work in manufacturing, construction, wholesale trade, transport, postal and warehousing, information media and telecommunications, professional, scientific and technical services, administrative and support services, education and training, arts and recreation services (based on more than 25% of working residents leaving the LGA by industry type).

2.2 Economic Profile

Lithgow has a long history with mining and power generation and today, the economic base of Lithgow is still recognised as being the energy and resources sector. Both sectors have long been major employers and subsequently make a significant contribution to the overall economy. In the past considerable growth has been experienced in these sectors particularly with the expansion of a number of mines. This is providing other flow-on effects for local support services via direct and indirect employment opportunities occurring across a number of non-energy and resources sectors including retail and accommodation.

The economic assessment completed by Aigis Group (2013: 16) has identified that there will be an estimated economic benefit of $752 Million arising from the Project. Salaries and wages are a component of the overall estimated economic benefit whereby it is estimated for this Project that $37 Million will be generated by contractors and $418 Million will be generated by employees throughout the operation of the Project.

Table3: Industry of Employment (Lithgow LGA) 2001 - 2011

Industry of Employment	Persons Employed		
	2001	2006	2011
Agriculture, forestry and fishing	277	262	207
Mining	682	773	987
Manufacturing	626	623	549
Electricity, gas, water and waste services	384	388	345
Construction	450	458	468
Wholesale trade	207	149	154
Retail trade	795	864	797
Accommodation and food services	685	649	674
Transport, postal and warehousing	473	409	465
Information media and telecommunications	73	58	51
Financial and insurance services	132	142	134
Rental, hiring and real estate services	80	86	80
Professional, scientific and technical services	201	222	257
Administrative and support services	190	239	274
Public administration and safety	535	615	690
Education and training	435	461	491
Health care and social assistance	618	748	884
Arts and recreation services	76	76	79
Other services	251	264	295
Not adequately stated	190	145	161

The mining and energy sectors also present some challenges brought about by fluctuations in coal prices (including cost of production; sale price). However, the importance of the coal mining industry to the regional economy is abundantly clear in Lithgow City Council's Economic Development Strategy (EDS) 2010-2014. This is substantiated by the following material included in the EDS;

- "In 2006, the mining sector employed 10% of the total Lithgow resident_workforce second only to the Retail sector at 11.2%".
- "The largest employer in Lithgow Local Government Area is mining".
- "only the mining sector had a greater percentage contribution to gross regional product (27%) than its share of employment (12%).

Gross Regional Product data analysis taken from the Lithgow Jobs Summit 2008 report highlights the following key indicators:

- In 2006-07 the gross regional product for Lithgow Local Government Area was estimated to be approximately $723.8 million.
- The manufacturing sector contributed 7% of value added while health, utilities and the retail sector each contributed 6%.
- Of these, only the mining sector had a greater percentage contribution to gross regional product (27%) than its share of employment (12%).
- The retail sector's high share of employment.

The sustainability of the mining sector and its related employment is clearly vital to the broader economic wellbeing of the area.

2.3 Emerging Industry Sectors - Tourism

According to the Lithgow Economic and Development Strategy "tourism is becoming of increasing importance for economic growth and has caused governments and industry to engage in aggressive and intense promotional activities in order to develop and increase the effectiveness and quality of the sector". Lithgow LGA is a place endowed with significant natural and cultural resources that can capture the interests of visitors and therefore increased tourism investment. To achieve this, Lithgow will capitalise on the following assets:

- A diverse physical geography ranging from flat to gently undulating pastoral landscapes to rugged natural bushland dominated by sandstone cliffs and pagodas, majestic valleys and rare woodland forests, wetlands and ecological communities.
- A strong rail and road heritage associated with the crossing of the Blue Mountains.
- A strong and diverse built heritage within all three town centres, rural villages and hamlets.
- Places of Aboriginal Heritage and Significance.
- Access to a significant National Park and State Nature Reserves network boasting six major Parks including:
  - Blue Mountains National Park;
  - Gardens of Stone National Park;
  - Wollemi National Park;
  - Turon National Park;
  - Capertee National Park;
  - Marrangaroo National Park;
  - Evans Crown Nature Reserve; and
  - access to a large and significant State Forest Estate.

This sector will be targeted for growth and could lead to a potential re-branding of the LGA via moving away from being identified as a 'mining community' to promoting the LGA as an area rich in

significant natural features. New residents of the LGA usually identify with the environmental characteristics, rather than Lithgow's mining history.

2.4 Lithgow Land Use Strategy

The Lithgow Land Use Strategy (LUS) has been prepared to inform the development of its new Local Environment Plan (LEP). The LUS sets out the future directions of how land will be managed across the LGA and takes into account past planning strengths and challenges.

Land use conflict, increase residential living in rural areas (dispersed settlement), protection of the environment / scenic values and supporting strategies that assist in the diversification of the LGA's economy (eg tourism) are all key components of the LUS which will have some potential impact on Centennials operations. The principles of the LUS represent a shift towards consolidating residential settlement and away from Lithgow's industrial traditions to creating a more diverse economy via land use planning principles, policies and strategies such as marketing. Table 4 summarises some of these key changes.

Table 4: Lithgow Land Use Strategy and Potential Areas of Impact for Centennial Coal.

Activities	Reason for Potential Impact
There is an increased number of people living in rural areas	• Landholders in rural areas not always resident of the LGA and migration to these areas generally by people from areas outside of the LGA. • Emergence of different values and connections to Lithgow – ie not share the areas mining history. • Small lifestyle farms meaning that land holders will actively protect water and other resources if they feel they are being threatened. • Fear in loss of land value.
Addressing land use conflict, especially between industrial uses and residential land uses.	• Number of examples across the LGA where co-existence of industry and community can be found. Land use conflict arises with the emergence of new settlements; expansion of industry where adverse impact on social amenity, lifestyle, threat to environment occurs. • Community will speak out against proposals that impact on their way of life / amenity.
Protection of sensitive environmental areas.	• Centennial has a number of activities within identified sensitive environmental areas (eg Newnes Plateau, Garden of Stone National Park). • There is an increasing move to protect these areas by a range of stakeholders which are not limited to NGO's (eg Colong; BMCS) but also include land holders who have moved into the area (eg the rural areas of Glen Alice / Glen Davis have experienced large population increases since 2001).
Support and protection of other industries such as tourism.	• There is a move to recognise and pursue other industry sectors that are not related to mining and power generation to broaden and stabilise the economic profile of the LGA. Tourism is one such sector. • Therefore moves to retain and protect key 'gateways' and scenic landscapes for visitors / travellers will become a priority.

3. Consultation

There have been numerous consultations over the past few years focussing on mining and coal seam gas exploration. There have been a number of drivers which brought about these consultations which include strategic land management; land use planning; industry lead dialogue and project specific notifications. A summary of some key consultation that has been undertaken are listed below.

3.1 Lithgow Regional Forum: 25 February 2011

The former NSW Government presented a number of regional forums at the beginning of 2011 to discuss and explore the NSW Coal and Gas Strategy. A summary of relevant and key themes raised by speakers are listed below. It is important to note the outcomes of these consultations as they have informed the current Strategic Regional Land Use Strategy.

3.1.1 Issues relating to Coal Mining.

- Coal mining can affect landowners and environmental issues in the area may have resulted from coal burning.
- In relation to mining there should generally be better controls around impacts on the environment.
- There should be buffer zones where mining does not occur that provide clean zones for better lifestyle. We need to protect the ecology and biodiversity of an area.
- Mining can be very divisive in local and regional communities.
- We can't just look at the anti mining concerns – the Strategy needs to look at a set of balanced outcomes.
- The benefits of mining cannot be underestimated.

3.1.2 Social and Community Impacts

- Given the Sydney Basin is almost exhausted for housing, the western areas (eg including in and around Lithgow) provides an opportunity to house people – mining may compromise that opportunity.
- There is a need to take into account the needs of future generations in terms of health, housing, ageing population etc., and provide suitable environments for them to live.
- The issues for balance and certainty for communities is an important issue that needs to be addressed.
- There is a reluctance of industry to embrace the protection of other values.
- Serious consideration needs to be given to the assumptions and values that we place on the growth of energy demand and its importance in terms of jobs.
- In 20 years time we may be talking about shortages of food – The question of what are our long term goals and priorities for the use of our land should be an important consideration in the development of a Coal and Gas Strategy.
- Tourism – local and regional tourism would be devastated by mining.
- We need to model costs/benefits/value associated with good lifestyle areas, tourism and ecological aspects.
- People are concerned about the health impacts and want to ensure they have a positive quality of life, health, food water and social connectivity to the community.

- We need to make sure all the values of different land uses, lifestyle opportunities, health benefits, food security etc are recognised.
- Don't forget disastrous effects and families on jobs – it was not long ago that there were protests about job losses in Lithgow due to mine closures.
- Legislation needs to change so that property owners know they are likely to be affected before the license is issued.
- There needs to be a better contribution towards the needs of communities cost of infrastructure needs to be met and contributed to.
- Need baseline data before we go forward to gauge cumulative impacts.
- Communities have been calling for independent studies for a long time.
- Local communities are being devastated by mining (churches, fire services, schools etc are losing people).
- If there is so much value for the state, will there be consideration to covering the community against the costs of these major developments?
- Social impact assessment should be undertaken to gauge impacts.

3.2 Centennial Coal Community Information Sessions

Early 2012 Centennial Coal undertook consultations and information sessions for a range of projects (Coal Services Upgrade, Springvale Mine and Angus Place Colliery developments). Issues raised by the community in relation to the wider regional developments include:

- general visual impacts, particularly from open cut mining,
- intensification of mining activities, and
- the recognition of impacts from sources other than Centennial such as other mining operations and the two power stations.

Further consultation was undertaken by Airly Mine late in 2012 in relation to its new project. The outcome of this consultation saw a range of feedback, with some in the Capertee community supporting the concept while land holders in Glen Davis and Glen Alice being very cautious and expressing concerns regarding the impact on surface features as well as surface / ground water impacts.

Community information sessions to update on progress for the Angus Place and Springvale Mine Extension Projects were undertaken in March 2013 and again in September / October 2013. In relation to mining activities in Newnes Plateau the following points were raised:

- The need to protect the Plateau from adverse ground and surface water impacts including impacts on sensitive ecology.
- Minimise risk of damage to key surface features such as cliffs and pagodas.
- Maintaining the 'environmental architecture' and leaving the environmental characteristics of the area in-tact.

Consultation with users of the Plateau included adventure visitors (include mountain bike riders, motor bikers and four wheel drivers) and passive visitors (include bushwalkers, families visiting a particular destination point). These consultations have been undertaken at various times throughout 2013. It was found that many visitors who live in the area are aware of mining under the Newnes Plateau. It was generally their opinion that mining has not changed their experience when

visiting the area and will not change their experience as long as access to the area was permitted. Many of these visits were for adventure type tourism.

Passive visitors, for example, families visiting the area to visit a particular destination point (for example the Glow Worm Tunnels) and bushwalkers generally stated that they did not want their experience changed. The amenity of the area was important to these types of visitors and key words used to describe the area are: quiet, nature, features (pagodas and cliffs) and views from lookouts.

3.3 Key Themes Emerging from Consultation

Information gathered from the community profile and feedback from consultation has identified a number of points which are relevant to the social impacts relating to mining. These are summarised below.

- Mining and power generation are a significant feature of the LGA as are agriculture and national parks.
- Mining and power generation is a major contributor to the economy and progress in these sectors is considered essential.
- Mining and power have been a significant source of employment via both direct and indirect employment. Many towns and villages emerged as a result of the local mining industry and local businesses articulate the benefit they receive from 'the mines'.
- There is a strong connection to mining in areas such as Lithgow, Wallerawang and Portland however this connection is not shared across the entire LGA. There has been an increasing population in rural areas and the connection that many of these landholders have to the LGA are its natural assets.
- Despite the connection to power and mining, residents to not want to be adversely impacted upon by industry when they are not at work. It would therefore be a risk to assume that a strong connection to mining and power generation means that it is acceptable to expand without considering social impacts.
- Amenity is still an important factor to quality of life and noise, dust and visual impacts arising from industry will have adverse effects on residential amenity.

4. Characteristics of the Project Area

4.1 Local Characteristics

The characteristics of the Project area and surrounds include the locality of Lidsdale, township of Wallerawang, rural land and isolated rural residents, transport infrastructure and the Newnes State Forest. Figure 4 shows the land use characteristics in relation to the mine lease area.

Wallerawang is located to the south west of the Project and is the closest retail and commercial centre, however Lithgow remains the main centre meeting higher order retail, commercial and professional service needs. A summary of the key services found in Wallerawang that would meet the day to day needs of residents is listed below.

- Community facilities: Council library and depot; medical and community health centres; recreational facilities including PJ Hall Memorial Park, Lake Wallace, playing fields and a skate park; police, fire services; the Country Women's Association; churches; primary school; bowling club.

- Retail and commercial facilities /services: Supermarket; post office (with a pharmacy prescription service (drop in (am) and pick up (pm)); agency for the Commonwealth Bank; newsagent; bakery; butcher; service stations; hotels; takeaway store; hairdresser.
- Lidsdale facilities: Rural Fire Service; petrol station; tennis courts; Ted Hughes Memorial Park; church.

Plate 1: Main Street Wallerawang

Plate 2: Industrial backdrop, Wallerawang.

Plate 3: Mine related infrastructure is visible throughout the area.

4.2 Local Population Characteristics

Over 81% of Angus Place employees live in the Lithgow Local Government Area and 62% of these employees live in Lithgow urban area and the townships of Wallerawang and Portland. The following Tables provide an overview of key related population and demographic characteristics of the local community.

Table 5: Population Characteristics

Population	Portland	Wallerawang / Lidsdale	Lithgow Urban Area
Total	2,307	2,157	12,249
Male %	49.3	52.0	50.8
Female %	50.7	48.0	49.2

Table 6: Age Service Groups

	Portland %	Wallerawang/ Lidsdale %	Lithgow Urban Area %
Babies and pre-schoolers (0 to 4)	6.3	7.2	6.7
Primary schoolers (5 to 11)	9.7	10.3	7.8
Secondary schoolers (12 to 17)	8.1	9.1	7.9
Tertiary education & independence (18 to 24)	6.8	7.5	8.3
Young workforce (25 to 34)	8.9	11.0	10.1
Parents and homebuilders (35 to 49)	18.1	20.6	18.9
Older workers & pre-retirees (50 to 59)	15.5	13.7	13.4
Empty nesters and retirees (60 to 69)	14.8	12.7	12.7
Seniors (70 to 84)	9.9	7.6	11.7
Elderly aged (85 and over)	1.9	0.5	2.5

Table 7: Occupation

Portland %		Wallerawang / Lidsdale %		Lithgow Urban Area %	
Technicians and Trades Workers	18.4	Technicians and Trades Workers	19.5	Technicians and Trades Workers	17.8
Machinery Operators And Drivers	16.9	Machinery Operators And Drivers	16.0	Machinery Operators And Drivers	14.4
Labourers	12.8	Clerical and Administrative Workers	12.7	Clerical and Administrative Workers	13.9
Clerical and Administrative Workers	12.4	Labourers	12.3	Community and Personal Service Workers	12.8
Community and Personal Service Workers	12.1	Community and Personal Service Workers	11.7	Professionals	12.1
Sales Workers	10.3	Professionals	9.7	Labourers	11.5

Table 7: cont.

Professionals	9.1	Managers	8.6	Sales Workers	8.7
Managers	6.1	Sales Workers	8.4	Managers	7.3

Table 8: Industry of Employment

Portland %		**Wallerawang / Lidsdale %**		**Lithgow Urban Area %**	
Coal Mining	14.4	Coal Mining	13.5	Coal Mining	11.9
Supermarket and Grocery Stores	4.4	Public Order and Safety Services	5.0	School Education	4.4
School Education	3.8	Road Freight Transport	4.3	Cafes, Restaurants and Takeaway Food Services	4.0
Electricity Generation	3.7	Cafes, Restaurants and Takeaway Food Services	3.9	Public Order and Safety Services	3.6
Public Order and Safety Services	3.6	Local Government Administration	3.4	Supermarket and Grocery Stores	3.2

As seen from the above Tables, 39.8% of those aged 15 years and over are employed in coal mining and technical and trades and machine operators are the major occupations. Mine related employment results in a positive community benefit; meaning that the 'pay packet effect' of wages spent in the local economy is significant. The spending of wages results in direct and indirect employment opportunities to occur across a number of non-energy and resources sectors including retail and accommodation. The benefit from mine related employment is not restricted to spending. Employees and their families participate in a range of work, education, social and recreational activities across the local community and region as can be seen in Table 6 Service Age Group.

A survey of Angus Place employees undertaken in February 2013, found that the flow-on effects within the community where the employee lived are significant. These are summarised as follows:

- over 81% of Angus Place employees live in the Lithgow Local Government Area and 62% of these employees live in Lithgow, Wallerawang and Portland;
- 45% of those surveyed have been employed in the mining industry for over 10 years;
- 37% are from families that have worked in the industry for two or more generations;
- 79% own their own home;
- on average, each employee surveyed spends 33.5% of their total weekly income in their local residential community;
- over 40% of mine employee's partners participated in some type of work;
- most employees and their families participate in some local regular sport or social activities;
- the majority of employee's children, who do not currently attend school, participated in sporting activities in their local community;
- employees have strong connections to their local communities demonstrated via shopping in the communities where they live, coaching junior sport, participating in social activities, supporting local fundraising activities;
- employees are members of the local bush fire brigade and SES, and members of local clubs; and

- employees are aware of and utilise the natural assets throughout the area such as state forests and national parks for family outings.

Given the overall population and demographic characteristics, it is evident that Angus Place has a strong financial and social interaction with the local surrounding community. The continued mine related employment generated by this Project will potentially maintain a relatively stable population base demonstrated by the long term housing tenure of some employees in the LGA.

This will mean that services and infrastructure will remain viable as they will benefit from the above mentioned flow on effects over the extended life of the Project. It is not expected that the ongoing operation of the Project will create any additional demand for services and infrastructure.

4.3 Land Use and Stakeholder Groups

The proposed Project Application Area is located wholly within the Newnes State Forest, away from private landholdings and residences. Newnes State Forest is located on Newnes Plateau and contains pine plantation of Radiator Pine, natural forest and sandstone escarpments. The area has high environmental value and is characterised by significant environmental features such as pagodas; cliff lines; swamps, creeks, deep valleys, flora and fauna.

Public access is permitted in the Newnes State Forest and activities include motorcycle riding; four wheel diving; bushwalking; camping; mountain bike riding; canyoning; photography; bird watching and other such recreational and adventure activities. The area is very popular with visitors on weekends and attracts a large number of domestic visitors from Sydney. Visitor and tourist participation is an important outcome for Forests NSW and is facilitated via the provision of infrastructure (roads, picnic areas, camp grounds, viewing platforms etc), commercial licenses to tourism operators and the development of cultural heritage strategies for particular areas (Forests NSW Annual Report 2010 – 2011; Ecologically Sustainable Forest Management Plan 2008).

It appears that a large proportion of public access remains within designated trails because access to main recreation / camping areas and lookouts is the primary goal for the majority of domestic visitors. However public access has had an adverse impact on some features in Newnes State Forest, in particular as a result of 4WD and motorcycles that operate off designated tracks.

Sensitive surface features and ecosystems (such as the Temperate Highland Peat Swamps) have been adversely impacted upon and Forest NSW are currently undertaking rehabilitation to these areas which has been supported by raising public awareness of the sensitive environment and promoting that visitors remain on formed tracks, trails and roadways.

The Colong Foundation for Wilderness is concerned about the impact of both mining and public access in the Blue Mountains area. These concerns have been documented in a number of publications; the most recent “The Impacts of Coal Mining on the Gardens of Stone, 2010”, which includes (but are not limited to):

- Cliff and pagoda damage arising from subsidence impacts from longwall mining resulting in the collapsing of cliffs.

- Loss of ground and surface water; the subsequent impact on sensitive swamps, creeks and drainage lines and subsequent impact on various ecosystems.

Further concerns raised by the Colong Foundation for Wilderness include (but are not limited to):

- Damage caused by off-road vehicles (4WD and motor cycles) when driven in areas other than designated trails.
- Commercialisation of tourism and recreation activities (eg adventure tourism) that create intensive public access in certain areas.

The 2010 Caring for Country Save our Swamps Project undertook the Newnes Plateau Shrub Swamp Aerial Assessment to gain a better understanding of the overall health status of the swamps. The project identified concerns relating to ongoing land management and the impacts created from pine plantations, public vehicle access via the extensive road and track network and underground mining.

In 2010, the then Department of Environment, Climate Change and Water prepared a report as part of the Planning Assessment Commission's review of the Bulli Coal Seam Project titled, *Review of the Piezometer Monitoring Data in Newnes Plateau Shrub Swamps and their Relationship with Underground Mining in the Western Coalfield*. This report identified concerns regarding the impacts of mining to swamps on the Newnes Plateau.

The concerns expressed through these reports echoed those raised by the Colong Foundation for Wilderness in its 2010 report.

In addition to public use, there are a number of lease holdings throughout the Newnes State Forest area which are primarily for designated mine lease areas and surface infrastructure sites held by mining companies, telecommunications etc. These lease holdings are managed by Forests NSW.

The stakeholder groups which utilise the area are broadly categorised as individuals and groups who:

- Access Newnes State Forest for recreation including 4WD, motorcycling and mountain biking that has a higher impact on the environment.
- Access Newnes State Forest for recreation including bushwalking, bird watching etc. that has a low impact on the environment.
- Aim to preserve the environmental value of the area from threats to sensitive surface features, ecosystems etc via opposing activities such as mining and restricting public access to certain areas.

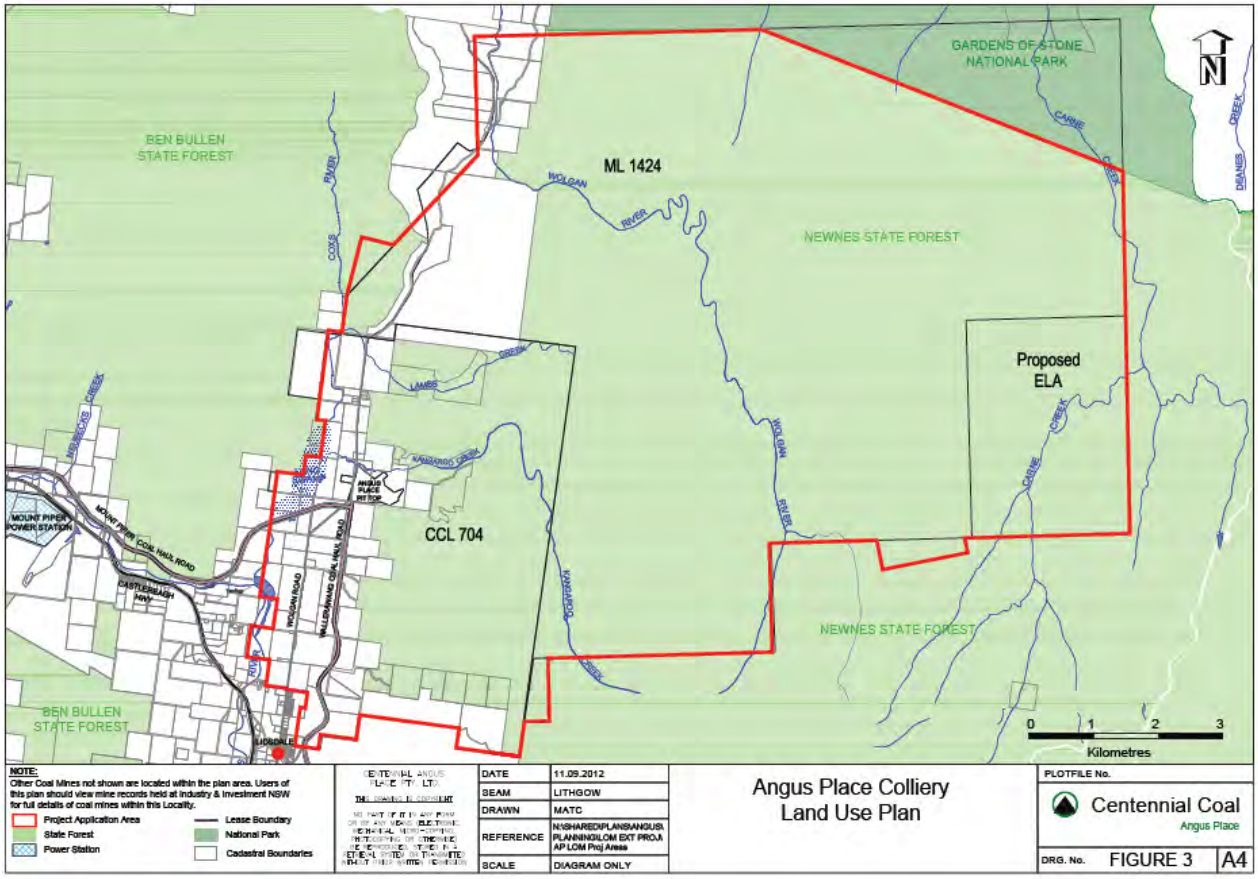

Figure 4: Land Use Plan illustrates that residential land use is to the south west of the Project Application Area which is away from the proposed extension.

Plate 4: Rock Pagodas

Plate 5: Bushland Characteristics

Plate 6: Tracks Made by Public Access – walking and motor cycles

Plate 7: Subsidence Monitoring Peg

Plate 8: Steep Terrain with example of Hanging Swamp-like Environment

Plate 9: Creek bed with cracking, possibly resulting from subsidence. Given the colour of the rock it is thought this may have occurred within the past 10 years.

Plate 10: Wolgan Creek

Plate 11: Subsidence Cracking

Plate 12: Headwaters of Wolgan Creek

Plate 13: Swamp Environment along Wolgan Creek

Plate 14: Dewatering Bore

Plate 15: Air Vent Shaft

5. Scoping of Potential Social Impacts

5.1 Mine Design

The mine design is the means in which changes to the environmental, economic and social conditions are determined. With regards to the social impact, the likelihood and extent of these changes are key factors in determining the scale of social impact.

The mine design chosen for the Project is the most viable and preferred option, taking into consideration the varying constraints of geology (seam split and ash content), geotechnics (structural zones), the environment (swamps, cliffs and archaeological features).

The Environmental Impact Statement (EIS) (Golder; 2013) states that the outcome of detailed mine planning and design reduces the occurrence of subsidence effects beyond predictions, without compromising the viability of the business. While the environmental impacts are reduced, the mine design results in increased development costs and the sterilisation of 2.25 Mt of coal reserves. The potential environmental impacts of the Project have been minimised through:

- obtaining a detailed understanding of the key environmental issues. The multi-disciplinary assessment and consultation has been to a level of detail commensurate with the scale of the Project, industry standards and the legislative framework under which the Project is considered;
- a mine design with a successful and proven history in previously mined areas of elimination or minimisation of surface subsidence impacts, and that is safe for the underground workforce and visitors to the surface. Conservative measures in mine design are:
  - consideration of sensitive surface features such as swamps, cliff lines, significant rock features, watercourses and sites of cultural significance that overlie the proposed mining areas;

- optimisation of mine design such as narrowing longwall widths and increasing chain pillar widths. Narrower void widths are tested and proven to minimise subsidence and occurrence of subsidence effects;
- the selection of infrastructure sites, although somewhat dictated by the mine plan, but using existing tracks and with the least clearing of native forest, and realigning tracks where avoidance mapping has identified threatened species. Optimal locations for the infrastructure with least environmental impact within the ESAs have been selected; and
- consideration of alternative mining methods.

The following tables (tables 9 – 18) are the key findings and management strategies of the various specialist consultants that have been summarised in the EIS (Golder 2013). They have been assessed to identify if any change to the social conditions of the area are likely. If there is a likelihood of change a further assessment of the specialist consultant's reports has been undertaken to determine the extent of change.

Table 9: Ground water/ Surface water and Ecology Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
Groundwater The depressurisation of aquifers in strata overlying the coal seam has been shown to have limited impact on the shallow and perched aquifer systems across Newnes Plateau; Groundwater monitoring data shows that mining induced groundwater level impacts in the deeper aquifer units are limited to areas close to or directly overlying the mined area; Average life of mine inflow rates are predicted to increase as a consequence of the mine extension. This increased mine water make will continue to provide the critical base water supply for the power stations in the catchment; An assessment of cumulative impacts has been undertaken throughout the modelling assessment (to include Springvale Mine and Clarence Colliery). The most notable cumulative impact is post mining at Springvale, when recovery of the Lithgow seam is delayed until mining at Angus Place is completed. Surface water The depressurisation of aquifers in strata overlying the coal seam has been shown to have limited impact on the shrub and hanging swamps on Newnes Plateau and the surface drainage network of the water supply catchments;	All surface water groundwater and aquatic impacts are minimised to the greatest extent possible.	The Project mine design has considered sensitive surface features such as swamps, cliff-lines, significant rock features, watercourses and sites of cultural significance on the Plateau. Through conservative mine planning, Angus Place Mine has sought to avoid or reduce the potential impacts on these sensitive surface features. Predicted minor surface cracking would tend to be naturally filled with soil over time, especially during times of heavy rainfall. If any surface cracks were found not to fill naturally, remedial measures may be required. Where required, significant localised surface cracks can be remediated by infilling with soil or other suitable materials, or by locally regrading and re-compacting the surface. Management plans have been developed for the swamps on the Newnes Plateau which have been previously undermined at Angus Place Mine. These include methods of remediation where adverse impacts have been observed as a result of subsidence and comprise: • Soft engineering solutions – such as coir logs, jute matting, geotextile, rock armouring and timber log water dissipaters, and • Hard engineering solutions – such as the use of concrete and various grouting techniques. These management plans were developed by Angus Place Mine under the current Project Approval to support a

Monitoring of swamp water levels and surface water gauging has shown over the life of the current mining operations that no impacts to the swamps or surface water flows have occurred as a result mining to date at Angus Place Colliery. Ecology • The Project is unlikely to have a significant impact on threatened species or EEC`s; • As outlined above the depressurisation of aquifers and subsidence related impacts on the shrub and hanging swamps are minimal and will not influence the water base supply to support groundwater dependant ecosystems and sensitive ecological communities; • The Project will not have any significant impacts on aquatic habitats, aquatic flora or aquatic fauna.		Condition 1 application to the EPBC Act prior to commencement of mining beneath the TPHSS. The following monitoring programs are recommended: • Current monitoring program at all swamps to be undermined is maintained and implemented where absent. • Current monitoring programs at swamps that have not been undermined also be maintained to provide comparative datasets. • Current monitoring program at points of discharge (LDPs) is maintained (pH, TSS and Oil & Grease). • Continuous program of survey to track subsidence related impacts is maintained, both with respect to swamps and longitudinal profiles along water courses, and potentially including high resolution aerial based methods if it can reliably penetrate vegetative cover. • Current groundwater monitoring program is maintained and additional monitoring points added to Project boundary, in the northern to south easterly quadrants. • Develop a Trigger Action Response Plan (TARP), based on the ground, visual, surface water and ground water monitoring programs. Similar TARPs have been established for swamps which have been previously mined beneath at Angus Place and Springvale Collieries.

Table 10: Aboriginal Heritage Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
There are 14 recorded Aboriginal heritage sites within the Project Application Area which will be subsided to varying degrees. Three of these have moderate to high significance; • The small predicted subsidence effects means that no significant consequences are predicted. • Any sites above the mining area that will be subsided by more than 20mm will be monitored in accordance with specifications to be formulated in a Cultural Heritage Management Plan	Ensure that identified and unidentified Aboriginal Sites are appropriately managed.	No significant heritage consequences are predicted. A Cultural Heritage Management Plan will be prepared to detail specifications for: • baseline recording prior to the commencement of mining under the sites identified as 45-1-0084, 45-1-013 and 45-1-2756; • after completion of mining under the relevant site, the condition of the site will be compared with baseline. If the site is found to be damaged, Centennial Angus Place will notify OEH. • after approximately 8 months after mining in the vicinity of the site has finished, an inspection will assess whether the ground conditions have stabilised. No further monitoring will occur if no changes are observed In the unlikely event that skeletal remains are found, work will cease immediately in the vicinity of the remains and the area will be cordoned off. The local police will be contacted to make an initial assessment to ascertain whether the remains are part of a crime scene or possible Aboriginal remains. If this is the case, the local police will contact OEH so that they can determine if the remains are Aboriginal.

Table 11: Traffic Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
The traffic generated as a result of the Project will have no significant impact upon the capacity, efficiency and safety of the local, sub-regional and regional road network over the life of the Project.	Project-related impacts on the road network are limited	While traffic associated with the construction and operation of the Project will not have a significant impact on the roads and intersections, Centennial Angus Place will implement the following road traffic management and mitigation measures: • all heavy vehicle trips within the Newnes State Forest will be undertaken during daylight hours to maximise safety; • a Construction Traffic Management Plan will be prepared in consultation with the Forestry Corporation of NSW; This will include measures such as warning signs at appropriate locations on the main access roads to the infrastructure sites, advising public road users of when access tracks will be used by increased numbers of heavy vehicles and other construction traffic. Caution will be advised to all road users; and • consultation with the Forestry Corporation of NSW will continue in relation to potential traffic impacts within the Newnes State Forest. Any road management or maintenance will be undertaken in accordance with any Forestry Corporation of NSW requirements.

Table 12: Noise and Vibration Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
No noise level increases are predicted at the nearest residential receivers due to any proposed additional infrastructure associated with the Project.	All noise impacts are minimised to the greatest extent possible.	The following noise mitigation and management measures will be implemented to reduce the noise impact of the existing operations: • preparation of a Noise Management Plan including noise monitoring program; • continued noise monitoring on site and within the community. This consists of continuous, unattended noise logging and operated attended quarterly noise surveys; • refinement of noise mitigation measures and plant operating procedures where practical; • regular inspection of conveyor idlers and prompt replacement of damaged or highly worn idlers during maintenance; • refinement of warning alarms and sirens to minimise offsite impacts without compromising safety requirements; • ensure the door and seals of equipment with enclosures are well maintained and kept closed; • ensure the plant and equipment is well maintained and regularly inspected; • ensure equipment is not operated until it is maintained or repaired; • incorporation of clear signage at the site, which includes relevant contact numbers for community enquiries; and • a prompt response to any community concern.

Table 13: Air Quality Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
Impacts on air quality (i.e. TSP, PM10, PM2.5 and dust deposition levels) arising from the project's construction, operation or rehabilitation activities are not predicted to exceed relevant air quality criteria.	All air quality impacts are minimised to the greatest extent possible.	The estimated dust emissions for the Project have been calculated with existing management controls that will continue to be used throughout the life of Angus Place mine. The potential impacts can be mitigated through the continued implementation of existing management measures as follows: • Watering of unsealed haul roads and disturbed surfaces (including construction areas). • Restricting the size of disturbed areas as much as practicable. • Disturbed areas would be rehabilitation progressively. • Prevention of truck over-loading and covering dusty loads. • Maintaining equipment and plant appropriately to ensure efficient operation. • Monitoring in accordance with the EPL and ongoing assessment.

Table 14: Greenhouse Gas (GHG) Emissions Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
The total lifetime direct (Scope 1) emissions from the Project are estimated to be approximately 42,647 tCO2-e per annum, which is relatively small as this represents approximately 0.03% of NSW GHG emissions and 0.01% of Australia's total GHG emissions. Scope 1, 2 and 3 emissions are calculated to represent approximately 0.7% of NSW GHG emissions and 0.2% of Australia's total GHG emissions.	All air quality impacts are minimised to the greatest extent possible.	The following measures are currently being implemented to minimise to the greatest extent practicable GHG emissions: • maximising energy efficiency; and • implementation of an Energy and Greenhouse Management System that monitors and reports energy usage. Key Performance Indicators including energy demand and GHG emissions per tonne of ROM coal produced are tracked. Additional measures that Centennial Angus Place is implementing: • cost effective measures to improve energy efficiency; • regular maintenance of plant and equipment to minimise fuel consumption; and • consideration of energy efficiency in plant and equipment selection. Angus Place is currently investigating at a corporate level measures that may be taken to offset Scope 1 emissions from their operations. This work is ongoing, but measures may, but not be limited to, alignment with biodiversity offsets, purchase of green power and switching to biodiesel fuel. All measures taken to offset GHG emissions associated with the Project will be in alignment with the highest standards, such as the National Carbon Offset Standard.

Table 15: Soil and Land Capability Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
The dominant Land and Soil Capability class across the Project Application Area and the proposed infrastructure sites is Class 6 (land suitable for a limited set of land uses such as grazing and forestry). Fertility class and Land and Soil Capability classifications indicate that the land and soil resources within the Project Application Area do not qualify as biophysical strategic agricultural land (BSAL) Agricultural potential is low across the Project Application Area.	All soil and land impacts are minimised to the greatest extent possible	The key soil and land capability mitigation measures are the identification and selective stripping and replacement of topsoil on areas to be disturbed for surface infrastructure. The following topsoil management measures will be applied: • topsoil will be stripped to appropriate depths only when moist and stockpiled a maximum of 3 metres high; • topsoil stripping will immediately precede construction to minimise the time that bare subsoils are exposed; • ameliorants for each soil type will be applied; • topsoil that is to be stockpiled for longer than 3 months with be stabilised with an annual cover crop; and • prior to re-spreading stockpiled topsoil, weeds will be examined and removed or sprayed with herbicide.

Table 16: Visual Impact Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
The visual character and amenity of the regional and local area of the Project Application Area will not be significantly altered by the Project, as it involves continued operations of Angus Place Colliery, which consists of underground mining with minimal surface disturbance.	All visual impacts are minimised to the greatest extent possible.	Visual impact mitigation measures have been incorporated into existing operations at Angus Place Mine and will continue to be utilised for the Project as relevant. Existing visual mitigation measures consist of: • elevated conveyers at the pit top are clad in neutral coloured steel sheeting; • New infrastructure components will use non reflective and neutral toned cladding to reduce the visual impacts; • lights at the pit top have been designed and installed to Australian Standard 4282-1997 to minimise light spill and direct shining towards receptors; • the pit top rehabilitation plan provides for revegetation with native woodland and grasslands; • Newnes Plateau pipelines and power lines will be buried and the clearing corridor promptly revegetated; and • Newnes Plateau infrastructure will be progressively dismantled and rehabilitated to an appropriate land use as identified within the rehabilitation technical report within the EIS for the APMEP.

Table 17: Waste Management Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
The Project will not generate any new waste materials or additional waste volumes on an annual basis.	No new waste materials or additional waste volumes generated.	The waste management systems currently employed at Angus Place Mine will continue to be utilised for the Project. The Project will not generate any new waste materials or additional waste volumes on an annual basis. Additional waste volume will be generated on a life of mine basis given the extended operational mine life. However this volume of waste will continue to be managed in accordance with current waste management strategies. There will be no coarse or fine reject material generated at Angus Place Mine from coal processing. ROM coal processing and the associated management of production waste will continue to be undertaken at the Springvale Coal Services Site. Waste generation and management will continue to be monitored through the provision of monthly reporting, which show the amounts of each waste type that are disposed of or recycled, and identifies the appropriate contractor or waste facility that receives the waste or recyclables. The existing waste management system and its associated procedures will be revised to ensure appropriate waste management and recycling processes and will address continual improvement as part of the systems requirements.

Table 18: Hazard Management Assessment

Overview of Key Findings	Desired Outcomes	Actions to Meet Desired Outcomes
Of the hazards assessed (including hazardous materials, spontaneous combustion, bushfire and public safety), the proposed Project is not expected to result in an increased environmental or safety risk.	No increased environmental or safety risk.	• Dangerous goods will be stored in accordance with normal dangerous goods storage procedures. • Spill containment will be managed in accordance with relevant Australian Standards. • Safety hazards will be managed through occupational health and safety procedures. • Environmental hazards will be managed through the CEMP. • Fire protection (including fire extinguishers, separation distances) will be provided in accordance with relevant Australian Standards. • Fire suppression and protection systems will be serviced and inspected periodically. • Site emergency response plan including emergency contact numbers provided within management system for the site. • Coordination of vegetation planting and removal with bushfire management requirements that include access tracks and fuel management zones.

5.2 Social Impact Risk Assessment - Determining Factors

Based on the findings of the EIS (Golder: 2013) and considering the land use characteristics, how individuals and groups utilise the Plateau and based on feedback from consultation the potential social impacts are identified in the following areas:

- Environmental impacts in sensitive areas as a result of mine related subsidence. This includes surface features such as cliff lines, pagodas, swamps, groundwater dependant ecosystems, surface ecology and Aboriginal and European heritage sites.
- Adverse impacts to the amenity of the area. This relates to noise, dust, visual impacts that adversely affect the visitors experience. This would also include:
  - traffic impacts on forest tracks and local road networks due to increased personnel and during construction;
  - change in land use that results in restricted access to certain areas (ie by surface infrastructure);
  - noise impact having an adverse impact on recreation users of the area (eg when camping);
  - siting of infrastructure creating a visual impact at sensitive receptor sites (eg lookouts).
- Risk of mine closure and subsequent loss of jobs having an impact across the local area and broader region.
- Impact on tourism. For example the visual nature of infrastructure in publicly accessible areas, from key vantage points, noise and dust from infrastructure etc.

The intrinsic value of the Newnes Plateau to some environmental groups will be adversely impacted upon regardless of any mitigation strategies that can be put in place (i.e. stakeholder groups defined as those who aim to preserve the environmental value of the area from threats to sensitive surface features, ecosystems etc via opposing activities such as mining and restricting public access to certain areas). Underground mining does not result in zero impact and therefore these concerns can only be addressed if a do nothing scenario is adopted.

The potential for adverse impacts on the social amenity of the area will therefore focus on the 'intrinsic value' that users of the Newnes Plateau place on the area and if there is likely to be an adverse impact on factors that are attractive to recreational users of the area.

5.2.1 Social Impact Response to the EIS

This SIA has considered the findings of a range of specialist reports undertaken as part of the EIS (refer above) in order to determine the level of impact. The SIA has assessed the likelihood of change that may adversely impact on the social amenity of people who utilise the Newnes Plateau.

Table 19: Damage to Natural Surface Features

Areas of Potential Impact / Concern: Environmental impacts as a result of mine related subsidence.		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Subsidence	Damage to surface features impacting on the public amenity of the area.	• Mine design / plan. • Subsidence impact monitoring.	The Subsidence Impact Assessment (MSEC 2013) states: • Small predicted changes along the alignment of Wolgan River are unlikely to result in any significant changes to ponding, flooding, or scouring of the river bank. • Potential changes in stream alignment are unlikely to result in any significant changes to stream alignment. It is possible that some minor and isolated fracturing could occur in the bed of the Wolgan River. The fractures are expected to be shallow and discontinuous and are not expected to result in any diversion of surface water flows into subterranean flows. • It is unlikely that Carne Creek would be adversely impacted on. • There are no significant reductions or reversals in stream grades or loss of water from the catchment. • The likelihood of impacts on cliffs and pagodas are extremely low as the majority are located outside of the extents of the extracted long walls. • Some minor cliffs, pagodas and other rock formations located immediately adjacent to or directly above the proposed longwalls will result in some fracturing in these features and spalling of the exposed rock faces is possible. It is expected that the impacts would represent less than 1 % to 3 % of total exposed rock face areas of these features which are located directly above the proposed longwalls • The tilt impact on steep slopes is small in comparison with the natural grades and curvatures or strains could result in cracking requiring remediation. • Impacts on swamps are described as small and low resulting in no adverse impact.

Table 20: Damage to Built Surface Features

Areas of Potential Impact / Concern: Damage to Built Surface Features		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Impact of subsidence on built features.	Damage to surface features impacting on the public amenity of the area.	• Mine design / plan. • Subsidence impact monitoring. • Management Plan	The Subsidence Impact Assessment (MSEC 2013) states: • Unsealed roads across the Extension Area can be maintained in a safe, serviceable and repairable condition. • Surface infrastructure (existing and that which is required to be built to support mine operations) are to be maintained in a safe, serviceable and repairable condition. • Existing state survey control marks in the vicinity of proposed longwalls may need to be re-established if required for future use.

Table 21: Cultural Heritage

Areas of Potential Impact / Concern: Cultural Heritage		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Subsidence. Construction of surface infrastructure	Loss or damage to items of cultural heritage	• Mine plan • Subsidence Impact Assessment • Cultural Heritage Impact Assessment (CHIA)	The CHIA (RPS: 2013) found a total of 49 previously registered sites were situated within the boundary of the Project Application Area, with 14 of these located inside the four study areas which indicated proposed impact zones for both surface works and subsidence. With regard to the 14 sites, two were found to be at potential risk of harm from subsidence and none were found to be within proposed impact zones for surface disturbances. MSEC contends (2013:86) that the site most at risk is 45-1-0084 due to the degree of conventional subsidence however it is determined that the consequences of this is reported to result in no significant physical impact. Consideration to external harm to archaeological sites such as those caused by surface works has found that Centennial Coal has no plans for any surface works in the vicinity of archaeological sites located in the Project Application Area. The remaining sites are 'unlikely' or 'highly unlikely' to be impacted by the extraction of the proposed longwalls.

Table 22: Noise

Areas of Potential Impact / Concern: **Noise**		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Surface infrastructure. Vehicle movements.	Adverse impact on the amenity of the area.	• Noise Impact Assessment (NIA). • Angus Place Noise Monitoring Program (April 2012) • Location of infrastructure.	The NIA (SLR 2013) states that: • Noise modelling has indicated that the noise emissions from the proposed operation of the proposed APMEP are significantly below the relevant noise criteria at the nearest potentially affected receiver locations. • Given the separation distance of approximately 4.4 km between the Project and the nearest potentially affected residential locations, vibration levels are predicted to be negligible and below levels of human perception at the nearest residential receivers. • Traffic noise generated by the construction and operation of the proposed Project is predicted to be within the NSW Road Noise Policy (RNP) criteria at all receiver locations. • The operational noise criteria for the Newnes State Forest recreational area is predicted to be met at distances of approximately 550 m to 700 m from the Angus Place Colliery Ventilation Site and less than 100 m from the proposed borehole locations. Recreation areas are stated to be within acceptable amenity criterion of 60dba during construction and 50 dba during operation. • The NIA (p30) states there is a small area of Sunnyside Ridge Road to the east of the APC-VS2 area which is predicted to experience small exceedences of the project specific noise criteria for a passive recreational area. It is noted, however, that Sunnyside Ridge Road is promoted for use as a 4WD track and noise impacts on potential users are considered insignificant (refer Figures 5 and 6 below).

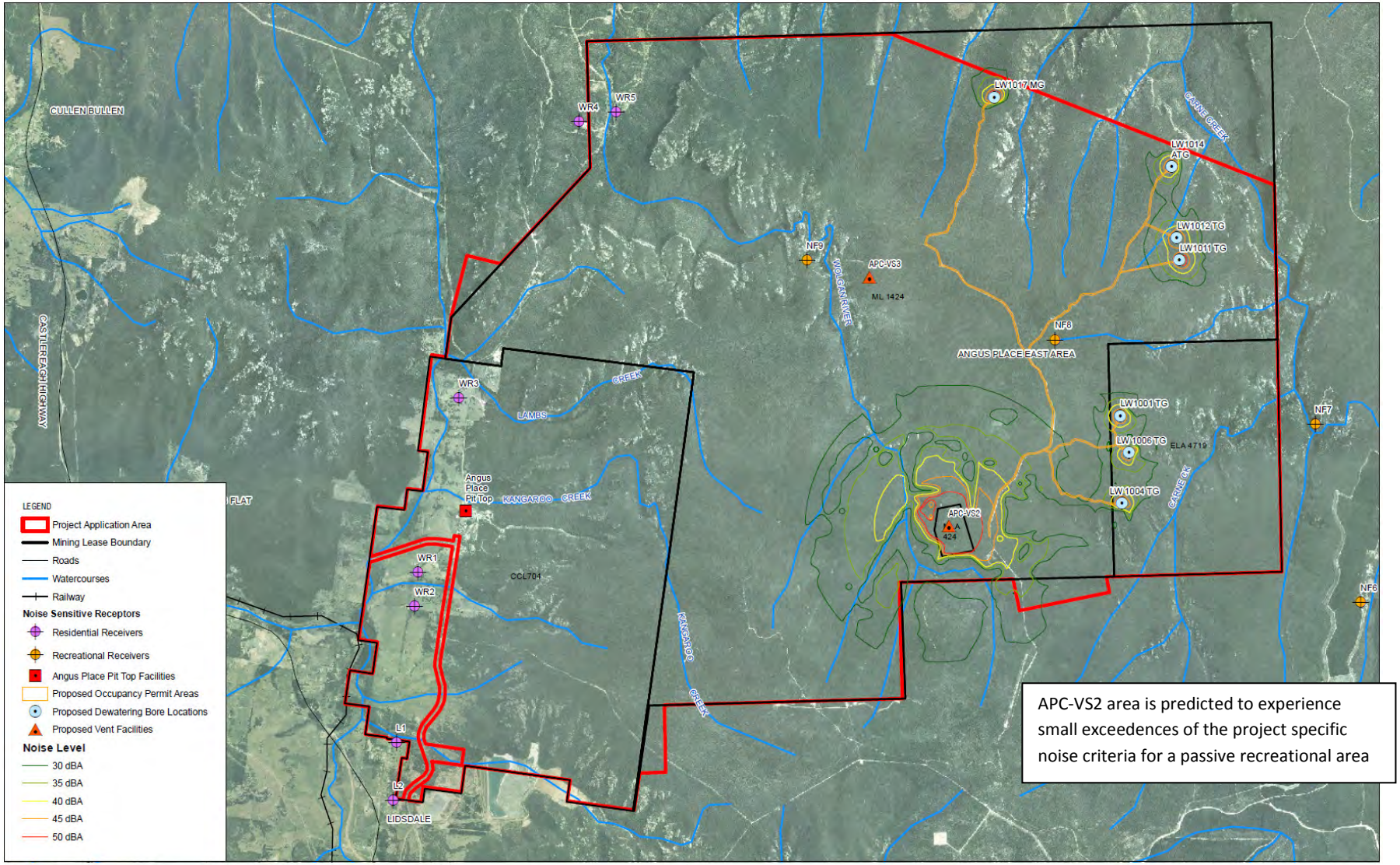

Figure 5: Operational Daytime Calm Noise Indicators (SLR NIA P49).

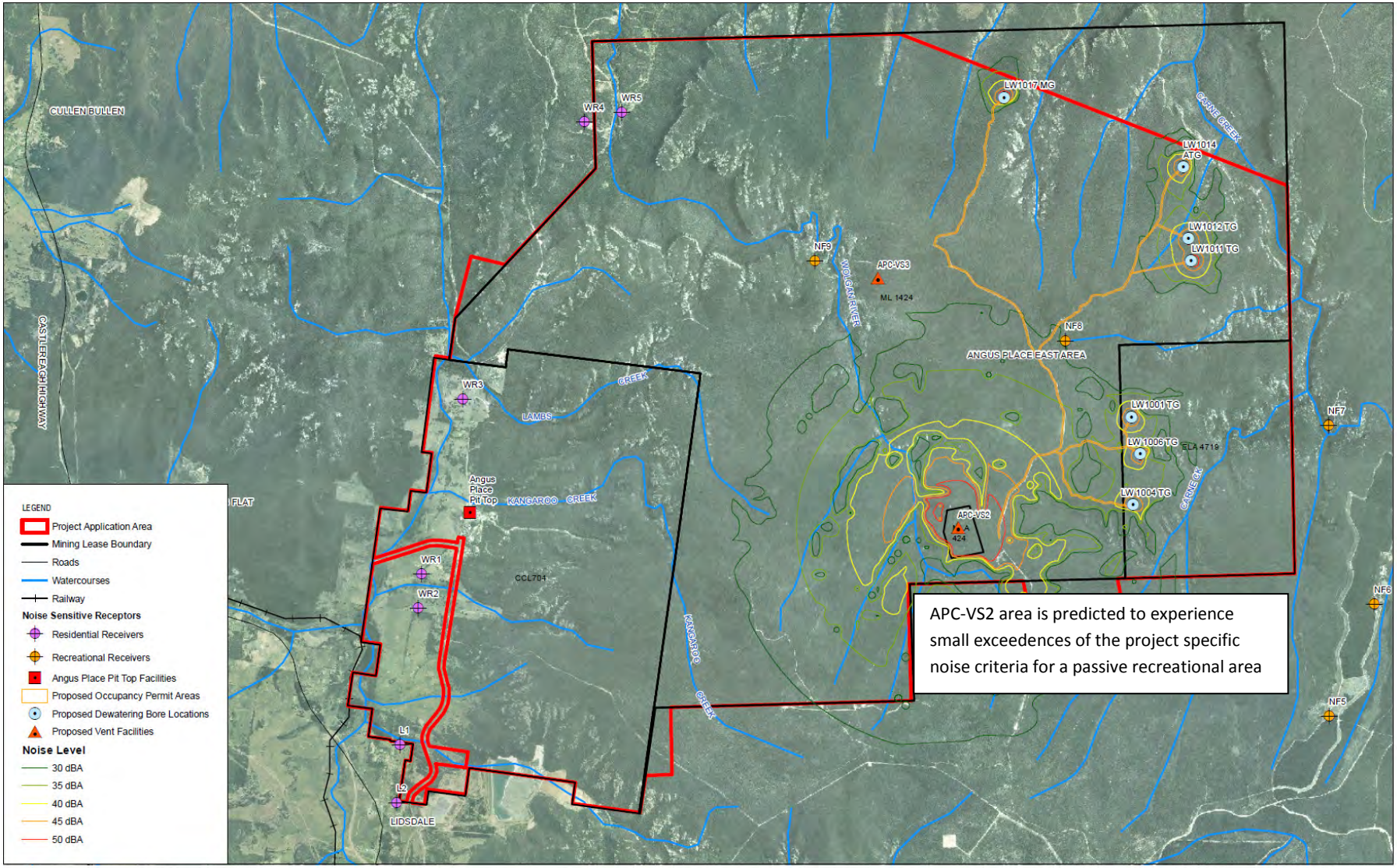

Figure 6: Operational Evening and Night-Time Outer Envelope Noise Contours (SLR NIA P50).

Table 23: Risk of Mine Closure

Areas of Potential Impact / Concern: **Risk of Mine Closure**		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Inadequate Environmental Assessment	Mine closure and loss of jobs	• Economic Assessment. • Environmental Assessment.	The continuation of employment has a positive impact on the financial and social economy of the area via pay packet effect and participation in social and recreational activities; particularly in Lithgow urban area and townships of Wallerawang and Portland where 62% of Angus Place employees live. The Project will also require the ongoing engagement of 75 contractors. These contractors would be involved in various stages of the infrastructure construction throughout the life of the mine. It is understood that approximately 50 contractors will be involved at various stages through the construction phase of the ventilation facility and associated services infrastructure between June 2013 and March 2016. A further 25 contractors would be engaged for underground work which would include installing secondary support on an ongoing basis. There are no details available at this stage for the timing of the engagement of installation crews for dewatering bore pumps and road maintenance. These contractors are engaged from the local and sub-regional area. Whilst it is acknowledged that the number of short term employees is not high, there is a positive impact on short term demand for services such as accommodation, meals, fuel and support of local services such as banking.

Table 24: Impact on Social Amenity

Areas of Potential Impact / Concern: **Adverse Impact on Amenity**		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Traffic	Noise, dust and social amenity impacts	• Traffic Impact Assessment.	ARC Traffic and Transport TIA (July 2013) has assessed traffic impacts during construction and at operational times. • Construction: During construction there is estimated to be up to 16 vehicle trips per day which would not significantly impact the operation of the NSF road network providing access to the Project sites. • Operational: Additional traffic generated during the peak Project operational periods (up to 10 vehicle trips per week) would not significantly impact the operation of the NSF road network providing access to the Project sites.

Table 25: Adverse Impact on Tourism

Areas of Potential Impact / Concern: **Adverse Impact on Tourism**		**SIA Response**	
Cause	**Potential Outcome**	**Management / Control**	**Comment**
Impact of subsidence on natural and built features. Noise, dust and visual impacts from surface related infrastructure.	Adverse impact on the public amenity of the area.	• Mine design / plan. • Subsidence impact monitoring. • Management Plan.	It is determined that: • Mining in the proposed Project will not have an adverse impact on surface features, access tracks etc that restrict public access to Newnes State Forest. • There may be traffic and noise impact during construction of infrastructure however this is limited. Access to infrastructure will be periodic and not impact on other users. • Infrastructure is located away from residences. • Infrastructure will not inhibit public access to existing formed trails used by four wheel drive, motorcycles, mountain bike riders and walkers. • The proposed Project will not have an adverse impact on surface features, access tracks etc that restrict public access to Newnes State Forest. • There may be traffic and noise impact during construction of infrastructure however this is limited. Access to infrastructure will be periodic and not impact on other users. • Infrastructure is located away from residences. • Infrastructure will not inhibit public access to existing formed trails used by four wheel drive, motorcycles, mountain bike riders and walkers. • The Visual Impact Assessment (Golder Associates: 2013) has identified that there will be no change to the pit top facilities resulting in no change to the visual amenity from identified sensitive receptors (identified as

			A01; A02, A03 and A04). Visual impacts resulting from the construction of surface infrastructure on Newnes Plateau is stated to have an overall low visual presence. At the majority of receptor sites across the Project area three will have no visual impact (identified as A05, A07, A08); one receptor (A06) will experience a minor visual effect and A09 (Ventilation Shaft 3) may experience a minor to moderate visual affect. The main impact relates to the clearing of areas however these will be progressively rehabilitated.

5.3 Comments on Potential Social Impacts

The mine design and other mitigating factors have minimised the extent of change to the physical environment to an extent that the Project will not adversely impact on the existing land use, its physical characteristics including surface features and the manner in which the public utilise / access the area for recreation.

Stakeholders who access the area for passive recreation including bushwalking and bird watching who have a low impact on the environment may experience a minor amenity impact in a small area on Sunnyside Ridge Road to the east of the APC-VS2 area which is predicted to experience small exceedences of the project specific noise criteria for a passive recreational area. However this area is primarily used as a four wheel drive track so any amenity impact is unlikely.

There is an identified moderate visual impact arising from the location of surface infrastructure at Bird Rock Trig relating to clearing; however cleared areas will be progressively rehabilitated mitigating any potential long-term impact.

Based on the review of specialist consultants reports, it is determined that the there will be no social change arising from the Project because there is no adverse impact on how people use the area. There will be no change to the social amenity of the area arising from this Project brought about by noise, dust, visual impacts whereby the use of conventional management strategies identified in the EIS will not be effective.

The continuation of employment of the workforce is a positive social impact of the Project. Employee surveys undertaken at Angus Place Colliery found that mine related employment directly contributes to the local financial and social economy. As the Project is a continuation of the existing mine, workforce numbers will be maintained at 225. Therefore the employment profile does not indicate any adverse impact on existing services or facilities and the Project will not create any demand for additional services or facilities into the future.

The Project will require the ongoing engagement of short term contract positions at various stages of infrastructure construction throughout the life of the mine. These projects include:

- install and operate seven additional dewatering borehole facilities on Newnes Plateau and the associated power and pipeline infrastructure;
- upgrade and extend the existing access tracks from Sunnyside Ridge Road to the dewatering borehole facilities;
- install and operate dewatering reinjection boreholes and pipeline infrastructure at the existing ventilation facility site (APC-VS2);

Whilst it is acknowledged that the number of short term employees is not high, there is a positive impact on short term demand for services such as accommodation, meals, fuel and support of local services such as banking.

An adverse impact of the Project exists with individuals and groups identified as being stakeholders who aim to preserve the environmental value of the area and oppose any activities which would

have an impact on the ecology of the area including mining, adventure tourism etc. The relationship with this stakeholder group is important but it is unlikely to reach a position where the Project will achieve a position where the impact of their operations is tolerated and a social licence to operate is granted. Accountability from the Project regarding environmental performance is required.

Furthermore, Newnes Plateau is identified as being an important feature of the Lithgow LGA. Centennial Coal is a key stakeholder in preserving the Newnes State Forest as an important asset for tourism. While no change in the land use is predicted it is important that:

- rehabilitation of cleared areas is undertaken promptly to minimise visual impacts; and
- surface infrastructure is located away from walking / access tracks and areas where visual intrusion is likely (ie from lookouts etc).

It is also understood that the Department of Planning and Infrastructure have determined that the appropriate planning authority to determine if a Voluntary Planning Agreement (VPA) or S94 contribution is applicable is Lithgow City Council. These discussions are underway. The SIA has determined that the Project will not result in any additional demand for services and infrastructure. Ongoing employment will support and contribute to the overall viability of other services across the LGA.

6. CONCLUSION

Throughout the Project an extensive environmental assessment process has been undertaken and the findings have been used to develop the final mine plan which aims to minimise surface impacts while maximise the benefit to Centennial Angus Place Pty Limited.

On review of the mine plan and specialist consultants reports it is determined that the Project will not change the character of the Newnes State Forest and therefore not adversely impact on how visitors who use the area for activities such as four wheel driving, mountain biking and motorcycle riding access and move around the site.

The Project may have a slight impact on those who use the area for bushwalking, photography etc if they are impacted upon by noise, or visual impacts from the surface facilities. It appears that any risk in this regard will be minor. Mitigation of potential impacts will be facilitated by rehabilitation of cleared areas as soon as practical and positioning infrastructure away from areas of public access.

Environmental groups will be concerned regarding the risk to the Project area. It is recognised that the mine cannot operate with zero impact; however environmental impacts have been mitigated as much as practical in order to achieve the best economic outcome for Centennial Angus Place Pty Limited. Ongoing dialogue regarding environmental performance is recommended which will be facilitated via the Community Consultative Committee.

Should the Project be approved, it will provide ongoing employment for 225 persons and up to 75 temporary contractors who play an important role in supporting the economic and social economy of the area. It is found that there will be no additional demand for services or facilities as a result of this Project.

There is no evidence to suggest that the Project should not proceed as a result of adverse social impacts.