ROCKY HILL COAL MINE PROPOSAL

Report Author **Wayne Burgess, Project Manager - Development Assessment**
File No. / ECM Index **MP-SSD-5156-Rocky Hill**
Date of Meeting **12 October 2016**

DETAILS

Date Received: 12 August 2016.

Applicant: Brian Clifford, Director and Chief Operating Officer of Gloucester Resources Limited.

Owner/Land: Variable. Property descriptions contained in Environmental Impact Statement (EIS) Author`s Certification. Land ownership contained in Table A7.1 of the EIS.

Zoning: Part E3 Environmental Management and part RU1 Primary Production, GLEP 2010.

SUMMARY OF REPORT

State Significant development application for the Rocky Hill Coal Mine (SSD 5156) was originally lodged with the Department of Planning and Infrastructure on 18 December 2012. In June 2015, Gloucester Resources Limited submitted a request that the Department of Planning and Environment place the assessment of the Project on hold.

A revised Environmental Impact Statement (EIS) and other accompaning documents are on exhibition from 17 August 2016 until 14 October 2016. The amended application is available for viewing on the Department`s website and Sydney offices and Council`s website and Gloucester, Forster, Taree and Stroud offices.

A Council project team was formed in order to properly assess the revised EIS. The team consists of staff from the three (3) offices and their input is included in this report.

At the same time, the NSW Department of Planning and Environment has placed on exhibition a proposal to modify the Development Consent for the Stratford Mine, which is proposed to receive the extracted coal from Rocky Hill and crush it at the Stratford site before transporting to major centres. This proposal is subject to a separate report to Council.

The Department of Planning and Environment advised Council of key issues that Council and other Agencies are required to assess. Council staff advised the department that Council would also be considering the issue of Biodiversity. The department raised no objection to the consideration of this issue.

This report is a response to the Environmental Impact Statement and is a merit-based assessment of the documents under the relevant legislation.

SUMMARY OF RECOMMENDATION

That a copy of the report to Council be forwarded to the Department of Planning and Environment for consideration in that Department`s assessment of the application and that the Department be advised that Council does not support the proposed Rocky Hill Coal Mine Proposal for the reasons contained in the recommendation.

That the Department of Planning and Environment also be advised of relevant conditions of consent that are necessary should the Department approve the application.

That the Department of Planning and Environment investigate the delineation of buffer areas to development that will be created in the event the Rocky Hill Coal Mine is approved.

FINANCIAL/RESOURCE IMPLICATIONS

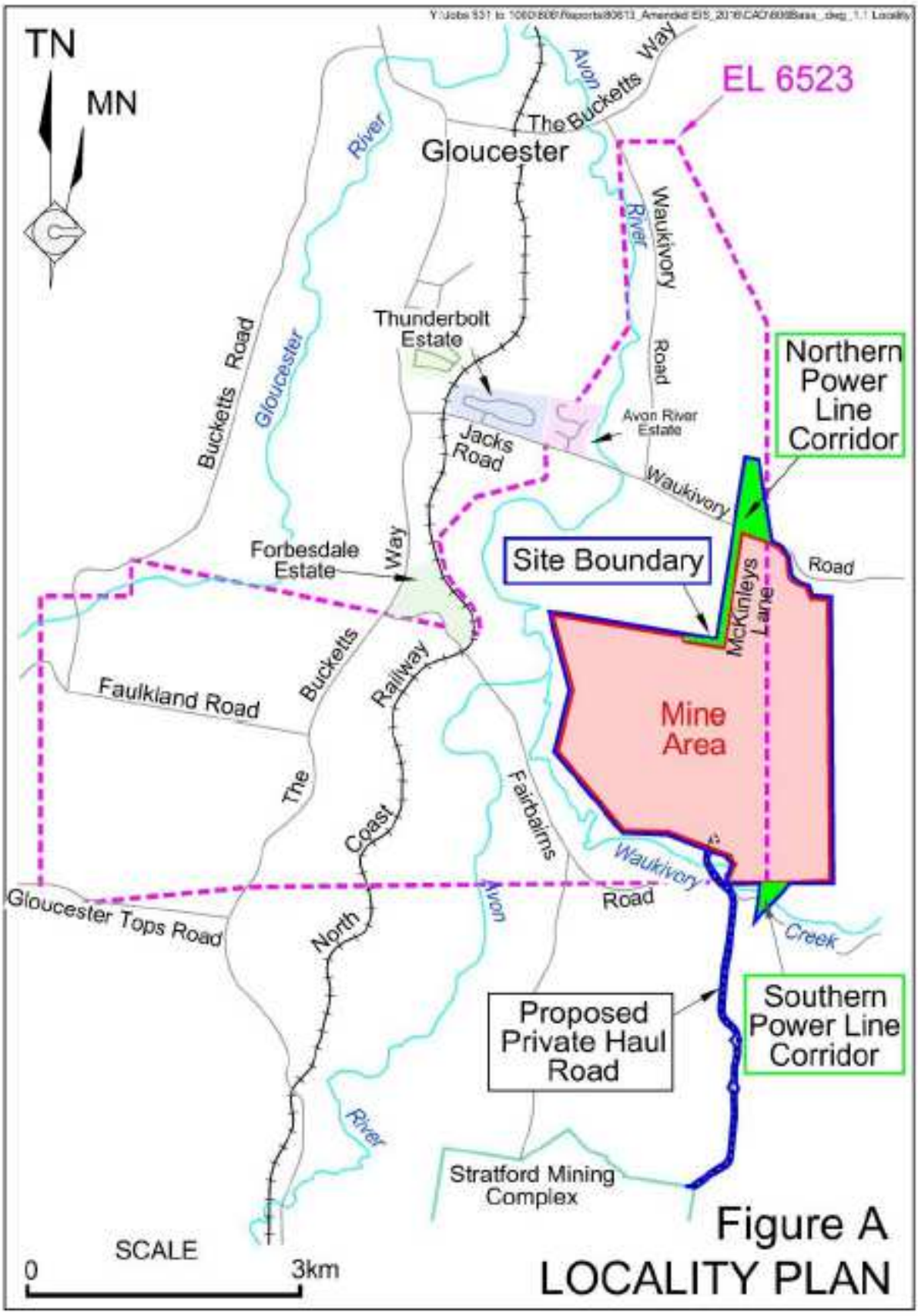
Significant staff resources were incurred in the assessment of the State Significant development application.

LEGAL IMPLICATIONS

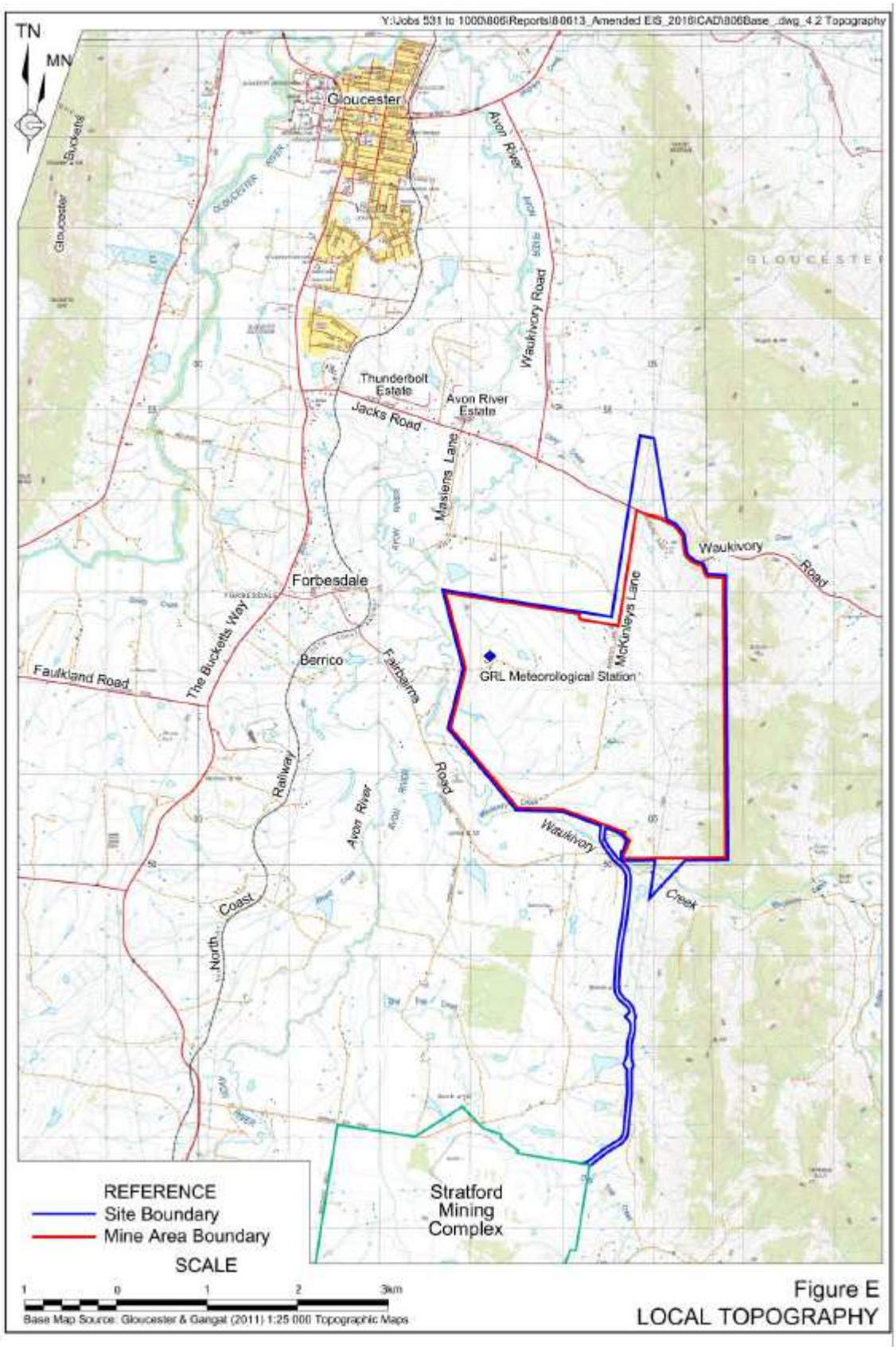
None envisaged.

SUBJECT SITE AND LOCALITY

The figure below shows the location of the site for the amended proposal.



The figure below shows the local topography of the site for the amended proposal.



BACKGROUND

State Significant development application for the Rocky Hill Coal Mine (SSD 5156) was originally lodged with the Department of Planning and Infrastructure on 18 December 2012.

A copy of the original proposed site layout is contained in Annexure A.

The Environmental Impact Statement (EIS) was exhibited from 28 August 2013 to 28 October 2013.

The former Gloucester Shire Council (GSC), at its extraordinary meeting of 23 October 2013 resolved:

1. *That Council oppose the proposed open cut coalmine by GRL Pty Ltd known as the Rocky Hill coalmine on the grounds listed in the submission attached to this report: and*

2. *Council endorse the submission prepared by the Rocky Hill Working Group, with minor amendments and corrections, as its submission to the development application, and that the submission be forwarded to the Department of Planning and Infrastructure for consideration in that Department`s assessment of the application.*

In preparing the submission, GSC had drawn on the resources of its staff, members of the local community and some limited external consultant advice.

A summary of the grounds of refusal included the following:

- impact on amenity of surrounding rural, rural residential properties due to extensive hours of operation,
- noise impacts in relation to hours of operation,
- exceeds acceptable standards for air blast criteria,
- visual impact on the landscape,
- impact in terms of light pollution on the community,
- impact on the threatened ecological community and fauna species,
- impact on surface water quality,
- ground water and related issues not adequately addressed,
- impact on the floodplains from the proposed visibility barriers,
- inadequate aboriginal heritage assessment,
- inevitable risk of health damage,
- economic viability of the mine not demonstrated,
- impact on agricultural activity,
- Council unable to adequately maintain the road network impacted upon by the proposal.

GSC`s fundamental concern was that the range of residual impacts i.e. noise, light, dust, blasting, traffic, etc. cannot be adequately mitigated given the proximity of the proposed development to residential areas and the difference in scale between the proposed mine and the township itself.

The former Great Lakes Council (GLC) also made a submission on 25 October 2013 raising concerns in relation to proposed Biodiversity Offset Area, impacts on local streams and upgrading works for The Bucketts Way and annual bridge inspections.

It should also be noted that at a meeting held on 20 February 2014, the former Gloucester Shire Council resolved to adopt a Mining and Extractive Industry Policy for inclusion in its Policy Register. A copy of the Policy is contained in Annexure B.

OBJECTIVES OF THE POLICY BEING:

- *To ensure that local values relating to lifestyle and quality of life, including public health, amenity, biodiversity, water (both surface and ground), and other economic sectors (such as agriculture and tourism) are adequately considered and protected from the expanded extractive industry activity in the Gloucester Basin.*
- *To ensure that any existing extractive industry activity is monitored and managed effectively to meet all conditions of development consent, and will be managed in an endeavour to continuously improve operational practices to reduce environmental impacts wherever practicable.*
- *To ensure mining companies build a commitment to international best practice standards for mining activity in our area, and participate as active citizens in community affairs.*

In relation to the Rocky Hill Coal Mine, the Policy states:

> ***Proposed Rocky Hill Coal Mine***
>
> *Council has established and maintained a long-standing opposition to this proposed mine. This opposition has included documentation of Local Environmental Plans that have zoned the site for environmental conservation purposes in both 2000 and 2010; opposition to the issue of exploration licences over the above-mentioned areas; and opposition to the current development application.*
>
> *In preparing its current Community Strategic Plan Council surveyed the local community to establish it's preparedness for resources to be allocated to the opposition of this mine. The results of that survey identified that 78% of the local community agreed with Council taking this action.*
>
> *Council has received independent economic advice that the project is not economically viable and will have only marginal economic benefits in our community. Any potential benefits need to be assessed against potential significant negative impacts on other economic sectors.*
>
> *In a comprehensive report Council has identified 53 grounds for refusal of the application and has forwarded to this submission to the Department for their consideration in their assessment of this application. A copy of Council's submission is available on Council's web page and in the library.*

The applicant recognised, following the exhibition of the 2013 EIS, it was necessary to simplify its operation and scale back production to a level that that reduced the adverse environmental impacts.

In June 2015, Gloucester Resources Limited submitted a request that the Department of Planning and Environment place the assessment of the 2013 Project on hold.

EXHIBITION OF AMENDED STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSD-5156)

On 12 August 2016, Council was advised by the Department of Planning and Environment that an amended State Significant Development Application (SSD-5156), revised Environmental Impact Statement (EIS) and other accompaning documents are on exhibition from 17 August 2016 until 14 October 2016. The amended application is available for viewing

on the Department`s website and Sydney offices and Council`s website and Gloucester, Forster, Taree and Stroud offices.

At the same time, the NSW Department of Planning and Environment has placed on exhibition a proposal to modify the Development Consent for the Stratford Mine, which is proposed to receive the extracted coal from Rocky Hill and crush it at the Stratford site before transporting to major centres. This proposal is subject to a separate report to Council. State-Significant Developments (as defined in the State Environmental Planning Policy-State and Regional Development 2011) means the NSW Department of Planning and Environment is the consent authority, not MidCoast Council. Submissions must be made to the NSW Department of Planning and Environment.

Any individual, community group or organisation is invited to consider the amended Environmental Impact Statement and the DA modification for Stratford Mine and make submissions commenting on the separate proposals before Friday 14 October 2016**.**

As a stakeholder, MidCoast Council has the same opportunity to make a submission as community members. This report is a response to the Environmental Impact Statement and is a merit-based assessment of the documents under the relevant legislation.

This Environmental Impact Statement (EIS) has been prepared to describe the proposed mining operations and assess the environmental impacts of the amended Rocky Hill Coal Project. The Applicant, Gloucester Resources Limited (GRL) has amended the 2013 Rocky Hill Coal Project. The applicant advises that considerable emphasis has been placed upon addressing the components of the 2013 Project that caused greatest concern in the local community, particularly with respect to visibility, hours of operation, noise, air and water.

The amended Project has been designed following an agreement between the Applicant and Yancoal Australia Limited ("Yancoal") whereby sized run-of-mine (ROM) coal would be transported from the Rocky Hill Mine Area to the nearby Stratford Mining Complex via a private haul road where it would be processed at their coal handling and preparation plant (CHPP) before being loaded onto trains destined to the Port of Newcastle for export.

Whilst a number of components of the 2013 Project have been amended and improved, other components or commitments from the 2013 Project remain unchanged, for example, GRL's commitments to backfilling the final void and creating a final landform with similar pre-mining landform features, both of which are best practice in the Australian coal mining industry; upgrading sections of the local road network; the Community Grants Program (including a donation of 50 cents per tonne of product coal); and the implementation of a range of other commitments which are an endeavour to lead to improved socio-economic outcomes for the local and wider community.

The principal coal product to be produced from the Rocky Hill Coal Mine is a high fluidity coking coal, i.e. a product used in Asian steel mills and is in high demand. Unlike thermal coal which is the primary coal product from the Hunter Valley and used for power generation, there is no substitute for coking coal in the manufacture of steel.

AMENDED PROJECT DESCRIPTION

Figure B below displays the indicative amended site plan which includes the following principal components:

- A mine area entrance off McKinleys Lane.
- An administration area, incorporating site offices, amenities, workshop, water treatment plant and ancillary facilities.

- Three continuous open cut pits (Avon, Bowen Road and Main Pits) varying in depth from approximately 80m to 220m.
- A long term amenity barrier and two interim barriers to visually screen areas of activity and provide for noise mitigation.
- A consolidated in-pit and permanent out-of-pit overburden emplacement and interim overburden emplacement which would be removed at the cessation of coal extraction, with the materials used to backfill the final void and creating a final landform with similar pre-mining landform features.
- A ROM pad and associated breaker station comprising a feed conveyor, rotary breaker, a sized coal conveyor and a nominal 500t capacity overhead sized coal bin within the Mine Area from which 60t nominal capacity road-registered multi-combination trucks would be loaded.
- A 4.4 km sealed private haul road extending between the sized coal bin within the Mine Area and the boundary of the ML 1733, being the northern extent of the Stratford Mining Complex.
- A 5km section of re-located 132kV power line and a new 11kV power line providing power for the on-site operations.

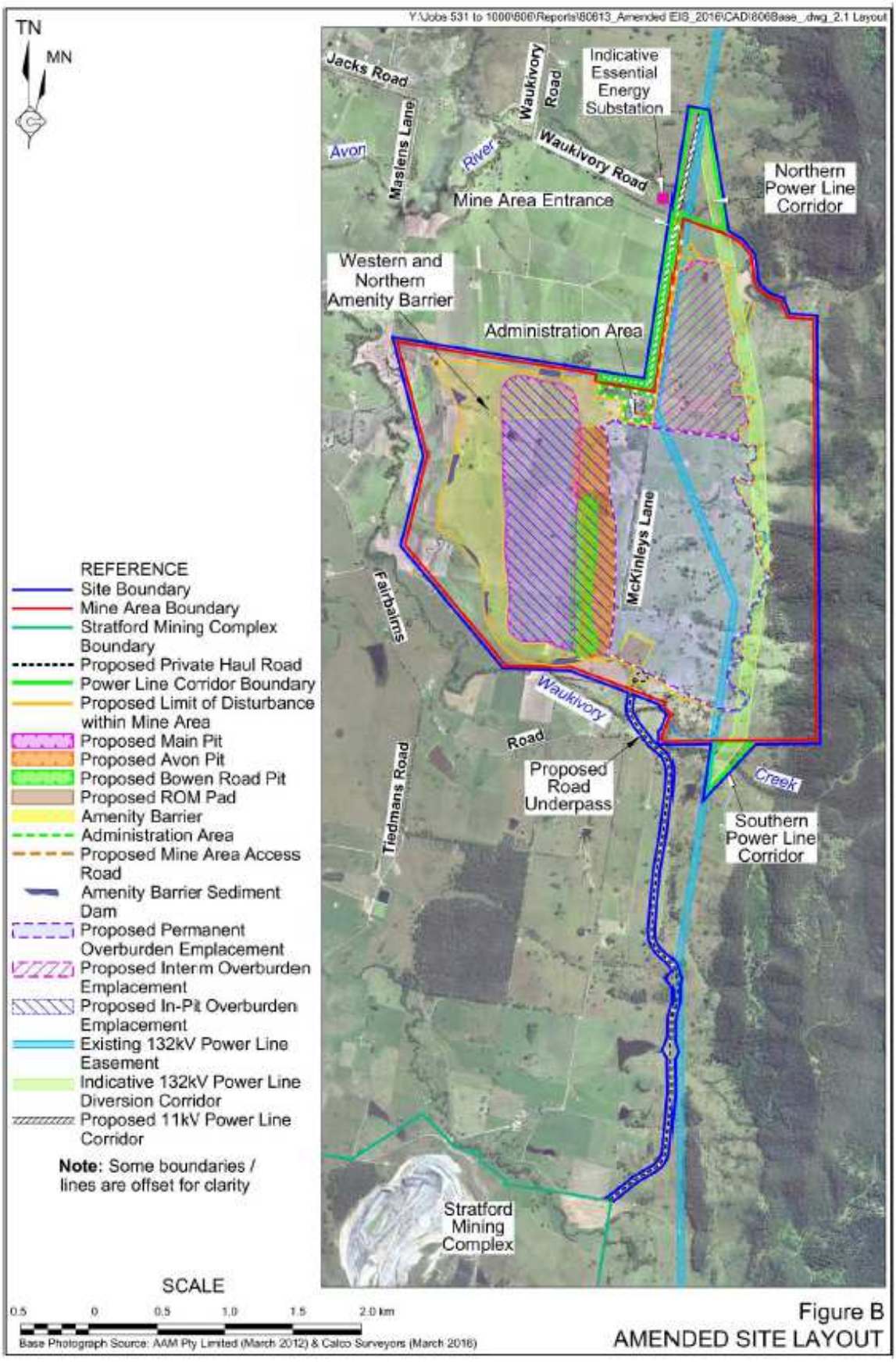
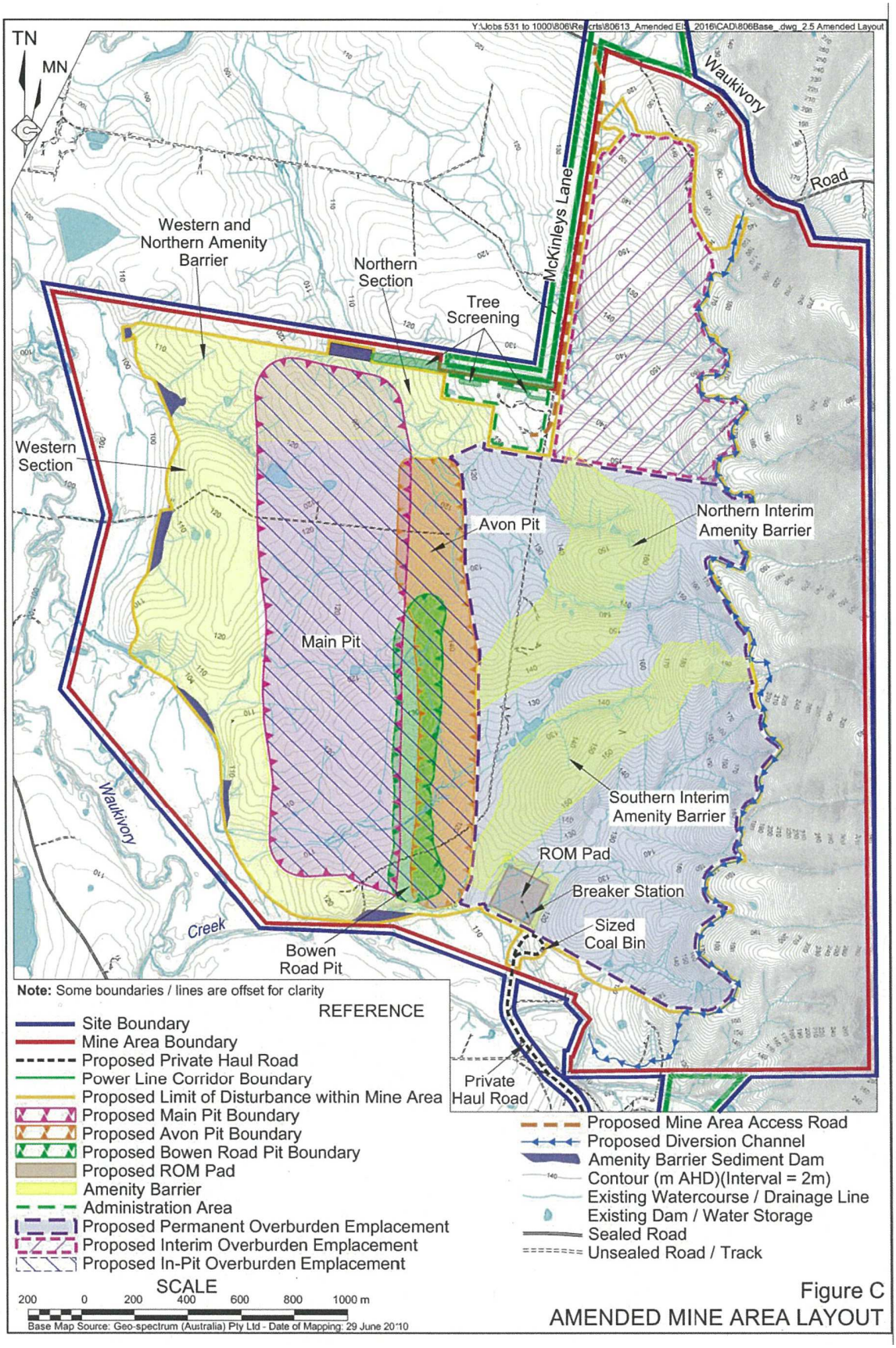


Figure B
AMENDED SITE LAYOUT

Figure C below shows an Amended Mine Area Layout showing the location of each major component of the amended Project.



KEY Differences between the 2013 Project and Amended Project

GRL has amended the Rocky Hill Coal Project principally through the removal of the previously proposed Weismantel Pit and associated surface infrastructure, namely the Coal Handling and Preparation Plant (CHPP), overland conveyor, rail loop and train load-out facility. Other key differences between the two projects are set out below in a Table provided in the EIS:

Project Component	2013 Project	Amended Project
In Situ Coal Resource	• 25 million tonnes (7 coal seams targeted) • 130 million bank cubic metre(bcm) overburden	• 21 million tonnes (6 coal seams targeted) • 126 million bcm overburden
Approval sought for Maximum ROM Coal Production	• 2.5 million tonnes per year	• 2.0 million tonnes per year
Projected Product Coal Production	• 1.75 million tonnes per year	• 1.3 million tonnes per year
Mine Life	• Mining operations = 14 years • 21 year Development Consent sought	• Mining operations = 16 years • 21 year Development Consent sought
Capital Investment Value	• $164.4 million (2013 dollars)	• $90.3 million (2016 dollars)
Open Cut Mining	• Three contiguous open cut pits and one stand-alone open cut pit (Weismantel Pit). Two sub-pits were proposed within the Main Pit. • Depth of open cut pits - 70m to 190m.	• Three contiguous open cut pits (Avon Pit, Bowen Road Pit and Main Pit) (Weismantel Pit removed). • Depth of open cut pits - 80m to 220m.
Mining Equipment Deliveries (on low loaders, etc)	• Via Jacks Road and Waukivory Road.	• Via Stratford Mining Complex and private haul road.
Amenity Barriers	• Three barriers - western and northern amenity barriers, central visibility barrier, eastern visibility barriers - generally aligned north-south.	• Three barriers - western and northern amenity barrier, northern and southern interim amenity barriers generally aligned northeast to southwest (re-designed to maximise effectiveness, remove linearity, incorporate more variability and create a more natural appearance).
Annual Sequence of Surface Disturbance	• **Figure 2.16** - completed in 13 years.	• **Figure 2.10** - completed in 11 years
Coal Processing	• An on-site CHPP generating product coal for rail despatch off site to export market. The site workshop was located near the CHPP.	• An on-site rotary breaker designed to reduce the size of all coal to <120mm and remove contaminating rock. • Processing of sized ROM coal at the CHPP at the Stratford Mining Complex.
Coal Products	• Approximately 90% coking coal, 10% thermal coal.	• Approximately 95% of high fluidity coking coal, 5% thermal coal.
Product Coal Transportation	• Transported using an overland conveyor from the CHPP to a rail load-out bin and a dedicated new rail loop and rail load-out facility	• No product coal produced on site. • Product coal from Stratford

	approximately 2km west of the Mine Area.	Mining Complex despatched using existing rail load-out facility and rail loop within the Stratford Mining Complex.
Administration Area	• Site offices, amenities and ancillary facilities.	• Site offices, amenities, workshop, water treatment plant and ancillary facilities. •
ROM Coal Transportation	• All ROM coal delivered by haul trucks to the on-site CHPP	• All ROM coal delivered to rotary breaker with sized coal (90% ROM coal) transported via a private haul road to the Stratford mining Complex.
Saline Water Management	• Contained on site within dams and open cut pits.	• Contained on site within dams and/or treated on site - with treated water used for irrigation of rehabilitated areas and on adjoining land.
Processing Rejects	• Fine and coarse rejects produced in the CHPP would be mixed with overburden in the on-site emplacements.	• The coarse (rock) reject produced by the rotary breaker would be mixed with the overburden in the on-site emplacements. • CHPP rejects managed at Stratford Mining Complex.
Maximum Workforce	• Construction = 100 persons • Operations = 150 persons	• Construction = 60 persons • Operations = 110 persons
Proposed Operational Hours	• Mining (6 days/week): - Years 1 and 2: 7:00am to 10:00pm (i.e. day/evening) - Years 3 to 14: 7:00am to 4:00am (i.e. day/evening/night) • Coal despatch (7 days/week) - Anytime (24 hours/day)	• Mining (6 days/week): - Years 1 to 3: 7:00am to 6:00pm (i.e. day only) - Years 4 to 16: 7:00am to 10:00pm (i.e. day/evening) - No night-time operations • Coal transport to Stratford Mining Complex (6 days/week) - 7:00am to 6:00pm
Final Landform	• Free draining landform with slight increases in slopes on the western side of the permanent overburden emplacement.	• Free draining landform with slight increases in slopes on the western side of the permanent overburden emplacement. • Minor changes above the backfilled Main Pit.
Biodiversity Offset Area	• 267ha	• 267ha

A further Amended Project Summary as outlined in the EIS is contained in Annexure C.

SITE DESCRIPTION

The mine area is located approximately 3.5km to 7km southeast of the Gloucester urban area. The site covers an area of approximately 832ha of which approximately 500ha would be disturbed throughout the life of the amended project. The majority of the site is located on freehold land currently owned by resource companies or with agreements in place with private landholders for purchase should the amended project proceed. Land ownership is contained in Table A7.1 of the EIS.

Land within the Site has historically been used for agricultural purposes, principally grazing for beef cattle and some dairy operations.

The privately-owned residences in the vicinity of the Site are either scattered on the surrounding rural or lifestyle properties or within one of three rural-residential or large lot estates, i.e. areas zoned R5 Large Lot Residential in the Gloucester LEP 2010.

The closest rural-residential estate is the Forbesdale Estate where residences are located between 1.3km and 2.0km west of the western edge of the western and northern amenity barrier and 1.8km and 2.5km west of the closest open cut pit.

The Avon River Estate is located approximately 1.8km to 2.4km northwest of the Mine Area and immediately north of Jacks Road, the main access route to the Mine Area once the Jacks Road Bridge over the Avon River is replaced.

The Thunderbolt Estate, also north of Jacks Road, is located approximately 1.9km to 2.8km northwest of the Mine area.

The closest privately-owned residences to the private haul road are located approximately 1.5km to the southeast of its southern most extent and 3.6km to the west. The residence to the southeast would be closer to the section of the haul road within the Stratford Mining Complex.

PLANNING CONTEXT

The site lies within land zoned E3 Environmental Management (77%) and RU1 Primary Production (23%) under the provisions of Gloucester Local Environmental Plan 2010.

Open Cut Mining is prohibited development within the E3 zone and permitted with consent within the RU1 zone. The majority of the proposal is located within the E3 zone.

However, the amended proposal, being for open cut mining, is recognised as State Significant Development under State Environmental Planning Policy (State and Regional Development) 2011 for which approval is required from the Minister for Planning and Environment or, under delegation, by the Planning Assessment Commission. Also, the proposal is permissible given the provisions of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industry) 2007, as extensive agriculture is permissible within the E3 zone.

Strategic planning comments are considered later in the report under the heading `Social and Economic' issues.

In addition to development consent, the following key environmental and planning approvals, licences and leases would be required:

- An Environmental Protection Licence under the Protection of the Environment Operations Act 1997,
- Mining Leases under the Mining Act 1992,
- One or more licences under the Water Management Act 2000, and
- Permits under the Roads Act 1993 to undertake the proposed road and intersection works and improvements for the proposal.

REPORT

A Council project team was formed in order to properly assess the revised EIS. The team consists of staff from the three (3) offices representing Planning, Environmental Health/Waste, Transport Assets and Natural Systems Departments and their input is included in this report.

The site of the revised project was inspected by the project team on 26 August 2016 in the presence of the applicants.

In order to help the community make an informed decision, a `drop in session' was held on 6 September 2016 with representatives of the Department of Planning and Environment together with representatives of Council staff to discuss the proposals and the submission process. Approximately fifty (50) people attended the session with a wide range of views expressed.

KEY ISSUES

The Department of Planning and Environment advised Council of key issues that Council and other Agencies are required to assess. The key issues for Council being:

- ***Social and Economic,***
- ***Traffic and Transport,***
- ***Air Quality,***
- ***Noise, vibration and Blasting, and***
- ***Water Resources.***

Council staff advised the department that Council would also be considering the issue of Biodiversity. The department raised no objection to the consideration of this issue.

1. Social and Economic

There are a number of social and economic issues associated with the modified application and they are discussed as follows:

Review of Social Impacts

Background

Social licence an important function of Councils. The former Taree City Council had a Social Impact Assessment Policy; former Great Lakes acknowledged the process through their DA application process / land acquisition and Commitment to the Environment Policy, and the former Gloucester Council acknowledged social licence through its Extractive Industries Policy. The importance of healthy community and environment is also consistent throughout the Community Strategic Plans of all of these Councils.

The Policies and activities of the former Councils have the objective of promoting development activity that enhances the community without significant adverse social impacts, and with regard to ensuring the community has meaningful engagement. These objectives are in line with the Department of Planning and Environment, who also reiterate the importance of social licence to development.

The importance of community input was acknowledged by the former Gloucester Council with regard to the Rocky Hill EIS. It engaged the community of Gloucester in two surveys in response to the original Rocky Hill EIS submission in 2013. Around 80% of survey respondents opposed the mine, with over 75% concerned about impacts on visual amenity, water, dust, noise, agriculture and town character. In response to the overwhelming majority of dissent in the community, the former Gloucester Council voted to oppose the development of the mine. This opposition was unprecedented, as other extractive industries had not been opposed by Council, previously.

The number of submissions the Department of Planning and Environment received in response to the 2013 Rocky Hill submission, correlated with the results of the former Gloucester Council, was 1399 opposing the mine and 345 in favour.

The proponent acknowledges the same issues that were raised in response to the initial EIS in 2013 remain valid in the 2016 submission. These were: *"Consideration of potential risks and social benefits associated with the amended Project indicates that the majority of issues that were raised in regard to the 2013 Project remain relevant in 2016." (Key Insights 2016).* The EIS goes onto state*, "The Applicant supports the recommendations made by Key Insights (2016) assessment and acknowledges the residual environmental impacts may have subsequent social impacts."*

Health, social infrastructure capacity, community sense of self and amenity, employment, housing, land value and cumulative impact were the main concerns of the community in 2013. These concerns remain in 2016. The former Gloucester Council EIS submission sums up the concerns of the local community:

> *The proposed mine is relatively small in comparison to other mines yet its potential impact on Gloucester is significant. Given the relatively small output from this mine, Council questions why it is being proposed at all. There are mines in other parts of the State and in other States, which mine more than the total output of this mine over its entire life, in one year.*
>
> *The fundamental concern for Council is that whilst impact management and mitigation might meet State standards, there will be residual impacts which will be felt by many new residences for the first time, if the mine is approved. These residents will be asked to live with those impacts for the entire proposed life of the mine, and potentially beyond.*
>
> *The prospect of the mine has caused significant distress in the community, particularly for the closest residents and property owners in the residential estates forming the southern part of the town. Many have invested life savings in houses, only to find their valuations have significantly fallen and they are in a market that remains completely inactive. Whilst many wishing to sell have reduced prices on their properties, there remain no sales. There is also little interest in the development of vacant lots within these residential estates.*
>
> *The impact of the mine on market activity is likely to extend well beyond the residential market into the overall reputation of the town. Gloucester is seen as a delightful country town with "a mine down the valley"; rather than as a "mining town". The proposed development conflicts with the desire consistently expressed in the community for environmental conservation oriented land uses around the town – not open cut coal mines.*
>
> *Council is also somewhat amazed that the State has prescribed setbacks from wind turbines, and recently in regard to coal seam gas activity, but has no prescribed setback for open cut coal mines. The very close proximity of this mine to urban settlements in Gloucester is unacceptable.*

Proposed Mitigation

Twenty two Management and Mitigation and Contingency Measures were accepted by the proponent as suggested by their consultants Key Insights, in 2013. These mitigation measures remain the same for the 2016 EIS. (A copy of these Measures is contained in Annexure D). These principally include:

- a Community Grants Program, valued at around $400,000 annually (50 cents per tonne of product coal sold),
- communication through Community Consultative Committee's and
- local employment for up to 75% of between 60- 110 persons.

Adequacy of Proposed Mitigation

The primary mitigation measure, as stated by the proponent, is through the Community Grants Program. The Grant Program, will be funding a large number of projects from social cohesion and social equity issues, housing stress, social infrastructure to education and training. The Measures nominated have not been costed and the amount of $400,000 annually is unlikely to cover these issues adequately.

Recommendation 4 of the Measures requires the establishment of a Trust to administer the funds provided under the Community Grants Program.

Whilst the Community Grants Program is supported, it is considered that a Voluntary Planning Agreement (VPA) is the proper legal mechanism to ensure and administer the program. The VPA would be entered into between Mid-Coast Council and the applicant. Under an agreement, the applicant would agree to fund a range of community projects. The Department of Planning and Environment in their Wind Energy: Assessment Policy (Draft for Consultation August 2016) states that the preferred means of administering community enhancement funds is under a VPA with the relevant local Council and applicants for State Significant Development.

More significantly, in mid to late 2015, the Department of Environment and Planning invited submissions on draft guidelines for Planning Agreements associated with mining. It is clear that the Department`s preferred position is for VPA`s to be used to deliver community enhancements to offset the impacts of mines.

Also, the Council is a democratically elected body working on behalf of the community with robust reporting mechanism processes.

The holding and allocation of community funds by a Trust has none of these robust mechanisms which ensure transparency and ethical expenditure of funds. The applicant has nominated a very narrow range of criteria for the funds.

Section 94A Contributions Plan

It should be noted that the former Gloucester Shire Council adopted a Section 94A Contributions Plan on 15 July 2015 that applies to all land within the Gloucester Shire Council local government area and therefore applies to this proposal.

The purpose of the Plan is to authorise Council, or the consent authority, to impose, as a condition of development consent, a requirement that the applicant pay to Council a levy determined in accordance with the Plan.

A consent authority may impose, as a condition of development consent, a requirement that the applicant pay a levy of the percentage, authorised by the Plan, of the proposed cost of carrying out the development.

Money required to be paid by a condition imposed in the Plan is to be applied towards the provision, extension or augmentation of public amenities or public services (or towards recouping the cost of their provision, extension or augmentation).

The development cost levy amount for the proposal is calculated at 1% of the cost of the development. The capital investment value nominated in the EIS is $90,300,000.00. Therefore, the contribution to Council would amount to $903,000.00. The cost of carrying out the development is also to be indexed before payment between the date the proposed cost was determined by the Council and the date the levy is required to be paid.

Section 20 of the Plan states that `Council may accept an offer by the applicant to provide an "in-kind" contribution (i.e. the applicant completes part or all of work/s identified in the plan) or through provision of another material public benefit in lieu of the applicant satisfying its obligations under this plan. Council may accept such alternatives in the following circumstances:

(a) The value of the works to be undertaken is at least equal to the value of the contribution that would otherwise be required under this plan; and
(b) The standard of the works is to Council`s full satisfaction; and
(c) The provision of the material public benefit will not prejudice the timing or the manner of the provision of public facilities included in the works program; and
(d) Other as appropriate in the circumstances'.

The Community Grants Program nominated by the applicant is an annual donation at a rate of 50 cents per tonne of product coal sold. This would equate to a contribution to the community of approximately $6.5 million over the life of the amended project at an average of approximately $400,000.00 per annum. This contribution would greatly exceed the contribution levy determined under the Section 94A Contributions Plan 2015.

The Community Grants Program will therefore substitute the section 94A contribution. As stated previously in this report, this can be achieved through the VPA provisions.

The establishment of a Rocky Hill Community Consultative Committee (CCC) (Recommendation 1 of the Measures), is supported as the State Significant Projects-Community Consultative Committee Guidelines has strict rules around the formation and operation of the CCC to the point of appointing an independent chairperson as they recognise the need for a robust framework and transparency around these committees.

It is critical that local government has at least two (2) representatives. This has proven to deliver effective representation in the case of the Duralie CCC which has been in operation for some nine (9) years. During this period there has never been an instance in which the Council representation has either been questioned or the suggestion raised by either the community members or the project leadership that this representation is too weighty and should be reduced.

Review of the economic impacts

Gloucester Resources Ltd has submitted an amended EIS with regard to the proposed Rocky Hill Coal mine near Gloucester, NSW. The amended project is projected to gross 793.6 million dollars and net 79.3 million over the 16 year life of the mine. This includes payment of 63 million dollars to the State Government and 60 million dollars to the Federal government. 2.9 million dollars will be spent within the local community in the form of Community Grants, and 2.7 million dollars in Council rates. It is also anticipated that the mine will employ 32 local full time people during site establishment and 73 local full time people during the mine operation.

Concerns, Problems/Issues

1. Although the residual costs to the community were set out within the EIS, they, nor the proposed mitigation measures, have been quantified. As such, they have not been included in the economic analysis. The EIS states

"Where *environmental, social and transport costs have been assessed to be negligible or where residual impacts were difficult to quantify, costs were attributed qualitatively in accordance with the 2015 guidelines. Qualitative costs were assessed and/or acknowledged for the following aspects:*

- *Transport*
- *Residual impacts to diversity*
- *Potential impacts to local groundwater*
- *Availability of water downstream and increases or decreases to the flow of the Avon River*
- *The environmental and social costs associated with the salvage of Aboriginal Cultural Heritage sites*
- *The social costs associated with a change in landscape*
- *Short term impacts of visual impacts"*

Without quantification, the costs to the local community remain hidden and unrecognised by the mining company and the State and Federal governments. Further, one of the mitigation measures, the installation of a water treatment plant, has also not been costed.

2. As the risks and costs to the community are not quantified, the majority of the negative impacts of the project are borne by the community, without adequate compensation. Table 1 outlines a risk matrix from the community's perspective.

Table 1: Risk Matrix for Current Participants in Mining Developments
(low-green, moderate-orange, high-red).

	Environmental		**Social**		**Economic**	
	Short term	***Long term***	***Short term***	***Long term***	***Short term***	***Long term***
Proponent	Liability limited to Conditions of License	Liability limited to largely inadequate Conditions of License	Generally ignored but may be mitigated by Conditions of License	No liability recognised	Liabilities limited to agreements Substantial profit potential with minimal risk	Liabilities usually not recognised in agreements Depending on the lifetime of the ongoing project, there may be substantial long term profit potential
State Government	License conditions remove liability, some potential short term political fallout if license conditions prove	Liabilities sparsely covered by license conditions but generally of little interest as they only become	Generally ignored as they pose no real cost at the state level	Liabilities poorly considered as they only become fully apparent to future governments	No liability Significant revenue from royalties	Poorly considered as they only become fully apparent to future governments

	inadequate	apparent to future governments				
Local Community	Any unmitigated environmental event is a direct cost to the Community Long history of environmental costs of mining operations accruing to local Communities	Long term and cumulative liabilities poorly considered and accrue directly to the local and regional Communities	Ignored costs are unmanaged by either the State or the Proponent and Communities left to manage as best they can	Serious long-term social dislocation with no explicit support for managing its effects	Significant short term economic costs for incompatible economic sectors Benefits may accrue to aligned economic sectors and through agreement to share profits	Economic upheaval associated with creation and withdrawal of an industry that is incompatible with many other important and sustainable economic sectors

3. Jobs - Optimistic estimate of local employment – goals of 75% resident employment are unlikely to be achievable based on data from other local projects, such as the Duralie and Stratford mines (See Economist at Large report in Gloucester Shire Council`s previous submission).

4. No cost/benefit analysis including a discussion of coal prices, exchange rates, coal specifications or likely cost structure. This type of cost/benefit analysis is likely to give a more robust economic analysis of the project.

5. Federal funding initiatives have been mentioned but not included in the economic analysis.

Proposed Mitigation

Contribution of $400,000 annually to the local community through the Community Grants Program.

Adequacy of Proposed Mitigation

Inadequate funding locally, given the high social and environmental risk to the community.

Economic analysis is not adequate given the qualitative nature of the analysis. Federal funding initiatives have not been included in the cost benefit equation.

Proposed Measure prior to Determination

Further independent cost/benefit analysis completed by a financial expert, quantifying the residual costs associated with the project and the mitigation measures. This cost/benefit analysis should also include discussion of coal prices, exchange rates, coal specifications or likely cost structure, to realistically assess the project.

If an approval is given

Increase the funding in the local community, to offset the associated environmental and social risks.

This can be achieved by a Voluntary Planning Agreement (VPA) to be entered into between Mid-Coast Council and the applicant.

Strategic Planning

MidCoast Council is generally concerned about the impact on existing and identified land release areas by the Rocky Hill Project and any possible state legislated buffer areas of residential exclusion (currently unknown) which may be placed as a result of the mining operations.

Gloucester Strategic Planning Context

Gloucester's urban area is located on the ridge between the Gloucester and Avon Rivers, which generally extends north/south in orientation. Flooding constraints due to the confluence of the Avon, Gloucester and Barrington Rivers have generally restricted housing development to the south of the existing town in linear fashion. A Zoning Map indicating the Zones included in the *Gloucester Local Environmental Plan* 2010 is included in Figure 1. A flood map extrapolated from the BMT WBM Gloucester and Avon Rivers Flood Study (2015) is included in Figure 2.

Residential Expansion since 1990

During the 1990s, there was demand for expansion of Gloucester and it was decided to provide additional land for housing development to the south of the existing town. Rather than extend sewage infrastructure in that direction, it was decided to create new housing opportunities as rural residential estates included in the Large Lot Residential (R5) Zone. Town water was extended to service these estates which are contiguous with the town boundaries and are considered part of the township. Further development south of the existing town, towards the Rocky Hill Project site, is now severely compromised with the Rocky Hill Project, if approved, forming a barrier to residential areas growth.

2006 Housing Development Strategy

In 2006 the former Gloucester Shire Council completed a Housing Development Strategy. Among others, conclusions from this strategy were that the Gloucester Township had limited need for additional and releases until 2018. Beyond 2018, the Strategy included a residential land release map for the period 2005 – 2030+ which identified an area south of the golf course for release in the short term (2005 – 15; 123 lots); a second stage within the existing urban area; and significant long-term release east of the existing township and railway line. These areas are shown in Figure 3. A Planning Proposal for the short-term release was received in 2013 and is currently on-going. This project has experienced difficulties' in progressing due to the only recently resolved conflicts between this proposed land release area and its proximity to Coal Seam Gas (CSG) buffers.

In the context of the Rocky Hill Project, if approved following Public Exhibition of the current EIS, and considering the preference of sourcing employment locally (EIS p. 2-68, s. 2.14.2) and the possible economic drivers from related industries, Council needs to ensure that long-term growth is not compromised in Gloucester by possible mining buffers and exclusion zones. If such existing land release areas identified in the 2006 Strategy are compromised by such restrictions, it will be necessary for Council to be provided with the resources to identify alternative release areas in order to supply the needs of land to future residents. In a Local Environmental Study prepared by consultants for Council in 2005, an argument was presented for *an optimum population of 8,000 to 10,000 persons serviced by the town of Gloucester*…. meaning ...*an additional 3000 dwellings would be required in Gloucester and surrounds...* with ...*approximately 2300 of these dwellings in the urban area*.

Conclusion

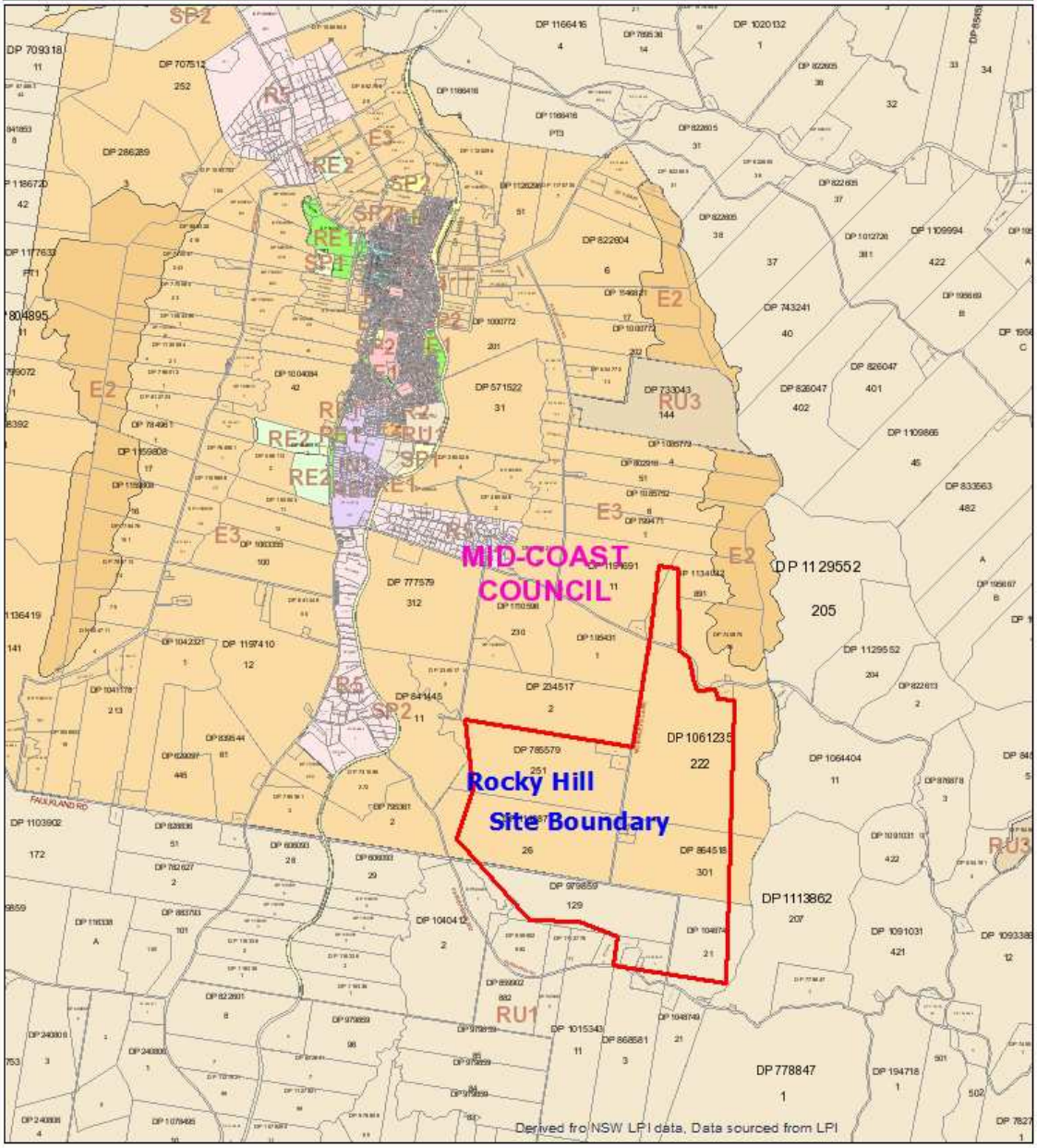
If approved, Council requests the proponent of the Rocky Hill Project to contribute and/pay the costs towards an additional land use and/or residential/housing study/strategy that will be used to identify further residential release areas in the vicinity of Gloucester to cater for population growth and expansion of the urban footprint. Such a study/strategy should compensate Council for the compromising of already identified residential release areas that will occur as a result of the Project and its buffers and residential exclusion zones.

The Department of Planning and Environment is to also delineate buffers to development that will be created in the event the mine as approved.

Figure 1 – Gloucester Local Environmental Plan 2010 - Gloucester Township and Surrounds General Zoning Map

Gloucester LEP 2010

Date: Thursday, September 15, 2016



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GDA MGA 56 N

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Map Exported from Dekho

Figure 2 – BMT WBM Pty Ltd Gloucester and Avon Rivers Flood Study 2015 - 1% AEP and Probable Maximum Flood

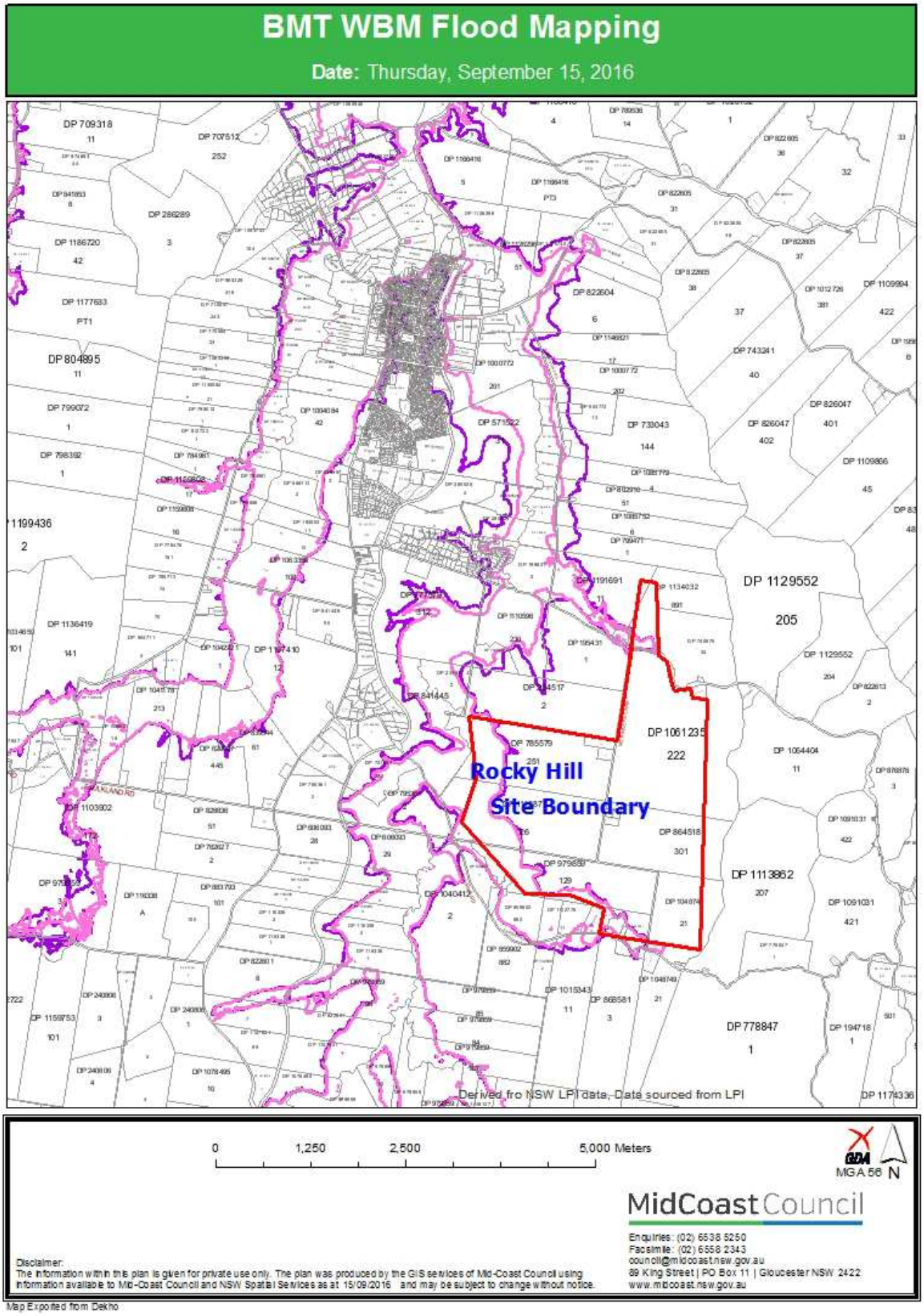
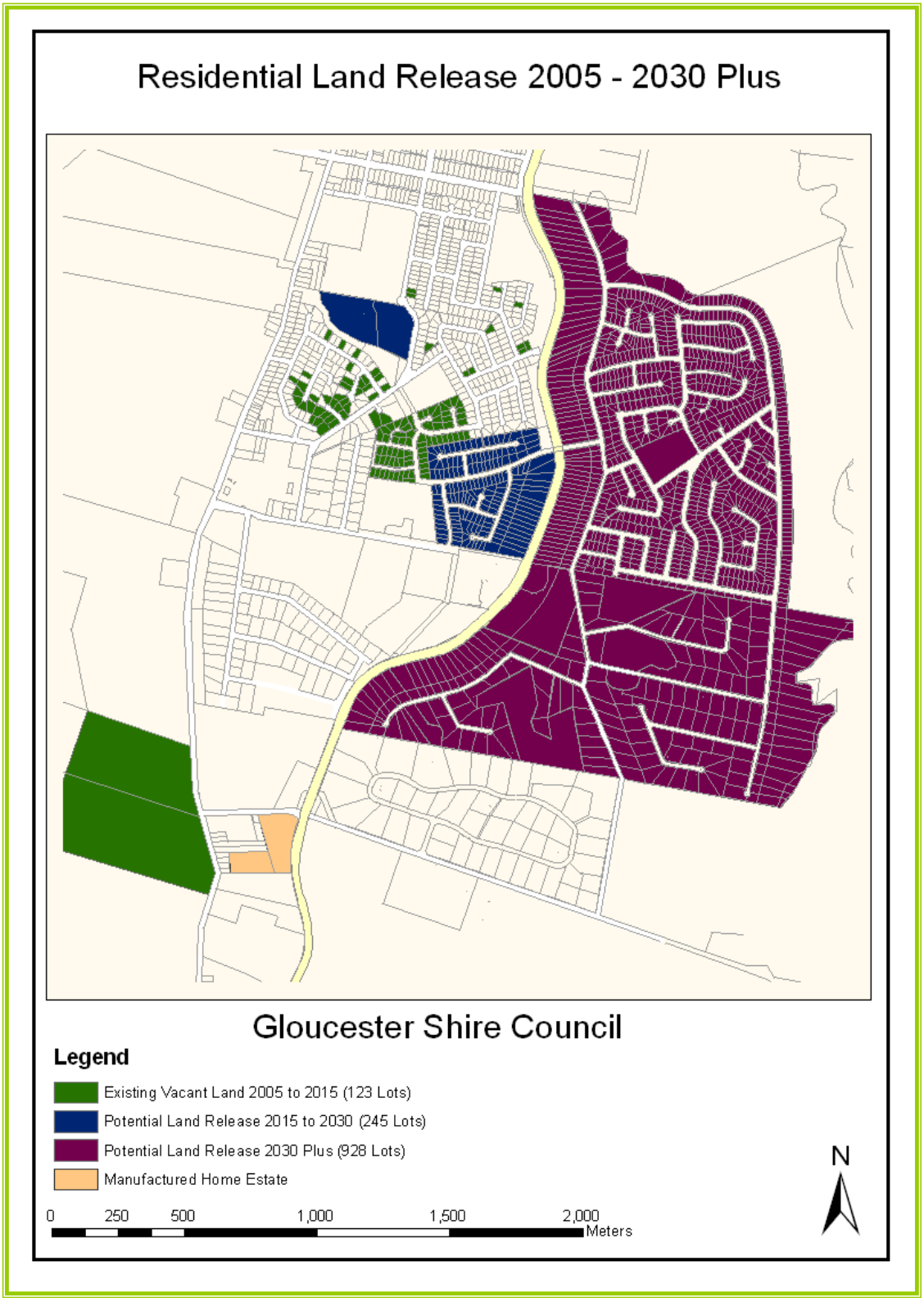


Figure 3 - Residential Land Release 2005 - 2030 Plus Gloucester Shire Council Housing Development Strategy 2006

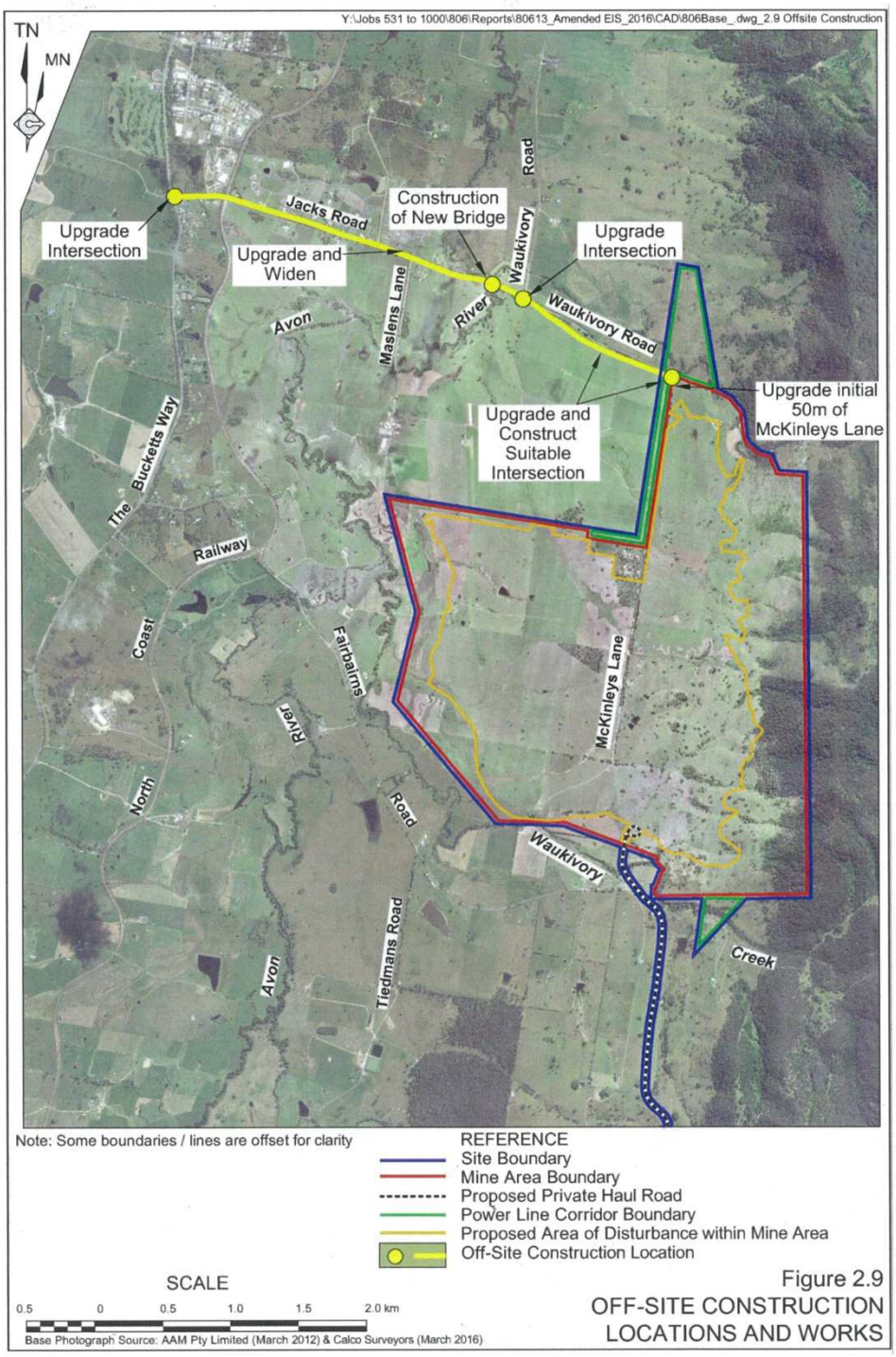


2. Traffic and Transport

The existing road network has been reviewed by Council staff and the potential impacts of the amended Project assessed for the site establishment and construction and operational stages.

The private haul road would enable sized ROM coal from the Rocky Hill Mine area to be transported to the Stratford Mining Complex for processing and despatch to the Port of Newcastle.

Figure 2.9 below displays the Off-site Construction Locations and Works.



A description of the required works to be carried out is as follows:

Waukivory Road – North of Jacks Road

Waukivory Road between Jacks Road and The Bucketts Way will be the only access to the Rocky Hill mine site for the first eight months of the site establishment and construction period due to the requirement of the replacement of Jacks Road's bridge. This means all heavy vehicles will use this road during this eight month period as well as the majority of light vehicles.

When the mine is in full operation the traffic report states there will be no heavy vehicles and between 18 to 82 light vehicles a day using this section of Waukivory Road. It would be expected that any heavy vehicles approaching the mine from the east of Gloucester along The Bucketts Way would use Waukivory Road.

Waukivory Road's pavement has some sections in poor condition with deformation and the addition of heavy vehicles on this road during the construction phase will further deteriorate the pavement. The applicant should cover the costs of pavement restoration due to any damage done during the construction phase by the heavy vehicles using Waukivory Road. The determination of any restoration work will be done before and after by independent Dilapidation Reports.

The proposed level of light vehicle usage during the mine operations is not considered significant and there would be no requirement for any additional upgrading or action.

Waukivory Road– East of Jacks Road

Waukivory Road between Jacks Road and McKinleys Lane will become the main access road to the mine as the extension of Jacks Road. This section of Waukivory Road will be reconstructed to the same dimensions as Jacks Road and an asphalt concrete pavement designed to Council requirements. The pavement width will be two travel lanes of 3.5m width and sealed shoulders on each side of 1m width.

It will be important to monitor the traffic accessing the mine and their impact on the road netwqork, especially should the traffic numbers and vehicle type not be consistent with the supplied traffic report. Therefore it is proposed that a traffic classifier counter be permanently installed on Waukivory Road east of Jacks Road for the life of the mine and the data from this counter be made available to Council.

Jacks Road

Jacks Road between The Bucketts Way and Waukivory Road will be the main access road to the mine for staff and general deliveries. It is noted that the large mine machinery and haul trucks will access Rocky Hill Mine via Stratford Mine access road then the connecting Haul Road. Jacks Road as proposed by the applicant will be reconstructed but should be increased in width to provide two travel lanes of 3.5m width and sealed shoulders on each side of 1m width (9m full constructed width). The road will be an asphalt concrete pavement designed to Council requirements. This pavement width will provide safe traffic lanes (3.5m width) for heavy vehicles to adequately pass other heavy vehicles and general traffic. The one metre wide shoulders on each side are to cater for cyclists and pedestrians to travel along this road safely. It is known that this road is used by individuals and schools for both recreation and training cycling.

The bridge to be replaced over the Avon River by the applicant will have matching 3.5m traffic lanes as the rest of the road with safe edge spacing to the bridge sides/rails. The

footpath for this bridge will be located on the north side of the vehicular section with a safety barrier between the vehicular lane and footpath. The footpath will be a shared pathway of 2.5m in width to cater for pedestrians and cyclists. The bridge will be constructed in concrete designed to Council requirements.

The railway level crossing on Jacks Road should be reviewed by Australian Rail Track Corporation (ARTC) to ensure the crossing is meeting their standards and any upgrading that may be required to ensure safety. Any upgrading of the railway level crossing can be undertaken when the road is reconstructed.

Fairbairns Road

Fairbairns Road between The Bucketts Way and new Haul Road will used to construct the underpass for the Haul Road and that is proposed to occur from the fourth month to the sixth month of construction. There will be no further use of Fairbairn Road after the construction is completed.

The proposed crossing of Fairbairns Road by the Haul Road will need to be approved by Council and a Short Term lease created under the Roads Act (Part 10 Division 2 - Sections 153 to 157) between the Applicant and Council.

Fairbairns Road's pavement has some sections in poor condition with deformation and the addition of heavy vehicles on this road during the construction phase will further deteriorate the pavement. The applicant should cover the costs of pavement restoration due to any damage done during the construction phase by the heavy vehicles using Fairbairns Road. The determination of any restoration work will be done by before and after independent Dilapidation Reports.

The biggest concern on this road is the bridges over Avon River not being able to support heavy vehicles. The original bridge is an old bridge of timber construction with a load limit of 10t. There is a temporary bridge constructed adjacent to the original which was constructed to enable a property owner to take his unladen logging trucks home for servicing with all materials being supplied by this owner. The temporary bridge does not have an unlimited load capacity as suggested in the applicant's traffic report, but is subject to engineering certification for loads exceeding 22.5 tonnes. It is noted that the timbers used in this temporary bridge have not been certified for use in this bridge.

These bridges do not provide unlimited heavy vehicle access to the remainder of the road, therefore should this road be used for construction of the underpass for the Haul Road as planned the access over the Avon Road will need to be resolved. The existing temporary bridge will need to be assessed structurally to determine if it can cater for the proposed heavy vehicles and if not a new bridge is to be built to cater for the heavy construction vehicles.

The railway level crossing on Fairbairns Road should be reviewed by ARTC to ensure the crossing is meeting their standards and any upgrading that may be required to ensure safety during the construction phase.

McKinleys Lane

McKinleys Lane south of Waukivory Road will become an internal private road (similar to a driveway) within the development as an access to the Mine administration and workshops. The current Mckinleys Lane would need to be de-gazetted as a public road and purchased from Council to become privately owned land by the Applicant.

The replacement road would need to meet Council standards for internal roads and driveways for a development site.

The Bucketts Way – Jacks Road to Pacific Highway

The Bucketts Way between Jacks Road and Pacific Highway will be the main access to the Rocky Hill Mine for the construction phase and operational stage of the mine. The Bucketts Way has some sections in poor condition with deformation and the addition of heavy vehicles on this road during the construction phase will further deteriorate the pavement. The applicant should cover the costs of pavement restoration due to any damage done during the construction phase by the heavy vehicles using this road. The determination of any restoration work will be done by before and after independent Dilapidation Reports.

The use of The Bucketts Way for access to this mine during operations will have detrimental effect to the road and especially its pavement. The Applicant should make an ongoing contribution to the maintenance of the road each year to ensure the road's safe condition. This amount should be based on the number of vehicles and their size that are accessing the mine site.

There are limited overtaking locations along this section of The Bucketts Way and the increase of heavy vehicles using this road due to this mine will frustrate drivers that may result in them making poor decisions in overtaking these additional heavy vehicles. The Applicant should make a contribution to the construction of overtaking lanes along The Bucketts Way.

Heavy Vehicle Bypass through Gloucester Township

Jacks Road during the construction phase will not be available for heavy vehicles until the new bridge is completed by the end of the eighth month. During this period heavy vehicles coming from the south will need to travel through the Gloucester township then use Waukivory Road to access the mine site. The applicant should cover the costs of pavement restoration due to any damage done during the construction phase by the heavy vehicles using this road. The determination of any restoration work will be done by before and after independent Dilapidation Reports.

The route of the Heavy Vehicle Bypass through the Gloucester township is to be approved by Council. The roads within the Gloucester township are not suitable for Over Size and Over Mass (OSOM) vehicles and Council will not approve any OSOM vehicles through the town of Gloucester.

Intersections

The Bucketts Way and Jacks Road

The applicant has proposed an intersection upgrade on The Bucketts Way at Jacks Road with a channelised right turn bay (CHR) and auxiliary left turn lane (AUL). This is considered acceptable for the proposed traffic volumes and turning movements. The right turn bay should be able to hold two 30m B-Double trucks as the RMS have requested that designs should cater for the larger B-double for commercial developments. The intersection should be designed using AustRoads "Guide to Road Design" and approved by the RMS and Mid-Coast Council.

It is agreed with the traffic report that the 60km/h zone that commences 700m to the north of the intersection with Jacks Road be moved south of this intersection due to the additional mine traffic that will be using the intersection, especially the turning movements. Speed

zones in NSW are controlled and managed by the Roads and Maritime Services (RMS) and they will need to be requested to move the 60km/h speed limit.

Jacks Road and Waukivory Road

The applicant has proposed an intersection upgrade on Jacks Road at Waukivory Road with an auxiliary right turn on Jacks Road. This is considered acceptable for the proposed traffic volumes and only light vehicles turning at Waukivory Road. The intersection should be designed using AustRoads "Guide to Road Design" and approved by Council.

Waukivory Road and McKinleys Lane

The applicant has proposed an intersection upgrade on Waukivory Road at McKinleys Lane with an auxiliary right turn on Waulivory Road. This is considered acceptable for the proposed traffic volumes and the turning movements at McKinleys Lane. It is noted that McKinleys Lane will be a private road access to the mine administration and workshops. The intersection should be designed using AustRoads "Guide to Road Design" and approved by Council.

Other Intersections on the Bucketts Way

The intersections on The Bucketts Way at Waukivory Road and Fairbairns Road have important roles during the construction phase, however afterwards in the operational phase they will only be have light traffic or no traffic respectively. Therefore, there is no requirement for these intersections to be upgraded and the previously listed Dilapidation reports for these roads will cover any damage that may occur at the intersections during the construction phase.

Haul Road

The internal Haul Road between Rocky Hill Mine and Stratford Mine should be designed to AustRoads' "Guide for Road Design" (including the grade separated intersection at Fairbairns Road) and be surfaced with asphalt concrete to ensure long term pavement integrity with the heavy vehicle usage it will be required to handle. There should not be permanent lighting along this Haul Road as the road will not be used past 10.00pm.

Traffic Management Plans (TMP`s) and Traffic Control Plans (TCP`s)

The applicant to provide Council with Traffic Management Plans and Traffic Control Plans for all construction work on the road network and other work that may affect the normal operation of the movement of vehicles and pedestrians on the road network. These TMPs and TCPs are to be done by Roads and Maritime Services (RMS) accredited persons and approved by Council.

3. Air Quality

Comments in relation to the air quality are Council's observations only and acceptance of the air quality information is reliant upon approval from the Environment Protection Authority (EPA) as they are the regulatory authority responsible for "Scheduled Premises" under the Protection of the Environment Operations Act 1997.

The Air Quality Assessment (prepared by Pacific Environment Limited, Report No. 806/14, Reference No. 3963, dated June 2016) (hereafter referred to as the Air Quality Assessment) considers emissions inventories and includes modelling for the amended Project for four operating scenarios, being Years 1, 4, 7 and 10. Pacific Environment state that these years

are 'key operating' scenarios as *'coal and overburden production are approaching the maximum levels, when wind extraction or wind erosion areas are the largest or where operations are located closest to residences/receivers'*.

The Air Quality Assessment reports on emission associated with the amended Project following review and alteration of the originally submitted 2013 Project. The Air Quality Assessment provides that modelling assumptions are significantly different between the 2013 Project and the current amended Project, which have influenced reported air quality impacts. The Air Quality Assessment identifies the years assessed, the production schedule, timing of operations, terrain and meteorology as areas of differing assumptions.

The main physical change associated with the amended Project is the removal of the coal handling and preparation plant, overland conveyor and rail load out facility, with run-of-mine coal now being proposed to be transported in trucks via private haul road to the existing Stratford processing plant. Due to the removal of night time operations, the life of the mining operations would increase from 14 years to 16 years.

The Air Quality Assessment largely focuses on the emission and dispersion of particulate matter, including total suspended particulates (TSP), particulate matter less than 10µg in diameter (PM_{10}) and particulate matter less than 2.5µg in diameter ($PM_{2.5}$). Nitrogen dioxide emissions associated with blasting and diesel fumes are also discussed. Results for project alone and cumulative air emission concentrations (incorporating baseline data from an air quality monitoring program established in July 2010) were presented in the Air Quality Assessment.

Air Quality Criteria

The broad range of health effects associated with poor air quality are widely documented and recognised. In relation to particulate matter, the World Health Organisation (2005) maintains that there is no evidence of a safe level of exposure or threshold below which no adverse health effects occur. In this regard, the World Health Organisation (2005) encourages the setting of standards to achieve the lowest concentration possible in the context of local constraints, capabilities and public health priorities.

Australian air quality standards are established by the National Environment Protection Council (NEPC) and are presented in the National Environment Protection (Ambient Air Quality) Measure. As the World Health Organisation suggest, setting of Australia's standards are not purely health based, as environmental, social and economic impacts are required to be considered when setting or varying standards.

While Australia's air quality standards are comparable with, and generally exceed those set by the United States, European Commission and World Health Organisation (with the exception of the World Health Organisations PM_{10} 20µg/m^3 annual mean), there is recognition of the need to further reduce standards. On 15 December 2015, the National Clean Air Agreement was established by Australia's Environment Ministers, who agreed to implement strengthened standards for particles.

In addition to Ministers agreeing to set an annual average standard for PM_{10} particles of 25µg/m^3 (reduced from 30µg/m^3) the National Clean Air Agreement will also reduce annual average $PM_{2.5}$ reporting standards from 8µg/m^3 to 7 µg/m^3 and maximum 24-hour $PM_{2.5}$ reporting standards from 25µg/m^3 to 20µg/m^3 by 2025. The 2025 $PM_{2.5}$ standards have been reflected in the National Environment Protection (Ambient Air Quality) Measure and a particularly important to this Project, as mining operations will be in full production when the standards come to place.

The Air Quality Assessment has not discussed the National Clean Air Agreement or the National Environment Protection (Ambient Air Quality) Measure $PM_{2.5}$ goal. The Air Quality Assessment only reports maximum 24-hour $PM_{2.5}$ at 5 residences (R18, R19A, R23, R6, R36) in the form of a Monte Carlo analysis, which indicates that cumulative $PM_{2.5}$ particle emissions may exceed the existing air quality standard of 25µg/m^3 at all five residences on two days per year. The National Environment Protection (Ambient Air Quality) Measure does not allow for any exceedances of this standard.

While the Air Quality Assessment states there is a low probability that cumulative 24-hour $PM_{2.5}$ concentrations would result in additional days over the 25µg/m^3 than would occur due to background in the absence of the amended Project, the Air Quality Assessment fails to consider the more stringent 2025 standards. The $PM_{2.5}$ curves on the Monte Carlo analysis provided in Section 9.8.4 of the Air Quality Assessment are compressed and it is not possible to differentiate between residences. However, it is clear that the reduced 24-hour $PM_{2.5}$ standard of 20µg/m^3 would result in a greater number of $PM_{2.5}$ standard exceeding days at all five residences.

It is also noted that the Air Quality Assessment may understate or not accurately reflect 24-hour $PM_{2.5}$ air quality impacts as only 5 residences have been assessed. As residences R19A and R36 (which is located in Jacks Road estate) are in close proximity to numerous other residences, the number of residences that may experience days over reporting standards are likely to be greater than reported by the Air Quality Assessment.

Council recommends to the Department of Planning and Environment that before any consideration is given to whether consent is granted, the proponent review the Air Quality Assessment to address the National Clean Air Agreement standards and the National Environment Protection (Ambient Air Quality) Measure goals in terms of PM_{10} and $PM_{2.5}$ impacts and report on the amended modelling/assessment and that all potentially affected residences be considered, rather than limiting reporting.

Maximum Coal Extraction

Section 9.9 of the Air Quality Assessment considers a modelling scenario at 2.0 Mtpa of ROM coal during year 10 of the amended Project. Cumulative 24-hour PM_{10} and $PM_{2.5}$ information has not been provided for the higher extraction rate. As the Air Quality Assessment Monte Carlo analysis predicted there may be days where cumulative PM emissions exceed air quality standards at 1.8 Mtpa any additional emissions must be assessed.

Council recommends to the Department of Planning and Environment that the applicant should assess cumulative 24-hour PM_{10} and $PM_{2.5}$ against current and 2025 reduced air quality standards prior to any consent being granted to extract 2.0Mtpa of coal.

Further, as the data tables in this Section 9.9 are headed '2.5 Mt of ROM Coal', it should be confirmed that a maximum extraction rate of 2Mtpa is being sought.

24 Hour Concentrations/Monte Carlo Analysis

Reporting of cumulative 24-hour maximum PM_{10} and $PM_{2.5}$ concentrations have been predicted using a Monte Carlo analysis. The Monte Carlo analysis is based upon random repeated sampling and does not give due consideration to conditions which may result in more frequent exceedances of air quality standards. It is likely that windy, hot days would result in higher mine generated emissions coinciding with elevated background levels, which may result in the number of days exceeding 24 hour standards being more frequent than reported.

Reporting Assumptions

The Air Quality Assessment provides that there are significant differences between assumptions in the response to submissions modelling and the modelling presented in the current Project report. Differences between assumptions have been identified as including the removal of processing activities, the years assessed, the production schedule, timing of operations, terrain and meteorology.

It is difficult to compare the 2013 Project assessment with the current Project air quality assessment due to alterations. However, it is noted there is a considerable reduction in reported particulate Project emissions at residential properties without any discussion or justification.

For example, a comparison of the Year 13 Inventory for the 2013 Project and the Year 10 Inventory for the amended (current) Project show total TSP emissions of 682,851(kg/y) and 807,789(kg/y) respectively. Despite total TSP emissions being 124,938(kg/y) greater for the amended Project, predicted proposal alone and cumulative TSP concentrations are shown to be lower in the majority of instances at surrounding receivers.

Council recommends that the Department of Planning and Environment require the Air Quality Assessment be amended to adequately address the differing assumptions between the assessments and to demonstrate how air quality impacts at residential properties have decreased while total TSP emission rates have been maintained.

Haul Roads

Wheel generated particles on unpaved roads have been ranked as the highest source generator of TSP and PM10 (and second highest source of $PM_{2.5}$) associated with coal mining activities by Katestone Environmental Pty Ltd in their *'NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining'* (NSW Benchmarking Study) (June 2011).

The Air Quality Assessment has considered wheel generated dust, and has factored in a control rate of 90%, relying on water as a suppressant. This matter was raised as an issue in submissions to the 2013 Project, and in the applicant's response to submissions, an 84% control rate was considered.

While the current Air Quality Assessment has reverted to a 90% control factor and references studies that state a level of control of 90% can be achieved, it has not been demonstrated for this project. There are numerous factors to consider when addressing haul road dust emissions (including road design, composition of road construction materials, road maintenance, vehicle size, vehicle speed and travel frequency), none of which have been discussed as justification for the high level control proposed. The NSW EPA in their submission to the 2013 Project advised that the proposed 90% control efficiency for haul road dust emissions is higher than that currently achieved at other coal mining operations in NSW.

Dust control for the haul road proposed by the Air Quality Assessment is *'3 applications per hour at 2L/m^2 or 2 applications per hour at 3L/m^2'*. It is questioned if the proposed haul road water control regime is feasible and practical. Based upon the Inventory tables in Appendix D of the Air Quality Assessment, there will be approximately 13km of unsealed haul roads at year 10 of the amended Project. Assuming a haul road width of 4 metres, 4,680,000 litres of water may be required for dust control over the 15 hour per day operational mining period (13,000 metres x4 metres x6 litres x 15 hours). Excessive water application may result in

other issues, as the NSW Benchmarking Study advises that watering of roads can result in a slippery surface and in some cases the addition of water can lead to the production of increased fine particles.

Best Practice Control Measures included in the NSW Benchmarking Study suggest that 'level 2' watering (an application rate of greater than 2 litres per metre squared per hour) can achieve a particulate matter control effectiveness of 75%, which is substantially lower than the 90% considered by the Air Quality Assessment. Should chemical suppressants be applied up to 84% control is suggested, depending on the proposed suppressant.

Council recommends to the Department of Planning and Environment that the applicant remodels the air quality emissions using a maximum control factor of 75% as per the NSW Benchmarking Study if level 2 watering is proposed or a maximum control factor of 84% if chemical suppressants are to be used. Should it be proposed to use chemical suppressants, the potential impacts and issues associated with their use should also be discussed.

Potential for Loss of Best Practice

The National Environment Protection (Ambient Air Quality) Measure provides maximum 24-hour PM_{10} and $PM_{2.5}$ standards which have been identified in the Air Quality Assessment. As mining operations are proposed to be limited to an 11 hour period being (7am to 6pm) in years 1 to 3 and then a 15 hour period (7am to 10pm) from years 4 to 16, there is potential that emission rates, or effectiveness of control measures could be understated during operations if emissions are reported over the 24 hour period.

Should the amended Project be approved, a condition of consent in relation to air quality monitoring and reporting has been included. It is recommended that any air quality reporting requirement should include data and review of emissions during operational hours.

Resource Company-Owned Residences

The Air Quality Assessment reports that cumulative annual TSP, PM_{10} and $PM_{2.5}$ air quality standards may exceed criteria at some resource company-owned residences at various years during mining operations. The Air Quality Report does not include resource company-owned residences in the maximum 24-hour PM_{10} and $PM_{2.5}$ Monte Carlo analysis and does not assess NO_2 impacts at these residences.

It is recommended that should air quality monitoring indicate that resource company-owned residences experience emissions above air quality standards that they not be permitted to be used for residential purposes.

Health Assessment and Peer Review

The Peer Review of the Air Quality and Health Risk Assessment prepared by A.Prof D. McKenzie dated June (2016) focuses on health-related issues, rather than on technical reporting matters. Council has raised concerns in relation to some aspects of the Air Quality Assessment. If the air quality model is not accurate or if emissions associated with the proposal have been understated, then potential health related issues cannot be fully considered.

It is recommended that the Department of Planning seek an independent peer review of the Air Quality Assessment from a technical perspective.

4. Noise

A Noise, Vibration and Blasting Assessment (NVBA) has been undertaken for the amended Project by SLR Consulting Australia Pty Ltd, Report No. 806/14, dated July 2016 which is presented as Volume 1, Part 1 of the Specialist Consultant Studies Compendium.

Comments in relation to the NVBA are Council's observations only and acceptance of the noise assessment is reliant upon approval from the EPA as they are the regulatory authority responsible for "Scheduled Premises" under the Protection of the Environment Operations Act 1997.

The NVBA reviews existing meteorological conditions, establishes noise assessment criteria, discusses noise modelling methodology and includes the following assessments:

- Construction Noise Impact Assessment;
- Operational Noise Impact Assessment;
- Cumulative Noise Amenity Impact Assessment;
- Traffic Noise Impact Assessment;
- Traffic Vibration Impact Assessment (which has been considered separately); and
- Blasting Impact Assessment (which has been considered separately).

Significant mine operational scenarios that were identified and assessed in the NVBA to represent the project were year 0.5, Year 3, Year 4, Year 7 and Year 10.

Construction Noise Impact Assessment

The NVBA provides that off-site construction activities will be undertaken concurrently with the on-site establishment and construction activities. The Site Establishment and Construction Stage Schedule indicates that construction activities are anticipated to be completed over a ten month period.

Construction Noise was assessed in reference to the NSW Department of Environment and Climate Change (DECC) Interim Construction Noise Guideline (2009). The NVBA provides that during the construction and site establishment phase, Construction Noise Management Levels may:

- Potentially be exceeded at 2 residences for a period of 1 month during the most intensive on-site miscellaneous construction;
- Moderately be exceeded (i.e. up to 5dBA) at 12 residences for approximately 1 week during the most intensive Jacks Road upgrade works;
- Appreciably be exceeded (i.e. >5dBA) at 56 residences for approximately 1 week during the most intensive Jacks Road upgrade works.

It is noted that while construction noise impacts associated with works outside of standard construction hours have not been assessed in the NVBA, it is stated in the comments section of Table 4 (page 1-25) that for the site establishment and construction stage Year-0, *'Some activities may be required Monday to Friday 6:00pm - 10:00pm under limited circumstances'*.

The Interim Construction Noise Guideline (2009) provides that strong justification would typically be required for works outside of the recommended standard hours. Council recommends to the Department of Planning, should any construction work be proposed outside of standard hours, justification must be provided and further assessment would be required to demonstrate that the more stringent out of hours construction noise management level can be met.

A condition requiring a Construction Noise Management Plan has also been proposed and should be included if the amended Project is approved.

Operational Noise Impact Assessment

Noise Impacted Residences
The NVBA identifies privately-owned residences that will be subject to Project Specific Noise Level exceedances at various stages of the proposed mining operations. Potentially affected receivers are:

Residence	Years	Exceedance
Day		
19A Boorer	0.5	1dBA
6 Campbell	7	1dBA-2dBA
Evening		
7 Ansell & Murray	4 and 7	1dBA
6 Campbell	4 and 7	4dBA-5dBA

As one residence (6 Campbell) has been identified as being moderately affected by noise emissions from the amended Project (i.e. above 3dBA and below 5dBA) the NSW Voluntary Land Acquisition and Mitigation Policy provides that noise mitigation treatments should be provided.

The NVBA does not advise if mitigation measures are proposed for 6 Campbell or if the residents have been consulted.

Evening Operations

The NVBA provides an assessment of predicted 'Evening Operational Intrusive Noise Levels' in the absence of mitigation measures at 5 residences only. Mine operational intrusive noise levels were found to exceed evening intrusive Project Specific Noise Levels by 1dBA to 6dBA in the absence of equipment shutdowns.

The NVBA proposes to install predictive meteorological forecasting and real-time noise monitoring at key locations to identify when equipment shutdown may be required. The NVBA does not provide specific information in relation to the number or location of proposed noise monitors.

In addition, mitigation measures proposed by the NVBA are not specific and may be difficult to regulate, e.g. 'use of low noise mobile equipment and fixed plant where possible' and 'restrict dozers to 1st gear operation dependant on the time and location of operation'.

Should the application be approved, an operational noise management plan would be required to be provided.

It is also noted that the NVBA consistently refers to evening operations as 'In-pit' and 'Out-of-pit'. To determine the full potential impact of evening operations, noise levels should be presented cumulatively. Evening operations should be assessed as a worst case scenario - noise emissions from all mobile and fixed plant that have the potential to be operating simultaneously both in the pit and out of the pit during the evening period must be assessed cumulatively.

Council recommends to the Department of Planning that the applicant provide further clarification/assessment of evening operations to ensure that cumulative evening emissions are adequately assessed.

Background Noise Levels

Background noise levels presented in the NVBA reflect the quiet rural nature of the area surrounding the amended Project. For many residences (rural residences and Forbesdale Estate) the daytime Project Specific Noise Level criteria has been set at 35dBA, with the evening criteria being set at 35dBA for all residences. This is the lowest possible intrusive criteria permitted under the Industrial Noise Policy, as the policy states *'If the measured background level is less than 30 dB(A), then the rating background level is considered to be 30 dB(A)'.*

It should be noted that Project Specific Noise Levels are generally set at 5dBA above existing background levels, in line with the Industrial Noise Policy intrusive noise requirements. In this instance, some background levels have been recorded below the Industrial Noise Policy's minimum background noise level of 30dBA. For example, residences in the Forbesdale Estate and Fairbairns Road area have been shown to have evening background levels of 25dBA (Land owner ID 160 Toth, Forbesdale Estate) and 27dBA (Land owner ID 22 Harris, Fairbairns Road).

Although the background assessment is in accordance with the Industrial Noise Policy requirements, it may mean that potential impacts to residents are understated during the evening period, as noise levels from mining operations will be permitted to be up to 10dBA above existing background levels. A noise level difference of 10dBA generally represents a perceived doubling of sound, which may result in increased complaints from residents who will be impacted upon by a new noise source once mining commences.

Traffic Noise Impact Assessment

Traffic Noise associated with the amended Project has been assessed in reference to the Department of Environment Climate Change and Water's (DECCW) Road Noise Policy (2011).

The NVBA claims that some residences adjacent to The Bucketts Way and Waukivory Road (North of Jacks Road) are impacted by existing and projected traffic noise in the absence of the amended Project. While the NVBA does not identify that any additional residences adjacent to The Bucketts Way would exceed road noise criteria as a result of the amended Project, adjacent to Waukivory Road (North of Jacks Road) an additional residence is predicted to exceed daytime criteria and a further two residences are predicted to exceed night-time criteria. An investigation of noise mitigation measures for these premises has not been undertaken as the NVBA claims that both the daytime and night-time increases due to project is less than 2dBA.

However, it is stated that all houses adjacent to Jacks Road and Waukivory Road (East of Jacks Road) comply with road noise criteria. This is due to the NVBA assessing these roads in line with arterial/sub-arterial noise criteria, rather than the more stringent local road noise criteria (although the roads are classified local roads).

Table 1 below shows the differences in the assessment criteria provided by the Road Noise Policy for arterial/ sub-arterial roads compared to local roads. Clearly, altering the road classification for assessment purposes considerably favours the Project.

Table 1 - Road traffic noise assessment criteria for residential land uses

Road category	**Assessment criteria - dB(A)**	
	Day (7 a.m.-10 p.m.)	**Night 10 p.m.-7 a.m.**
Arterial/ sub-arterial roads	LAeq, (15 hour) 60 (external)	LAeq, (9 hour) 55 (external)

Local Roads	LAeq, (1 hour) 55 (external)	LAeq, (1 hour) 50 (external)

Not only does assessing Jacks Road and Waukivory Road (East of Jacks Road) as an arterial/sub arterial result in the application of less stringent noise criteria, it results in traffic noise emissions being averaged over the entire day period (15 hours) and the entire night-time period (9 hours), rather than over a 1 hour period for a local road. Therefore, although it is likely that there would be peak traffic movements and the greatest impact in night-time hours between 6:00am and 7:00am and between 10:00pm and 11:00pm (Year 4 onwards), due to employees entering prior to mining operations commencing and employees exiting after the conclusion of operations, these peaks are averaged out.

It is noted that Road Noise Policy provides that as mines are often in locations where they are not services by arterial roads, it often means travelling on local roads is required. Where a 'principal haulage route' is identified, the Road Noise Policy states that noise criteria for the route should match arterial/sub-arterial.

The Road Noise Policy also states that *'good planning practice acknowledges this type of road use and develops ways of managing any associated adverse noise impacts'*. As the NVBA has used the less stringent criteria without any discussion, (despite predicting a 90% increase in night-time traffic on Jacks Road and a 248% increase in night-time traffic on Waukivory Road in Year 10 of operations) it is not considered that adverse noise impacts on this road are being adequately identified or managed by the Project.

Council recommends to the DoPE that the applicant be requested to provide further assessment of the traffic noise impacts on Jacks Road and Waukivory (east of Jacks Road) to permit informed consideration of the noise impacts to adjoining residential premises. Potential sleep disturbance and the differences in impacts associated with both criteria should be discussed.

The following is a summary of the recommendations made to the Department of Planning and Environment in relation to Air Quality and Noise:

- That before any decision is made on whether or not to grant consent the proponent review the Air Quality Assessment to address the National Clean Air Agreement standards and the National Environment Protection (Ambient Air Quality) Measure goals in terms of PM_{10} and $PM_{2.5}$ impacts and that all potentially affected residences be considered, rather than limiting reporting.
- That the applicant should assess cumulative 24-hour PM_{10} and $PM_{2.5}$ against current and 2025 reduced air quality standards prior to any consent being granted to extract 2.0Mtpa of coal.
- It is requested that differing assumptions between the assessments be clarified to demonstrate how air quality impacts at residential properties have decreased while total TSP emission rates have been maintained.
- That the applicant remodel air quality emissions using a maximum control factor of 75% as per the NSW Benchmarking Study if level 2 watering is proposed or a maximum control factor of 84% if chemical suppressants are to be used. Should it be proposed to use chemical suppressants, the potential impacts and issues associated with their use should be discussed.
- Should the amended Project be approved, a condition of consent in relation to air quality monitoring and reporting is to be included. It is recommended that any air quality reporting requirement should include data and review of emissions during operational hours.

- Should air quality monitoring indicate that resource company-owned residences experience emissions above air quality standards that they not be permitted to be used for residential purposes.
- That the Department of Planning and Environment seek an independent peer review of the Air Quality Assessment from a technical perspective.
- Should any construction work be proposed outside of standard hours, justification must be provided and further assessment would be required to demonstrate that the more stringent out of hours construction noise management level can be met.
- The applicant provide further clarification/assessment of evening operations to ensure that cumulative evening emissions are adequately assessed.
- That the Department of Planning note the low evening background levels of the area and that the Project may result in noise emissions greater than 5dBA above these levels.
- That the applicant be requested to provide further assessment of the traffic noise impacts on Jacks Road and Waukivory (east of Jacks Road) to permit informed consideration of the noise impacts to adjoining residential premises. Potential sleep disturbance and the differences in impacts associated with both criteria should be discussed.

5. Vibration and Blasting

Traffic Vibration Impact Assessment

The NSW EPA has developed guidelines titled "*Assessing Vibration: a technical guide 2006*" to evaluate and assess vibration impacts from impacts such as industry, transportation and machinery. It can also be used to assist in planning decisions for proposed developments.

Vibration and its associated effects are usually classified as continuous, impulsive or intermittent. Traffic Vibration is classified at Intermittent Vibration under the guideline. Table 55 in Volume 1 of the E.I.S (V1) provides applicable vibration velocity levels for continuous daytime and night time activities. These figures are based upon the British Standard 6472-1992 "Evaluation of Human Exposure to Vibration in Buildings". The NSW EPA has modelled their guideline based upon this standard. Furthermore, Table 56 in the V1 denotes the nominal off-set distances to residences to comply with Vibration Annoyance Risk Criteria. In V1, there is a statement that based upon heavy vehicle vibration levels the vertical criterion in both tables should be used, thereby minimising adverse impacts.

It should be noted that V1 claims that heavy vehicle movements resulting from the amended project on the primary access route are scheduled to be confined to daytime only. Therefore the daytime figures are applicable for these criteria to be met. However, the development should then be appropriately conditioned to ensure that heavy vehicle movements are restricted to daytime movements only.

Recommendation:

The figures calculated in V1 are based upon the British Standard 6472:1992. No review of this document was able to be achieved during the assessment of the EIS. Therefore the figures tables in Table 55 & 56 of V1 should be independently reviewed to ensure they are consistent with the objectives outlined in the NSW EPA document *"Assessing Vibration: A technical Guideline 2006".*

In the unlikely event that there are clear discrepancies between the objectives of the tables presented in V1 and the EPA Guidelines, then Traffic Vibration Impact Assessment must then be undertaken by a suitable qualified independent consultant.

Blasting Impact Assessment

Recommended vibration limits from blasting are based upon international standards and are presented in AS 2187:Part 2-2006 Explosives- Storage and Use- Part 2 Use of Explosives. The Australian Standard provides guidance in assessing blast induced ground (and structural) vibration and air blast effects on buildings and their occupants.

Human Comfort Air Blast and Vibration Criteria

The NSW EPA currently adopts the ANZEC produced document, titled *"Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration 1990"* for establishing criteria to minimise annoyance and discomfort from blasting during daytime hours at noise sensitive sites.

V1 adopts the ANZEC criteria to prevent human annoyance from blasting activities. As such, it is recommended that the proposed development be conditioned appropriately accordingly to the ANZEC criteria.

The criteria provided by ANZEC guidelines are as follows:

Air blast Overpressure- The recommended maximum level for air blast overpressure is 115dB (Lin Peak). The level of 115dB may be exceeded on up to 5% of the total number of blasts over a 12 month period. However, the level should not exceed 120dB (Lin Peak) at any time.
Ground Vibration- The recommended maximum level for ground vibration is 5mm/s PPV (Peak Particle Velocity). The PPV level of 5mm/s may be exceeded up to 5% of the total number of blasts over a 12 month period. The level should not exceed 10mm/s at any time.

It should be further acknowledged that the ANZEC guidelines continue to state that a level of 2mm/s PPV be considered as the long term regulatory goal for the control of vibration.

Building Damage Air Blast Criteria

The applicable building damage vibration criteria are determined by AS2187: Part 2- 2006. The standards set guideline values for building vibration based upon lowest vibration levels above which damage has been credibly demonstrated. The levels are established to give minimum risk of vibration induced damage where minimal risk for a named effect is usually taken as a 95% probability of no effect.

Table 57 of V1 presents transient vibration guide values for residential or light commercial type buildings. Within this table, the minimum peak component particle velocity (PCPV) in Frequency Range 4 - 15Hz is 15mm/s, increasing to 20mm/s respectively. The indicative criteria are higher for higher frequencies accordingly. V1 further states that the referenced standard states that the "probability of damage tends towards zero at 12.5mm/s PCPV". Based upon the criteria, a conservative figure of 12.5mm/s is stated as being applicable to all privately owned residences in the vicinity of the site.

It is feasible that in order to prevent human annoyance and building vibration damage, that the ANZEC value of 5mm/s should be adopted for all vibration for the proposed project.

Open Pit Blasting

V1 states that blasting of overburden would involve the drilling of 229mm diameter holes (or similar) with nominally 80 to 160 holes per blast and hole depths of either 15m or 30m.

It is proposed that the maximum instantaneous charge (MIC) would generally vary from 414kg to 828kg (or larger MIC's in more distant areas where application of larger MICs could satisfy blast emission criteria or smaller MICs where blast criteria exceedance is predicted).

All blast designs would aim to ensure the blast emission criteria (ie air blast and ground vibration criteria) are not exceeded. Wherever necessary, MICs would be reduced by decking the individual blast holes. Blast emissions would also be minimised to the extent possible by sequencing the mining operations from South to North in all open cut pits. This approach would allow the blast envelope to be focused southwards and thereby reduce impacts in a northerly direction.

Blast size and blast frequency would be determined by the number and size of the active work areas and their positions within the confines of each pit, with up to approximately 120 blasts initiated in any one year and a likely maximum of four production blasts per week, unless required for safety reasons.

Privately-owned Residences and Receivers in the Vicinity of the Site

To determine the blasting emission levels at the nearest rural residences, ground vibration and air blast levels were determined based upon conservative levels of 50% and 5% exceedance ground vibration and air blast laws established in the Stratford Extension Project Noise and Blasting Assessment.

Using the ground vibration and air blast laws from Stratford, blast emission levels were predicted at the nearest privately owned residencies and receivers in the vicinity of the site, assuming the blast was initiated at the closest point to each residence or receiver. The predicted (50% exceedance and 5% exceedance) ground vibration and air blast emission levels are presented in V1 (table 60) for a typical lower burden MIC of 141kg and upper overburden MIC of 828kg.

Accordingly, it appears that from the information contained in table 60, the air blast overpressure criteria, as stipulated by the ANZEC guidelines of 115dB (Lin Peak) will not be exceeded. However, two residencies in the Forbesdale Estate (18- Collins & Barrett and 19A- Booner) have predicted air blast overpressure 5% emissions (MIC 828kg) of 115dB (Lin Peak) and vibration PVS of 5mm/s, which is equal to the ANZEC criteria. All privately owned premises according to the modelling will be well below the conservative vibration (PVS) damage assessment criterion of 12.5mm/s.

To overcome the 115dB (Lin Peak) of the two Forbesdale Estate residences, it has been proposed in V1 that for 18- Collins, restricting the MIC to 575kg would achieve compliance with the human comfort ANZEC criteria of 5mm/s and 115dB (Lin Peak). Furthermore, the EIS also states that at 19A Boorer, restricting the MIC to 760kg would achieve compliance with human comfort ANZEC criteria of 5mm/s and 115dB (Lin Peak).

Blast Management Plan

A Blast Management Plan (BMP) is a risk control plan in explosive blasting. It aims to ensure that blasts are well planned, protect people and assets in the area and limit danger to the environment. BMP's should be prepared by a suitably qualified person prior to every blast.

The information that needs to be contained in the BMP depends on the size, location, nature and complexity of the blasting operation. It is imperative that a BMP is prepared prior to each blast and that the BMP is reviewed by a competent person before conducting each blast to include any changes and modifications required.

V1 states that ground vibration and air blast emission levels would be managed by GRL in accordance with an approved BMP to ensure that ground vibration and potential blast emission impact are minimised.

Recommendation

Ground Vibration and air blast levels which cause human discomfort are lower than recommended structural damage limits. Therefore compliance with the lowest applicable human comfort criteria generally ensures that the potential to cause structural damage is negligible.

- A BMP must be repaired for each individual blast. Each BMP must be independently reviewed to ensure that any modifications or changes are adequately accounted for.
- For each event involving the use of explosives or for which a BMP is required to be prepared, appropriate monitoring sites must be established to ensure that privately owned residences and other sensitive receivers are not adversely impacted upon, and that all events comply with the requirements of the BMP and any other conditions/licensing agreements
- The BMP must take into consideration the health and structural impacts of any blast on privately owned and Resource Company owned residencies and must modify the BMP accordingly.
- In the event that a blast event does not comply with the BMP or any other condition/licensing agreement, a report must be prepared and submitted to the NSW EPA, outlining where the BMP failed and list any proposed actions to be undertaken to ensure that future non-compliance does not re-occur. Any alterations or modifications must be supported by an independent suitably qualified consultant.
- Any blast within 1,274m of 18 Collins & Barrett must restrict the MIC to 575kg.
- Any blast within 1,399m of 19A Boorer must restrict the MIC to 760kg.

Blast Fume Assessment

Blast fumes are a product of combustion from a blast. The products of combustion from a blast may include oxides of nitrogen, ammonia, nitric acid, carbon monoxide and carbon dioxide. These gases are often referred to as fumes. Nitrogen dioxide is visible as a reddish brown colour, whereas other are not visible.

In order to estimate the potential for NO_2 concentrations at private receivers, CALPUFF dispersion modelling was completed and predicted impacts assessed at four selected receivers which represent those with the highest potential impacts and provide spatial variety around the mine area.

Based upon the modelling and calculations undertaken, the EIS has concluded that there are no residences predicted to experience NO_2 concentrations above the 1-hour impact assessment criterion of 246µg/m^3 or the annual average impact assessment criterion of 62µg/m^3.

An understanding and application of meteorology, (i.e. weather conditions, wind speed and direction etc.) and gas cloud distributions will enable calculation of how long a gas plume will take to reach a potential receptor. Such an understanding and application also help determine the dispersion of the gas cloud, how far it will spread sideways and how the gas concentration will change with distance. The people developing these plans/strategies must understand the gas toxicology, exposure to gas and the exposure standards of a gas, such as nitrogen dioxide, particularly high concentration exposures over relatively short periods.

Therefore, it is imperative that for each proposed blast, the BMP must incorporate a Blast Fume Management Strategy (BFMS) be prepared. The BFMS must address factors know to contribute to fume generation, including, but not limited to geology, meteorological conditions, blast design, product selection, quality and blast crew education, on bench practices and emergency response procedures. The BFMS should include a management plan for situations where plumes of oxides of nitrogen have been generated and should address any potential medical issues/processes.

It should be noted that the previous assessment of the proposed coal mine and dispersion model indicated that that exceedance of the 1-hour average NO_2 criteria of 246µg/m^3 at five receptors. The assessment of the V1 does not define how the 1-hour criteria are now achieved, consider*ing the processes to extract coal from the mine do not appear to have changed i.e. - blasting techniques.*

Recommendation

Each BMP must incorporate a BFMS that addresses relevant factors known to effect fume generation. Where blast fumes are generated in excessive levels stipulated by conditions/licensing agreements, a report must be prepared and submitted to NSW EPA indicating measures to prevent future generation of blast fumes.

The provision of material safety data sheets relative to the types of products being used should be made readily available to all persons involved in the blasting process.

6. Water Resources

Risk

Potential for river bank erosion due to increased flows in Oaky Creek as a result of clean water diversion.

The EIS indicates that the change in hydraulic condition is small and would only occur in floods during mining phase when diversion channel is operational. Post mining the diversion channel is substantially removed. Some bank erosion currently occurs in lower section of Oaky Creek. Riparian conditions are generally poor.
Bank erosion predicted to occur during flood events. Flood events will occur during the life of the mine. Predicted increased storm intensity warrants preventative action to ensure stream banks are naturally resilient.

Recommendations

- Pre mining stream condition assessment required.
- Restoration of riparian areas within Oaky Creek to ensure stabilised banks and improved water quality.

Risk

Poor water quality (nitrogen and phosphorus concentrations above water quality objectives) in all streams further stressed as a result of associated intensive agriculture enterprise utilising treated water within the Gloucester Resources holding and mine site rehabilitation process.

EIS does not consider nutrient loading to stream associated with mine site rehabilitation and associated intensive agriculture use of the Gloucester Resource property facilitated by provision of treated water from the saline zone.

Recommendations

- Agriculture use of the rehabilitated areas and Gloucester Resources property associated with use of irrigation water from the saline water treatment plant to adopt best practice and continuous improvement measured by way of an environmental management system.
- Riparian zones within the Rocky Hill project site are restored and maintained to provide a water quality improvements and effective riparian buffer.

Risk

Runoff from overburden placement is proposed to be collected in a series of sediment dams designed in accordance with "Blue Book". The standard condition applied by Department Planning for mines requires the preparation of the preparation of a soil water management plan (SWMP). Experience indicates that this requirement does not reliably deliver on EIS predictions. Sediment dam failure during wet weather was experienced at several coal mines in the Hunter Valley (Warkworth Mine, Wambo Mine and Bengalla Mine) in January 2016 during heavy rain events and at the Mt Thorley mine in February 2012. Whilst these mines are substantially larger than the Rocky Hill proposal it highlights significant and systemic sediment dam design and maintenance deficiencies. As such there is a reasonable likelihood under the current prescriptions that sediment and erosion control structures will not perform as predicted at some stage during the life of the Rocky Hill mine and result in a water pollution event.

The blue book recommends minimum design criteria. It advises that more stringent criteria may be adopted for more sensitive areas. Considering the mine is located within a drinking water catchment already subjected to turbidity pressures and contains industries (oyster and fishing) downstream dependent on clean water and is situated in a high rainfall intensity location, a sensitive catchment classification is considered appropriate. The NSW DPI (Refer to website - Science and Research) highlights the impact of climate change on mining with changes in the frequency and intensity of storm events having the potential to impact on mining operations (e.g. tailing dams, sediment and erosion control). Design of structures must recognised sensitive catchment and climate change impacts. Independent performance auditing of sediment and erosion control plans required.

- Soil and Water management Plan based on criteria in excess of Blue book requirements in recognition of the location of the Rocky Hill proposal within a sensitive catchment.
- Soil and Water Management Plan to be based on the projected storm frequency and intensity changes associated with climate change.
- Soil and Water Management Plan and erosion and sediment plan independently audited by soil conservationist every 6 months for the life of the mine and the SWMP revised every 3 years.
- Sediment and erosion structures to be inspected before and after predicted peak rainfall events so that any potential and actual failures are quickly detected.

7. Biodiversity

Council`s Senior Ecologist reviewed the relevant exhibition and published documents, carried out site inspections and had telephone communication with the relevant contact of the Office of Environment and Heritage as requested by the Department of Planning and Environment.

A copy of the Council Officer`s comments are contained in Annexure E.

The comments have identified and raise issues with nine (9) separate matters associated with the proposal, concerning:

- The currency and adequacy of some of the flora and fauna field surveys
- The vegetation community description and mapping used in the Assessment
- The impacts to threatened fauna species (Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler)
- The inadequate offsetting of residual biodiversity impacts
- Ecological considerations of the Gloucester Local Environmental Plan 2010
- McKinleys Lane significant roadside area
- Aquatic assessment and catchment health and function
- Ecological assessment of works to widen Jacks Road and Waukivory Road
- Cumulative impacts and the strategic ecological context

It is the Council Officers opinion that some issues can be addressed by Conditions in a positive determination of the Application. However, there are some critical and instructive issues that mandates, that the Application should not be positively determined at this time as additional biodiversity investigations and assessments are required to be prepared, documented and reviewed. This can be part of a Response to Submissions process and should include proactive further consultation with relevant agency staff, including MidCoast Council.

This is a significant proposal that will cause the clearing and loss of a large area of patchily distributed native vegetation, affects local populations of a number of threatened species and removes and modifies areas of habitat for biodiversity.

This correspondence highlights that there are outstanding and pertinent ecological concerns that should be adequately considered by the authorities ahead of formal, positive determination.

Work needs to be completed and considerable consultation and liaison needs to be established before it can be concluded that a reasonable and satisfactory development is occurring and that ecological impacts (at a subject, local and sub-regional scale) are appropriately avoided, mitigated or compensated.

It is critical that the Department satisfies itself (and seeks the views of agency or independent experts as part of this process) of the responses to the technical issues raised above to demonstrate compliance with the relevant legislation and to deliver an adequate determination of this development proposal.

CONCLUSION

Applicant`s justification

The applicant has considered the issues and concerns raised in relation to the original 2013 Project and has made a number of changes to the 2013 Project in order to have an overall reduced level of environmental impact. The key defences between the two (2) Projects have previously been described in this report.

One of the major key concerns with the 2013 Project was the proximity of the mine to Gloucester. The applicant states that:

`*Whilst it has not been possible to change the location of the open cut pits, the amended Project would operate with much less infrastructure in that the previously proposed CHPP, overland conveyor, rail loop and rail-out facility would not be constructed and used, thereby*

reducing the area of impact of the total project on the surrounding community. The reliance upon the CHPP at the nearby Stratford Mining Complex and the rail-out facility at that site would noticeably reduce impacts of the amended Project, particularly for those residents on the southern side of the Forbesdale Estate and a number of the rural and rural-residential properties adjacent to The Bucketts Way south of Fairbairns Road.

Apart from reducing the area of potential disturbance, the applicant has redesigned a range of components to improve the environmental performance and further reduce adverse impacts. The key re-design features have been the western and northern amenity barrier and the open cut pits themselves'.

The applicant has also nominated the following consequences of not proceeding with the amended Project:

- The employment opportunities for Gloucester and district residents would not eventuate,
- Asian steel mills would not have access to a high quality coking coal for steel manufacture,
- Direct expenditure totalling $68 million per year, of which $48 million is expected to occur in the local economy, and the estimated operating and capital costs would not eventuate,
- The additional rates revenue to Mid-Coast Council estimate of approximately $5.6 million over the life of the amended project would not eventuate,
- The benefits from the Community Grants Program i.e. direct injection of an additional approximately $6.5 million to the community through the production-related grant at an average of approximately $400,000.00 annually. In addition, the proposed scholarships, employment and skills training and development opportunities would not eventuate,
- The additional beneficial environmental and related outcomes i.e. the serving in perpetuity of the Biodiversity Offset Area and the replacement of the Jacks Road bridge across the Avon River together with other local road upgrades,
- The agricultural productivity benefits that have already been recorded as a consequence of the agreement between the applicant and the Speldon Partnership would be unlikely to occur,
- Other likely outcomes from no development option (based on demographic projections for Gloucester) include a small and decreasing population growth, low levels of population growth-generated employment and a continued exodus of people in primary working years.

Response

It is appreciated that the applicant has chosen to make a number of changes to the 2013 Project however, the location of the open cut pits to the Gloucester urban township and adjoining rural and rural residential properties is still a major concern.

The EIS and the range of specialist consultant reports have been undertaken in order to minimise the adverse environmental upon the local community.

However, accidents do happen. An example is a blast at BHP Billiton`s Mount Arthur Coal Mine in February 2014 which generated a toxic orange plume. It drifted over an industrial estate at Muswellbrook with workers complaining of sore throats and eyes. The Land and Environment Court found that the plume was caused by water in the blast holes and inadequate measuring of wind direction. Penalties were imposed.

The mine area is located approximately 3.5km to 7km southeast of the Gloucester urban area.

The closest rural-residential estate is the Forbesdale Estate where residences are located between 1.3km and 2.0km west of the western edge of the western and northern amenity barrier and 1.8km and 2.5km west of the closest open cut pit.

The Avon River Estate is located approximately 1.8km to 2.4km northwest of the Mine Area and immediately north of Jacks Road, the main access route to the Mine Area once the Jacks Road Bridge over the Avon River is replaced.

The Thunderbolt Estate, also north of Jacks Road, is located approximately 1.9km to 2.8km northwest of the Mine area.

It is not in the public`s interest to approve a coal mine in this location that is, without a reasonable buffer area of residential exclusion. There is little margin for error if something goes wrong.

Also, the flooding constraints due to the confluence of the Avon, Gloucester and Barrington Rivers have generally restricted housing development to the south of the existing town in a linear fashion and further development, towards the Rocky Hill Project site, would be severely compromised with the Rocky Hill Project forming a barrier to residential areas.

The impact on existing and identified potential land release areas by the Project site and any possible state legislated exclusion (currently unknown) which may be placed as a result of mining will restrict further housing development for the township of Gloucester.

Gloucester is a beautiful town in a beautiful valley. It is the gateway to the World Heritage Barrington Tops National Park, with tourist income generating $51.4 M in 2014 (Tourism Australia, 2014), supporting the notion that Gloucester is an attractive place to visit and stay.

A mine is not something that tourists generally come to visit, particularly when visiting a World Heritage site, and wanting an outdoor/rural experience. This is especially so when the mine is 3.5-7 kilometres from the town centre, and 1.3 km from the nearest housing estate.

The State and Federal Government has also acknowledged the importance of Gloucester's outstanding uniqueness, when in 2014, Gloucester won the prestigious Keep NSW Beautiful State Tidy Town Award (now Blue Star Award) for the second time. Only a handful of towns have received this award, let alone won it twice. Initially awarded to towns for their overall neat appearance, the awards now contain all aspects of sustainability from environmental issues and projects, to litter, business sustainability, and youth and community involvement. To win the coveted State award, the town had to score the highest in these categories against much larger towns. Gloucester went on to represent NSW in the State Award presentation in Tasmania, in 2015, and received accolades from the then Prime Minister, Mr Tony Abbott.

As stated in the 2013 submission by the former Gloucester Council to the proposed mine, the potential impact of the mine on Gloucester is significant, socially and environmentally (pg 8). The prospect of the mine has caused significant distress to the community, particularly for the residents and property owners in the residential estates forming the southern part of the town (pg8). Around 80% of respondents in 2013 opposed the mine (Economists at Large report pg 171, Gloucester 2013 EIS submission).

Without significant mitigation measures, more than the proposed $400,000.00 annually to the local community through the Community Grants Programme may be inadequate given the high social and environmental risk to the community.

RECOMMENDATION

A. That a copy of the report to Council be forwarded to the Department of Planning and Environment for consideration in that Department`s assessment of the application and that the Department be advised that Council does not support the proposed Rocky Hill Coal Mine Proposal for the following reasons:

- The former Gloucester Shire Council opposed the proposed open cut coalmine when the Environmental Impact Statement (EIS) was originally exhibited on the grounds listed in their submission to the Department.
- The Proposal is contrary to the former Gloucester Shire Council`s Policy entitled `Gloucester Shire Council Mining and Extractive Industries Policy, whereby the Council had established and maintained a long standing opposition to the Project.
- The impact on existing and identified potential land release areas by the Project site and any possible state legislated exclusion (currently unknown) which may be placed as a result of mining will restrict further housing development for the township of Gloucester.
- The Policies and activities of the former Councils have the objective of promoting development activity that enhances the community without significant adverse social impacts, and with regard to ensuring the community has meaningful engagement.
- The fundamental concern for Council is that whilst impact management and mitigation might meet State standards, there will be residual impacts which will be felt by many new residences for the first time, if the mine is approved. These residents will be asked to live with those impacts for the entire proposed life of the mine, and potentially beyond.
- It is not in the public`s interest to approve an open cut coal mine in this location due to its proximity to the Gloucester urban township and adjoining rural/rural residential properties.
- The contribution of $400,000.00 annually to the local community through the Community Grants Programme may be inadequate given the high social and environmental risk to the community.
- The EIS has not adequately addressed information in regard to:

Air Quality

- How the Air Quality Assessment addresses the 2015 National Clean Air Agreement Standards and the National Environment Protection (Ambient Air Quality) Measure goals, which were designed to be implemented to strengthen the standard for particles that impact on air quality, considering the operational length of the proposed mining operations.
- The likely impacts on all effected receivers in consideration of the National Clean Air Agreement or the National Environment Protection (Ambient Air Quality) Measures 24-hour PM2.5 standard of 20µg/m3. The number of residences likely to be impacted will be significantly greater considering this standard and the operational length of the proposed mining operations.
- The Air Quality Impact Assessment of the Cumulative 24-hour PM10 and PM2.5 criteria for the higher extraction rate (2.0Mtpa) of ROM coal during year 10 of operations, in consideration of the 2025 reduced air quality standards.
- The Air Quality Assessment in the differences in the 2013 project assessment and the current project air quality assessments, as there is considerable reduction in reported particulate matter at residential properties without any discussion or justification.
- The Air Quality Assessment in the justification for using 90% control rate for generated dust from haul roads, and how this is to be achieved considering that the NSW Benchmarking Study demonstrates that a level of 75% effectiveness is achieved at 'level 2' watering, or a maximum of 84% effectiveness can be

achieved if chemical suppressants are to be used and discuss potential impacts from their use.

- Differencing between the reporting assumptions that have occurred concerning the 2013 project assessment and the current proposal. The assumptions that have not been adequately addressed include the removal of processing activities, the years assessed, the production schedule, timing of operations, terrain and meteorology. The air quality impacts at residential properties appear to have decreased at certain locations, whilst the total TSP emission rate has been maintained.

Noise

- The Noise, Vibration and Blasting Assessment if noise mitigation measures have been appropriately identified and mitigation measures have been consulted with identified impacted residents.
- Information in the relation to number of proposed noise monitors so that accurate noise modelling and data information can be used to accurately achieve proposed mitigation measures. Mitigation measures are not specific and may be difficult to regulate. For Example, 'use of low noise mobile equipment and fixed plant where possible' and ' restrict dozers to 1st gear operation dependant on the time and location of operation'.
- The Noise, Vibration and Blasting Assessment for the potential impact of 'in pit' and 'out of pit' evening operations, as noise levels are not presented cumulatively. Evening operations should be assessed as a worst case scenario - noise emissions from all mobile and fixed plant that have the potential to be operating simultaneously both in and out of the pit during the evening period must be assessed cumulatively.
- The Noise, Vibration and Blasting Assessment background noise assessment levels for residences in the Fairbairns Road area. Although the assessment is in accordance with the NSW EPA's Industrial Noise Policy, in reality, residents are likely to experience noise levels up to 10dBA above true background levels. A noise level difference if 10dBA generally represents a perceived doubling of sound, which will result in increased complaints.
- The Noise, Vibration and Blasting Assessment for the potential noise impacts from traffic induced noise along Jacks and Waulkivory Roads. The noise assessment has been undertaken using criteria set for Arterial/sub-arterial roads (due to the increased traffic movements from mining operations). No consultation with potential residences has been undertaken nor has any potential mitigation measures been identified. Noise from traffic impacts are generally not being adequately identified or managed for the project.

Cost Benefit Analysis

- Cost benefit analysis completed by a financial expert, quantifying the residual costs associated with the Project and the mitigation measures. This analysis should include discussion of coal prices, exchange rates, coal specifications or likely cost structure, to realistically assess the Project.

Terrestrial Biodiversity Assessment

- Surveys and assessments to determine the extent of the population, occupied habitat, unoccupied but suitable habitat and connectivity of Brush-tailed Phascogale, Squirrel Glider and Grey-crowned Babbler populations of the Study Area (and including the proposed Biodiversity Offset Area and Jacks Road/ Waukivory Road verges)
- Preparation of draft Species Management Plans for the Brush-tailed Phascogale, Squirrel Glider and Grey-crowned Babbler

- Further and better consideration of the type, nature and significance of potential direct, indirect and facilitated impacts on the Brush-tailed Phascogale, Squirrel Glider and Grey-crowned Babbler
- Surveys and assessments to provide a more detailed, accurate and fine-scale analysis of the on-ground vegetation community types and patterns of the Study Area. This should include consideration of but not be confined to:
  - The mapping and description of areas of Derived Wet Pasture, Sedgelands and/ or Carex Sedgelands within the Cleared Open Pasture map unit
  - The mapping and description of areas of Cabbage Gum forests/ woodlands and Grey Box forests/ woodlands
  - The differentiation between forests and woodlands of the Gloucester Bucketts soil landscape and the soil landscapes of the undulating low hills
  - The delineation of the various discrete types of forests/ woodlands that are presently aggregated within the Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland map unit
  - Re-attribution of updated map units against accepted NSW plant community types and BioMetric types
- Floral and faunal investigations of the road reserve of Jacks Road and Waukivory Road that are potentially removed or impacted by road widening or reconstruction potentially associated with this project and inclusion of details within the assessment of the proposal
- Bridge investigations and evaluation of the riparian habitat associated with the replacement of the Jacks Road Bridge over the Avon River that is associated with this project
- Re-running of BioBanking credit calculations based on the updated and improved biodiversity information from the above surveys and assessments
- Further consideration of a revised and improved Biodiversity Offset Area proposal for the project, including discussions with MidCoast Council
- Further discussion in relation to conservation options in relation to the securing of the Biodiversity Offset Area
- Documentation of the appropriate legal means that can be applied in a consent to secure woodland, tree belts and corridor habitats on the finished landform as habitat for threatened fauna

B. That the Department of Planning and Environment be advised that the following conditions of consent are necessary should the Department approve the application:

CONDITIONS

Management and Mitigation and Contingency Measures

1. Compliance with the Management and Mitigation and Contingency Measures referred to in the EIS subject to the following amendments:

- Recommendation 1 - Establish a Rocky Hill Coal Project Community Consultative Committee - be amended to require two (2) representatives of Council; and
- Recommendation 4 - Establish a Trust (or contribute to an existing Trust) to administer the Funds Provided under the Community Grants Programme with clearly defined application and eligibility criteria - be amended and substituted with a Voluntary Planning Agreement (VPA) to be entered into between Mid-Coast Council and the applicant. Under the agreement, the applicant would agree to fund a range of community projects in accordance with the Community Grants Programme.

STRATEGIC PLANNING

2. The proponent of the Rocky Hill Project to contribute and/pay the costs towards an additional land use and/or residential/housing study/strategy that will be used to identify further residential release areas in the vicinity of Gloucester to cater for population growth and expansion of the urban footprint. Such a study/strategy should compensate Council for the compromising of already identified residential release areas that will occur as a result of the Project and its buffers and residential exclusion zones.

BLASTING AND VIBRATION

3. A Blast Management Plan (BMP) must be prepared for each individual proposed blast. Each BMP must be independently reviewed to ensure that any modifications or changes are adequately accounted for. The BMP must be designed to ensure that all prescriptive criteria will be met and there are no adverse impacts at any privately owned residence.

4. The BMP must take into consideration the health of occupants and structural impacts of any blast on privately owned and Resource Company owned residencies and modify the BMP accordingly.

5. In the event that a blast event does not comply with the BMP or any other condition/licensing agreement, a report must be prepared and submitted to the NSW EPA, outlining where the BMP failed and must list any proposed actions to be undertaken to ensure that future non-compliance does not re-occur. Any alterations or modifications must be supported by an independent suitably qualified consultant.

6. The provision of material safety data sheets relative to the types of products being used should be made readily available to all persons involved in the blasting process.

7. Any blast within 1,274m of 18 Collins & Barrett must restrict the MIC to a maximum of 575kg.

8. Any blast within 1,399m of 19A Boorer must restrict the MIC to a maximum of 760kg.

9. *Air blast Overpressure*- The maximum level for air blast overpressure is 115dB (Lin Peak). The level of 115dB may be exceeded on up to 5% of the total number of blasts over a 12 month period.

10. *Ground Vibration*- The maximum level for ground vibration is 5mm/s PVS (Peak Vector Sum). The PVS level of 5mm/s may be exceeded up to 5% of the total number of blasts over a 12 month period.

11. Blast and vibration monitoring sites shall be established in appropriate locations to the satisfaction of Department of Planning and Environment to ensure that no privately owned residence is impacted upon. The location of the monitoring sites shall be determined by a suitably qualified independent consultant.

12. No heavy vehicles shall enter the site or leave the site outside of the hours of 7:00am - 8:00pm weekdays and Saturdays; and 8:00am - 7:00pm Sundays and Public Holidays.

TRAFFIC AND TRANSPORT

Waukivory Road - North of Jacks Road.

13. Waukivory Road between Jacks Road and The Bucketts Way (including intersections) must have Dilapidation reports* undertaken before the construction phase commences

and at the completion of the construction phase. The reports will be used to determine any damage and deterioration of the road during this construction phase and the applicant will make a contribution to Council to cover the costs of any damage and deterioration established in the reports.

* All Dilapidation reports are to be provided by suitably qualified road inspectors.

Waukivory Road – East of Jacks Road

14. Waukivory Road between Jacks Road and McKinleys Lane to be reconstructed to the same dimensions as Jacks Road and an asphalt concrete pavement designed to Council requirements. The pavement width will be two travel lanes of 3.5m width and sealed shoulders on each side of 1m width. The road to be designed to AustRoads' "Guide for Road Design" and approved by Council.

A permanent traffic classifier, for the life of the mine, to be installed in this section of Waukivory Road using inductive loops within the pavement including a permanent secure housing for the classifier at no cost to Council. Council to have unrestricted access to the data from this classifier at any time.

Jacks Road

15. Jacks Road between The Bucketts Way and Waukivory Road to be reconstructed to have two travel lanes of 3.5m width and sealed shoulders on each side of 1m width (9m full constructed width). The road to be an asphalt concrete pavement designed to Council requirements. The road to be designed to AustRoads' "Guide for Road Design" and approved by Council.

The bridge to be replaced over the Avon River will have 3.5m traffic lanes as the rest of the road with safe edge spacing to the bridge sides/rails. The footpath on the bridge will be located on the north side of the vehicular section with a safety barrier between the vehicular lane and footpath. The footpath will be a shared pathway of 2.5m in width to cater for pedestrians and cyclists. The bridge will be constructed in concrete designed to Council requirements.

Australian Rail Track Corporation (ARTC) to be requested to review the safety and operation of the railway level crossing on Jacks Road and recommend any safety improvements to be undertaken by the applicant.

Fairbairns Road

16. The proposed crossing of Fairbairns Road by the Haul Road will have a Short Term lease under the Roads Act (Part 10 Division 2 - Sections 153 to 157) between the Applicant and Council. The proposed design of the grade separated intersection of Fairbairns Road and the Haul Road to be designed to AustRoads' "Guide for Road Design" and approved by Council including the Short Term Lease.

The existing bridges on Fairbairns Road that cross the Avon River are not suitable for the heavy vehicles to be used in the construction of the Haul Road underpass. The existing temporary bridge is to be assessed by an independent structural bridge consultant to determine if it can cater for the proposed heavy vehicles and, if not, a new bridge is to be built to cater for the heavy construction vehicles or another option agreed to by Council.

Fairbairns Road between The Bucketts Way and new Haul Road (including intersections) must have Dilapidation reports undertaken before the construction phase commences

and at the completion of the construction phase. The reports will be used to determine any damage and deterioration of the road during this construction phase and the applicant will make a contribution to Council to cover the costs of any damage and deterioration established in the reports.

ARTC to be requested to review the safety and operation of the railway level crossing on Fairbairns Road and recommend any safety improvements to be undertaken by the applicant.

McKinleys Lane

17. McKinleys Lane south of Waukivory Road will need to be closed as a public road and purchased from Council to become privately owned land by the Applicant. The new access road will be required to meet with Council standards for internal roads and driveways.

The Bucketts Way – Jacks Road to Pacific Highway

18. During the construction phase of the mine, the applicant shall make a contribution to Midcoast Council in the amount of $83,485.50 for impacts of mine-generated heavy vehicle traffic over the 70 km length of the Bucketts Way from the border of Port Stephens Council to the mine site.

The contribution is based on the following details. Construction phase - 12 months as per GR LTD Part 9 Transport Assessment Section 5.9.1. - 13 heavy vehicle movements per day. Previous agreements with Stratford Coal Pty Ltd provided for a 19.25km section of The Bucketts Way previously agreed with the former Gloucester Shire Council with a contribution rate of $1,175.03 per km. (2014 dollars). The dollar values are subject to annual indexation in accordance with the CPI. Therefore, 70km x $1,192.65 (2015 dollars) = $83,485.50

19. The applicant shall make an ongoing contribution during the operational phase to Midcoast Council for maintenance of The Bucketts Way each year to ensure the road's safe condition. This amount should be based on the number of heavy vehicles that are accessing the mine site. Determination of the number of heavy vehicles shall be obtained from the traffic counter placed in Jacks Road. Determination of the contribution will be based on the former Great Lakes Council Section 94 Contribution - Road Haulage rates assuming an average of 20 tonne per heavy vehicle over a distance of 75 kilometres.

Heavy Vehicle Bypass through Gloucester Township

20. The route of the Heavy Vehicle Bypass through the Gloucester Township is to be approved by Council.

The applicant shall cover the costs of pavement restoration due to any damage done during the construction phase by the heavy vehicles travelling through the Gloucester township approved bypass. The determination of any restoration work will be done before and after independent Dilapidation reports*. The reports will be used to determine any damage and deterioration of the road during this construction phase and the applicant will make a contribution to Council to cover the costs of any damage and deterioration established in the reports.

Council will not be approving any Over Size and Over Mass (OSOM) vehicles through the town of Gloucester including the approved Heavy Vehicle Bypass as the roads within the

township are unsuitable for OSOM vehicles. All OSOM vehicles are to arrive on-site from the south via The Pacific Highway and The Bucketts Way.

A dilapidation report must be prepared by an independent and qualified road inspection consultant and submitted to Council. The required dilapidation report must document and provide photographs that clearly depict any existing damage to the road, kerb, gutter, footpath, piped culverts, driveways, water supply, sewer works, street trees, street signs and any other Council assets in the vicinity of the assessed area. These reports will be used by Council to determine the extent of damage arising from the works undertaken at the mine. Any damage not shown in the Dilapidation reports submitted to and approved by Council prior to the works commencing, will be assumed to have been caused as a result of the mine works undertaken with respect to the mine and must be rectified at the applicants expense.

Intersections

The Bucketts Way and Jacks Road

21. The Bucketts Way at Jacks Road intersection be upgraded with a channelised right turn bay (CHR) and auxiliary left turn lane (AUL) as proposed in the applicant's traffic report. The right turn bay on The Bucketts Way be designed to hold two 30m B-Double trucks. The intersection to be designed using AustRoads "Guide to Road Design" and approved by RMS and Mid-Coast Council.

The applicant to request the RMS to move the change to the 60km/h speed limit from 700m north of Jacks Road to south of the intersection before the construction phase starts.

Jacks Road and Waukivory Road

22. Jacks Road at Waukivory Road intersection be upgraded with an auxiliary right turn on Jacks Road as proposed in the applicant's traffic report. The intersection to be designed using AustRoads "Guide to Road Design" and approved by Council.

Waukivory Road and McKinleys Lane

23. Waukivory Road at McKinleys Lane intersection be upgraded with an auxiliary right turn on Wakivory Road as proposed in the applicant's traffic report. The intersection to be designed using AustRoads "Guide to Road Design" and approved by Council.

Haul Road

24. The private Haul Road between Rocky Hill Mine and Stratford Mine will be designed to AustRoads' "Guide for Road Design" and be surfaced with asphalt concrete.

There will not be permanent lighting along this Haul Road.

Extent of construction to be to the boundary of the Stratford Mining Complex.

Traffic Management Plans (TMP) and Traffic Control Plans (TCP)

25. Traffic Management Plans and Traffic Control Plans for all construction work on the road network are to be done by RMS accredited persons and approved by Council.

AIR QUALITY

26. The Applicant shall prepare and implement an Air Quality Management Plan prior to the commencement of works for the development to the satisfaction of the Secretary. This plan must:

(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to 31 December 2017, unless otherwise agreed by the Secretary;

(b) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;

(c) describe the proposed air quality management system; and

(d) include an air quality monitoring program that:

- uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the development against the air quality criteria in this consent;
- adequately supports the proactive and reactive air quality management system;
- evaluates and reports on:
  - the effectiveness of the air quality management system; and
  - compliance with the air quality operating conditions; and
- defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.

27. The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in the table below at any residence on privately-owned land.

Pollutant	Averaging Period	[c]Criterion	
Particulate Matter <10µg/m^3 (PM_{10})	Annual	30µg/m^3	
Particulate Matter <10µg/m^3 (PM_{10})	24 Hour	50µg/m^3	
Particulate Matter <2.5µg/m^3 ($PM_{2.5}$)	Annual	7µg/m^3	
Particulate Matter <2.5µg/m^3 ($PM_{2.5}$)	24 Hour	20µg/m^3	
Total Suspended Particulates (TSP)	Annual	90µg/m^3	
Deposited Dust	Annual	[a]2 g/m^2/month	[b]4 g/m^2/month

Notes:
a Maximum increase in deposited dust level.
b Maximum total deposited dust level.
c Any change to national air quality criteria during shall be taken to replace listed criterion as maximum standards.

28. If the development causes an exceedance of the National Environment Protection (Ambient Air Quality) Measure or NSW Environment Protection Authority criteria, the Applicant shall, upon receiving a written request for air quality mitigation measures from the landowner of any affected property, undertake air quality mitigation measures directed towards reducing the potential human health and amenity impacts of the development at a residence. These measures may include (for example):

(a) air conditioning, including heating;

(b) insulation;

(c) first flush water systems;

(d) installation and regular replacement of water filters;

(e) cleaning of rainwater tanks;
(f) clothes dryers; and
(g) regular cleaning or any residence and its related amenities, such as barbeque areas and swimming pools.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

29. For the life of the development, the Applicant shall ensure that there is a meteorological station in the vicinity of the site that:
(a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline and the *NSW Industrial Noise Policy*; and
(b) is capable of continuous real-time measurement of temperature lapse rate data that are able to be transformed accurately and repeatedly, and no more favourably, to those that would be obtained by the use of a 60 m tower, to the satisfaction of the EPA.

30. All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained at all times in a condition that will minimise the generation or emission of wind-blown or traffic generated dust.

31. Minimisation of Dust
Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission of traffic generated or wind-blown dust.

32. Covering of Haul Trucks
The trailers of laden haul trucks travelling on the private haul road must be covered.

NOISE

33. A Construction Noise Management Plan that includes all feasible and reasonable mitigation measures to minimise noise impacts at residential premises must be developed and be submitted to the NSW Environment Protection Authority for comment prior to the commencement of any construction or site establishment works.

34. The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to 31December 2017, unless otherwise agreed by the Secretary;
(b) describe the measures that would be implemented to ensure:
- compliance with the noise criteria and operating conditions of this consent; and
- the noise impacts of the project are minimised during meteorological conditions when the noise limits of this consent do not apply;
(c) describe the proposed noise management system in detail;
(d) include a monitoring program that:
- includes monitoring of inversion strength at an appropriate sampling rate to determine compliance with noise limits;
- provides for the biennial validation of the noise model for the project.
- evaluates and reports on:
  - the effectiveness of the on-site noise management system;
  - compliance against the noise criteria in this consent; and
  - compliance with the noise operating conditions;

- includes a program to calibrate and validate real-time noise monitoring results with attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria and as a trigger for further attended monitoring); and
- defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.

35. Received noise levels at any premise must not exceed those listed in Table 19 of the Noise Vibration and Blasting Assessment prepared by SLR Consulting Australia Pty Ltd, Report No. 806/14, dated July 2016.

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has a negotiated agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

36. Hours of Operation

Activity	**Days***	**Hours**
Mining (Year 1 to 3)	Monday - Saturday	7:00am - 6:00pm
Mining (Year 4 onwards)	Monday - Saturday	7:00am - 10:00pm
Breaker Station Operations	Monday - Saturday**	7:00am - 6:00pm
Coal Haulage (via Private Haul Road)	Monday - Saturday**	7:00am - 6:00pm
Maintenance	Monday - Saturday Sunday Monday - Sunday	7:00am - 6:00pm 8:00am - 10:00pm All other hours***
* Public Holidays excluded **Operations only permitted to occur on a Saturday in the event protracted operational time is lost during week days. ***Activities only permitted if not audible at privately-owned residences / receivers.		

37. Upon receiving a written request from the owner of Property ID 6 - Campbell, the Applicant shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible and directed towards reducing the noise impacts of the development on the residence. If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

This noise mitigation request must also apply to any additional property where noise levels are consistently shown to exceed project specific noise levels during the life of the project.

38. Site establishment and construction activities shall only be permitted to be undertaken between the hours of 7:00am to 6:00pm Monday to Friday and 8:00am to 1:00pm on Saturdays. No work is permitted on Sundays or public holidays.

BUILDING WORKS

39. All building work must be carried out in accordance with the requirements of the Building Code of Australia as in force on the date the application for the relevant construction certificate or complying development certificate was made.

40. Prior to the commencement of any building construction work (including excavation), a construction certificate must be issued by a certifying authority.

Enquiries regarding the issue of a construction certificate can be made to Council's Customer Service Centre on 6591 7222.

41. Prior to the commencement of any building construction work (including excavation), the person having the benefit of the development consent must appoint a principal certifying authority and give at least two (2) days' notice to Council, in writing, of the persons intention to commence construction work.

42. Prior to the commencement of work, toilet facilities must be provided at or in the vicinity of the work site at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be a toilet connected to an accredited sewage management system approved by the Council.

43. Prior to the commencement of work, a sign or signs must be erected in a prominent position at the frontage to the site.

a) showing the name, address and telephone number of the principal certifying authority for the work, and
b) showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours, and
c) stating that unauthorised entry to the work site is prohibited.

The sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

BIODIVERSITY MANAGEMENT PLAN

44. The Applicant shall prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:

(a) be prepared in consultation with OEH and MidCoast Council;
(b) be submitted to the Secretary for approval within 3-months of the date of this approval;
(c) describe how this strategy and its implementation will be integrated with other relevant biodiversity and rehabilitation strategies;
(d) include a description of the vegetation communities and values of the site and the biodiversity offset area, including as habitat for threatened fauna species that have been recorded in the approved disturbance area;

(e) include consideration of local and sub-regional connectivity values of the site and the biodiversity offset area;
(f) describe the short, medium and long-term measures (including staging/ timing) that would be implemented to:
    - manage the remnant vegetation and habitat on the site;
    - maintain and enhance biodiversity values in the biodiversity offset area to offset the loss of biodiversity values in the approved disturbance area; and
    - deliver the biodiversity offset strategy
(g) include detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);
(h) include a detailed description of the measures (and their timing and inclusive of any details relating to the engagement of contractors) that would be implemented for:
    - creating a single conservation lot for the biodiversity offset area
    - encouraging the adoption of an E2 zone over the area of the biodiversity offset area through consultation with MidCoast Council;
    - enhancing the quality of existing vegetation and fauna habitat on the site and in the biodiversity offset area;
    - establishing native vegetation and fauna habitat in the biodiversity offset area and final landform through assisted natural regeneration, targeted vegetation establishment and the introduction of naturally scarce fauna habitat features (where necessary);
    - prescribing the active revegetation of derived grasslands of the biodiversity offset area as functional indigenous native vegetation types, including the active expansion of areas of Dry Rainforest;
    - enhancing the landscaping of the site and along public roads to minimise visual and lighting impacts;
    - protecting vegetation and soil outside the approved disturbance area;
    - maximising the salvage of resources within the approved disturbance area - including logs, mulched felled vegetation and top-soil - for beneficial reuse in the biodiversity offset area;
    - introducing hollow-bearing habitat features to the biodiversity offset area;
    - collecting and propagating seed;
    - minimising the impacts to fauna on site;
    - undertaking pre-clearance surveys and relocations of threatened biodiversity;
    - managing any potential conflicts between the proposed restoration works in the biodiversity offset area and any Aboriginal heritage values (both cultural and archaeological);
    - managing salinity;
    - protecting the biodiversity offset area from light spill from approved mine and disturbance areas;
    - erecting protective fencing;
    - erecting signage;
    - controlling access;
    - controlling weeds;
    - controlling feral pests;
    - controlling erosion;
    - controlling vehicular access to minimise the potential for vehicle strike of native fauna;

- managing grazing and agriculture (including the provision to exclude grazing from riparian areas of the site and from within the biodiversity offset area);
- controlling access;
- controlling bushfire and implementing ecologically-appropriate bushfire regimes to the biodiversity offset area; and
- managing bushfire risk;

(i) include a Vegetation Clearance Plan including:

- clear delineation of disturbance areas and restriction of clearing to the minimum area necessary to undertake the approved activities;
- a methodology for recording the approximate size and number of hollow-bearing trees to be removed, their relocation to the biodiversity offset area after felling (as ground habitat) and the replacement with the same number of nesting boxes of appropriate sizing within the biodiversity offset area;
- a methodology for the management of hollow-bearing trees during vegetation clearing to minimise impacts on hollow-dependent fauna which may be present;
- provision for a suitably trained or qualified person to the satisfaction of the Director-General to be present during the felling of identified hollow-bearing trees to provide assistance with the care of any injured fauna;
- provision for the annual inspection of the nesting boxes for the life of the mine, including the preparation and publication of an inspection report annually to be submitted to OEH and MidCoast Council; and
- provisions for the checking of vegetation to be cleared for threatened fauna species.

(j) include a program to monitor and report on the effectiveness of these measures and progress against the detailed performance and completion criteria every three-years for the life of the mine including independent-auditing;

(k) identify the potential risks to the successful implementation of the biodiversity offset strategy, and include a description of the contingency measures that would be implemented to mitigate against these risks; and

(l) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

Note: The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.

Operating Conditions

45. The Applicant must:

(a) not destroy, damage, remove or harm any native flora or fauna in the biodiversity offset area; or

(b) not carry out in the biodiversity offset area or the vicinity of the biodiversity offset area any activity that may cause, or is likely to result in, or will or might threaten the viability of, native flora or fauna in the biodiversity offset area, or threaten the success of the biodiversity offset strategy; and

(c) ensure that its agents, contractors, licensees and invitees (and use best endeavours to ensure that any other persons) also comply with this Condition.

McKinleys Lane significant roadside area

46. The Applicant shall construct a new mine access road off Waukivory Road to the east of the existing McKinleys Lane and shall rip, remove gravel, revegetate and conserve the existing McKinleys Lane reserve as part of the biodiversity offset area. The new mine access road shall form the new McKinleys Lane following the closure of the mine.

Protection of Woodlands, Tree Belts and Corridors on the final landform

47. The Applicant must establish permanent conservation mechanism(s) to the satisfaction of the Secretary to ensure the in-perpetuity conservation and management of certain elements of the finished landform. The mechanisms shall be progressively adopted as the mine and its rehabilitation progresses, and shall include protection of the following areas of the finished landform:

(a) Woodlands
(b) Tree belts
(c) Corridors

Riparian and Watercourse Management Plan

48. The Applicant shall prepare and implement to the satisfaction of the Secretary a Riparian and Watercourse Management Plan for the site and GRL holdings. This plan shall be prepared within 6-months of the date of this approval and include:

(a) details of all third order and higher watercourses on the site and the GRL holdings;
(b) details of the measures that would be implemented for protection fencing, stock exclusion, revegetation (with natural vegetation communities including River Oak Riparian Forest), erosion control, weed control, feral pest animal control and aquatic habitat enhancement of all third order and higher streams;
(c) details of performance and completion criteria for evaluating the performance of the plan, and triggering remedial action (if necessary);
(d) include a program to monitor, independently audit and report on the effectiveness of the measures and progress against the detailed performance and completion criteria; and
(e) build to the maximum extent practicable on the other management plans required under this consent.

Rehabilitation

Progressive Rehabilitation

49. The Applicant shall progressively rehabilitate the site as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed where areas prone to dust generation are not subject to active mining operations but cannot yet be permanently established.

Rehabilitation Management Plan

50. The Applicant shall prepare and implement a Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:

(a) be prepared in consultation with the Department, NSW Office of Water, NSW Office of Environment and Heritage and MidCoast Council;
(b) be submitted to the Secretary for approval at least 3-months prior to the commencement of mining operations;
(c) be prepared in accordance with any relevant Department guidelines;
(d) describe how the rehabilitation of the site would be integrated with the implementation of the biodiversity offset strategy;

(e) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);
(f) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform and final land use;
(g) include interim rehabilitation where necessary to minimise the area exposed for dust generation;
(h) include a program to monitor, independently audit and report on the effectiveness of the rehabilitation measures and progress against the detailed performance and completion criteria; and
(i) build to the maximum extent practicable on the other management plans required under this consent.

Note: The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.

NOTE

Long-term Security of Offset
Details of any Condition(s) of Consent relating to Long-term Security of the Offset should be deferred until such time as further surveys, assessments and consultation have been undertaken.

Habitat for Threatened Fauna Species
Details of any Condition(s) of Consent relating to the protection, conservation and/ or restoration of threatened fauna species habitat should be deferred until such time as further surveys, assessments and consultation have been undertaken.

Management Plans for Squirrel Gliders, Brush-tailed Phascogales and Grey-crowned Babblers
Details of any Condition(s) of Consent relating to threatened species management plans should be deferred until such time as further surveys, assessments and consultation have been undertaken.

Conservation Bond
Details of any Condition(s) of Consent relating to a conservation bond should be deferred until such time as further surveys, assessments and consultation have been undertaken.

Rehabilitation Objectives
Details of any Condition(s) of Consent relating to rehabilitation objectives should be deferred until such time as further surveys, assessments and consultation have been undertaken.

Riparian management

51. Undertake a pre-mining assessment of the riparian and geomorphologic condition of the Oaky Creek, Waukivory Creek and Avon River. In addition undertake aquatic macroinvertebrate assessment using the NSW AusRivAS methodology for all streams within and adjacent to the proposed mine area plus suitable reference sites. Surveys are to be repeated annually for the life of the mine.

52. Restore riparian zones within the Rocky Hill project site and maintain to provide water quality improvements and effective riparian buffer.

53. Agriculture use of the rehabilitated areas and Gloucester Resources property associated with use of treated excess saline water is to adopt best practice with continuous improvement measured by way of an environmental management system to ensure the intensive use of the land does not degrade receiving waters.

SEDIMENT AND EROSION MANAGEMENT

54. A Soil and Water Management Plan (SWMP) is to be prepared based on:

- criteria in excess of Blue book requirements in recognition of the location of the Rocky Hill proposal within a sensitive catchment;
- projected storm frequency and intensity changes for the region associated with climate change.

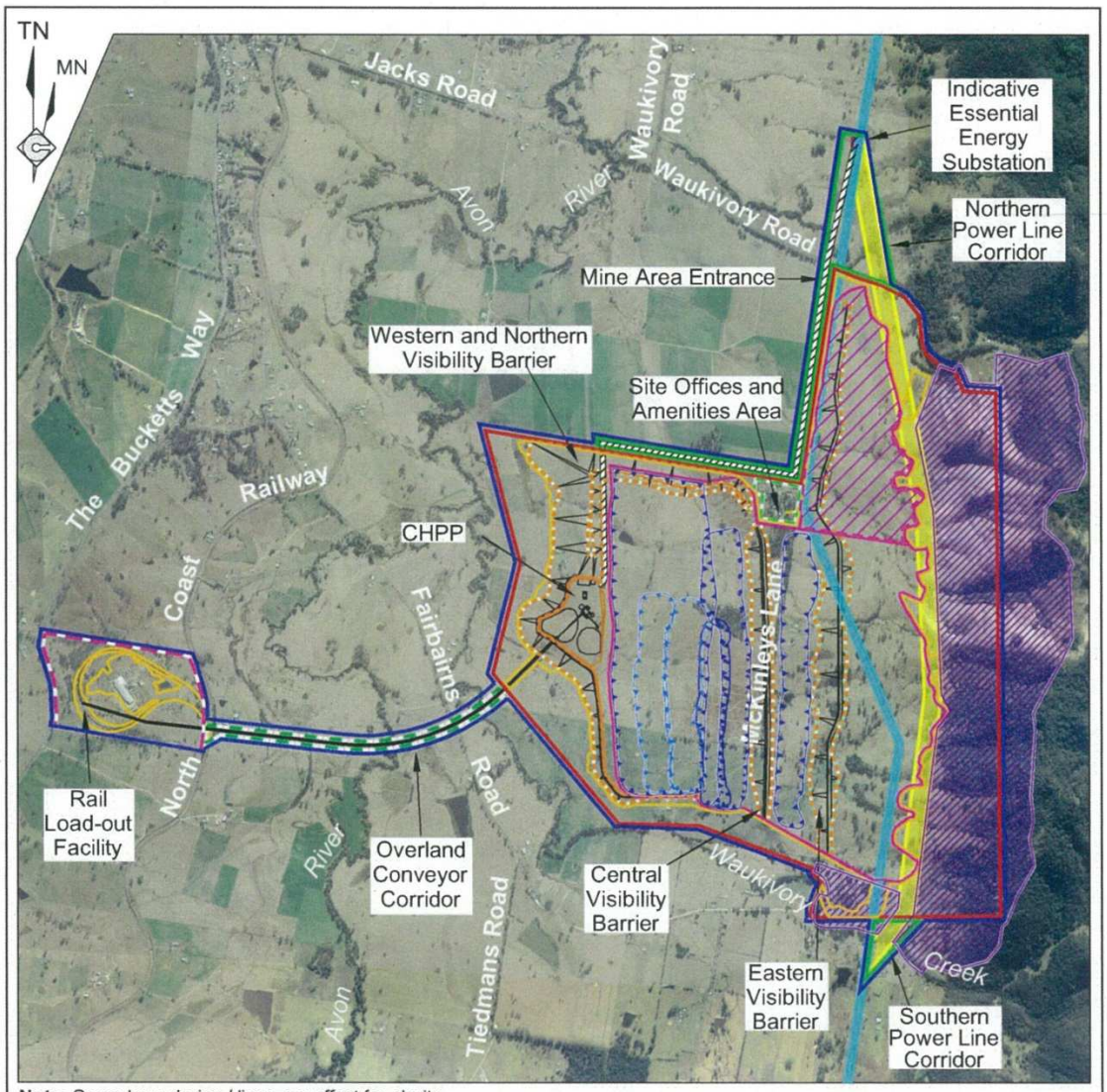
54. The implementation of the SWMP and accompanying Erosion and Sediment Control Plan (ESC) are to be independently audited by a soil conservationist every 6 months for the life of the mine. Audit reports are to be made publically available and the SWMP and ESC revised immediately as required by audit reports.

55. The Erosion and Sediment Control Plan (ESC) must ensure that sediment and erosion structures are inspected and repaired before and after predicted peak rainfall events so that any potential and actual failures are quickly detected.

C. That the Department of Planning and Environment investigate the delineation of buffer areas to development that will be created in the event the Rocky Hill Coal Mine is approved.

ANNEXURES

A: Originally submitted Proposed Site Layout



Note: Some boundaries / lines are offset for clarity

REFERENCE
- Site Boundary
- Mine Area Boundary
- Overland Conveyor Corridor Boundary
- Rail Load-out Facility Boundary
- Power Line Corridor Boundary
- Proposed Open Cut Pit / Sub-pit Boundary
- Proposed Permanent Overburden Emplacement
- Proposed Interim Overburden Emplacement
- Proposed Area of Disturbance within Mine Area / Rail Load-out Area
- Biodiversity Offset Area
- Visibility Barrier
- Existing 132kV Power Line Easement
- Indicative 132kV Power Line Diversion Corridor
- Proposed 11kV Power Line Corridor

SCALE 1:40 000

0.5 0 0.5 1.0 1.5 2.0 km

Base Photograph Source: Geo-spectrum (Australia) Pty Ltd - Date: 29 June 2010

ORIGINAL Figure B
PROPOSED SITE LAYOUT

B: Gloucester Shire Council Mining & Extractive Industries Policy

GLOUCESTER SHIRE COUNCIL MINING AND EXTRACIVE INDUSTRIES POLICY

This policy set out below was adopted by Gloucester Shire Council on 20 February 2014.

The amalgamation proclamation for the amalgamation of the Shires of Gloucester, Great lakes And Greater Taree, in section 19 provided:

"19 Codes, plans, strategies and policies

(1) The codes, plans, strategies and policies are to be, as far as practicable, a composite of the corresponding codes, plans, strategies and policies of the former councils.
(2) This clause ceases to have effect in relation to a code, plan, strategy or policy when the new council adopts a code, plan, strategy or policy that replaces that code, plan, strategy or policy.
(3) This clause does not apply to the extent to which it is inconsistent with any other provision of this Proclamation."

Name of Policy:	**MINING AND EXTRACTIVE INDUSTRIES POLICY**
Date of Adoption by Council:	**20 February 2014**
Last Review Date:	**not yet applicable**
Review Timeframe:	**Every two years or as required**
Next Scheduled Review Date:	**20 February 2016**
Related to Legislation:	**Local government Act (1993)**
Associated Policies/Documents:	**Environment Planning and Assessment Act (1979)** **The International Council of Mining and Metals (ICMM) – 10 Principles** **Gloucester Shire Council – Framework for Protecting and Enhancing Our Community – Future Development Principles: 2013**
Responsible Director:	**Director of Planning and Environment**

Preamble

The Gloucester Valley is a narrow strip of land between two mountain ranges generally running north/south. The landscape has historically been used for agricultural purposes, and Gloucester has evolved as an important district Centre to meet the needs of its rural community. The confined nature of the landscape adds to its scenic qualities, but it means that any impacts from mining get contained and distributed along the valley.

Whilst local mining is, in national terms, relatively small-scale in nature, the historical land use and the landscape itself is also small-scale. Mining activity therefore has the potential to create significant impacts in the local community.

Mining is also a relatively new land use except for very small scale localised extraction along gullies and where coal has outcropped near the surface. Our first significant commercial mine was established near the village of Stratford in 1995. Extensive exploration and increasing new development applications have significantly increased the potential for mining to have an impact in our local community.

The Gloucester Valley landscape has been used for agricultural purposes for a significant period of time, and mining is the newcomer. The area over which mining is occurring, and is proposed to continue to occur, is not remote, but is displacing agricultural activity.

Council is also keen to ensure that there is continuous improvement in mining processes, and that new standards can be continuously applied to existing mining operations. There is much said about new mines performing to *international best practice*. Improvements in techniques for rehabilitation of the landscape; new machinery which can operate at significantly less noise generation levels; and improvements such as the covering of coal storage stockpiles and coal wagons transporting coal, to minimise dust; are examples of the continuous improvement Council would be keen to encourage as mining progresses in the area.

The State Government's Strategic Regional Land-Use Planning approach has certainly encouraged additional mining to occur, but it has failed to address constraints in regard to where mining should not occur. Recent amendments to the mining SEPP in regard to coal seam gas have placed some limitation on gas extraction around the residential settlement, critical industry clusters and strategic agricultural lands. The local community has identified strategically significant parts of the local landscape where it has considered mining should not occur, and Council has established planning controls to protect these environmentally significant lands around the town of Gloucester. This has not been supported or recognised by the State Government, and this has led to significant conflict in our local community. The Government has also failed to address appropriate setbacks to open cut coal mines, whilst it has established setbacks for coal seam gas fields (2 km for new gas fields to residential development – this setback does not apply to the Gloucester approval) and wind turbines (2 km). In light of increasing health concerns regarding open cut coal mines, Council is keen to advocate action by the government in regard to this shortcoming.

Policy statement

This policy specifies;

- Council's expectations in regard to applications for new mines, or expansion of existing mines in the local area;
- Compliance and monitoring requirements of approved mines;
- Specific roles for Council; and
- Community's expectations of mining companies operating in our area.

Background

The issues of coal mining and CSG extraction are key issues within our local

community. They create passionate responses on all sides of the argument. Decisions about future extractive industry activity in the Valley are likely to be the major influence on the future of our local area.

In putting our first Community Strategic Plan together in 2012, Council acknowledged the significance of this issue, where it was noted that Council *" has committed to a thorough investigation of the issues, so that all potential impacts may be considered and comprehensively addressed".* It went on to say that *"Council will continue to act as an advocate for the community to ensure that environmental, social and economic issues are adequately considered within the mining debate".*

Council recognises that extractive industry exploration and development has the potential to deliver benefits to Gloucester Shire, the region, the State and the Nation including; the provision of energy; direct and indirect employment; increased expenditure on goods and services; private sector funding for community development; royalties to the State; and tax revenue streams to government. Council also recognises however that extractive industry competes for a wide range of natural resources of the local area (such as land, air and water), and may have significant detrimental impacts such as;

- making a significant contribution to greenhouse gas emissions;
- impacts on community health, due to noise and dust pollution generated during blasting, loading and transport of mineral products and exposure to heavy metals;
- impacts on local amenity through increased noise, dust, light disturbance to the night sky;
- impacts on groundwater flows due to excavation, subsidence of landform or the interception of aquifers;
- land clearing and the loss of habitat;
- land adjacent to mining projects suffer a loss of value, even to the point of being unsaleable;
- price pressures and impacts on the availability of affordable housing, especially for tenants on fixed incomes;
- impacts on the landscape, with rehabilitation resulting in an artificial rather than natural topography and leading to visual scars, with initial mounds, terminal pits and permanently altered geological structure resulting in possible permanent land-use change;
- result in a severe degradation or loss of agricultural land, and displacement of some agricultural industries;
- lead to loss in other economic sectors, such as agriculture, lifestyle retirement and tourism;
- impacts on the reputation of the town as a delightful and scenic rural town;
- results in other social impacts, such as disempowering of communities, loss of a "sense of place", population growth followed by the decline, and breakdown of social ties and community cohesion.

As well as cumulative environmental impacts, there are substantial economic issues

related to jobs (both within and outside of mining activity), training and housing issues that need to be addressed. The community has expressed a long standing and fundamental concern with the potential impacts on our local water resources as a consequence of all mining activity.

Local impacts include such things as apprentices being trained in local businesses but then attracted to the higher paid jobs in local mines. This also has the corresponding difficulty of other industries being able to afford to engage labour with appropriate skills against the mining industry.

Council has adopted a statement of *Future Development Principles* (Annexure 1) that seek to capture the things that are valued in our community against which future mining proposals will be assessed. A copy of that statement is attached to this document.

Council is committed to *research, monitor and respond, as appropriate to the long-term and cumulative impacts of resource extraction (*as stated in our Operational Plan). We have established an Extractive Industry Working Group which has been given the task to establish a land use strategy focused on extractive resources that will allow us to put forward a best outcome for our valley. That work is intended to be completed by the end of 2014.

Council is also keen to ensure that there are productive partnerships between all stakeholders so that we can endeavour to get the best outcomes for our community.

OBJECTIVES OF THE POLICY

- To ensure that local values relating to lifestyle and quality of life, including public health, amenity, biodiversity, water (both surface and ground), and other economic sectors (such as agriculture and tourism) are adequately considered and protected from the expanded extractive industry activity in the Gloucester Basin.
- To ensure that any existing extractive industry activity is monitored and managed effectively to meet all conditions of development consent, and will be managed in and endeavour to continuously improve operational practices to reduce environmental impacts wherever practicable.
- To ensure mining companies build a commitment to international best practice standards for mining activity in our area, and participate as active citizens in community affairs.

POLICY

1. The Role of Council

The principal role for Council is to advocate on behalf of the Gloucester community. Council is not the determining authority for mining applications, but no other organisation has the interests of the community of Gloucester as it's principal focus.

In regard to current and future proposals for extractive industry, Council will;

a. Assume a leadership role in negotiating with the State government and resource companies to provide outcomes that provide benefit to our community, and individuals within the community where appropriate;
b. Acknowledge that the minerals in the Shire belong to the people of NSW and that exploration for minerals, gas and energy resources will continue;
c. Seek to establish a clear Extractive Industries Strategy to identify opportunities for further development of extractive resources, and areas where extractive resource activity should be excluded from the local area, through amendments to the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industry) 2007;
d. Advocate to the State Government for the establishment of a 5 km setback to open cut coal mines for residential development;
e. Ensure that the impacts on Gloucester Shire Council infrastructure are adequately compensated for in the immediate and future life of that asset;
f. Effectively lobby state and federal government to financially support the infrastructure needed to adequately deal with any additional local extractive industries approved by the State government;
g. Ensure a comprehensive examination of potential impacts on surface and groundwater in the Gloucester Basin is carried out, and demand a *"no net impact"* outcome as a consequence of mining in regard to domestic and irrigation aquifers used in the local community;
h. Seek to identify key natural and environmental assets, and potential risks to those assets, including cumulative impact;
i. Advocate for the establishment of a rigorous risk management assessment of cumulative impacts on biodiversity, water, land and the community as a consequence of extractive industry development;
j. Advocate for effective monitoring, and seek a more active role in the compliance of approved extractive industry operations, with meaningful response to community complaint.
k. Facilitate an open dialogue and discussion within the community of all stakeholders, based on the sharing of accurate knowledge to encourage an informed debate about issues related to mining.

2. Expectations of Mining Companies

Council is keen to ensure that local mining companies operate to international best practice standards in their mining activity. There is concern that international companies can operate to better standards in their own country than what they might do in our local area.

Council expects mining companies operating in our local area to;

a. Operate in accordance with the 10 Principles adopted by the International Council of Mining and Metals (ICMM) which are;
   - *implement and maintain ethical business practices and sound systems of corporate governance;*
   - *integrate sustainable development considerations within the corporate decision-making process;*
   - *uphold fundamental human rights and respect for cultures, customs and values in dealing with employees and others who are affected by our activities;*
   - *implement risk management strategies based on valid data and sound science;*
   - *Seek continued improvement in our health and safety performance;*
   - *contribute to conservation of biodiversity and integrated approaches to land-use planning;*
   - *facilitate and encourage responsible product design, use, reuse, recycling and the disposal of our products;*
   - *contribute to the social, economic and institutional development of the communities in which we operate; and*
   - *implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders.*

   (See an annexure 2 for extended description of these 10 principles)

b. Support individual property rights in regard to unwelcome drilling, exploration and/or extraction activities.
c. Participate with Council and the community in monitoring and compliance review of approved activities with openness, honesty and integrity; to ensure appropriate management practice; compliance with conditions of consent; and improvements in operational performance and activity.
d. Actively engage with the community in addressing issues arising from extractive industry activity and by substantive contributions to enhancement and improvement programs.

POSITION STATEMENT IN REGARD TO EXISTING EXTRACTIVE INDUSTRY ACTIVITIES

Council is keen to ensure that all extractive industry proposals for our local government area are considered fairly and openly. We are committed to negotiating the best outcome for our local community in terms of jobs, improvements to infrastructure and contributions to public improvements; to be measured against the environmental impacts of any proposed development.

Council is keen to work with the management of existing and future mining activities in an endeavour to ensure mining operations gain a social licence from the local community, based on the principles included in this policy statement.

Stratford

The existing mine at Stratford is coming to an end of its current consent, and has lodged an application for extension of the project. Council did not initially oppose this application in recognition of the economic contribution made to the Valley by this mine, but in light of the initial assessment of the application by the Department of Planning and Infrastructure and it's draft conditions of consent, has now resolved to oppose an approval on the basis identified.

Council did ask for amendments to the proposal so that future mining would not come closer to Stratford, would not operate for 24 hours/day and that the landscape would be left in a condition reflective of the pre-mining topography and soil conditions.

AGL CSG approval

Council recognises that conditional consent has been granted for Stage 1 of the Gloucester Gas Field by both the State and Federal governments.

Council is endeavouring to ensure that there is strict compliance with all statutory requirements of the two consents, in light of it's commitment to ensure that the *long term and a cumulative impacts* related to this proposal are clearly understood. Council is keen to ensure that genuine scientific and risk data regarding a number of issues related to CSG extraction are fully considered before consent is granted to move to production activity.

Council is actively involved in the development of a comprehensive understanding of the potential impacts on local water resources of this approved development. The community has been keen to ensure that a Gloucester Basin-wide assessment is carried out in regard to water issues. The Federal Government's Bioregional Assessment of the Gloucester Basin will substantively provide this evaluation. Council is keen to ensure that practices that may propose risk to this community are not pursued until that risk can be properly addressed

Council has also developed a partnership with AGL, so that other detailed issues (flooding of the Gloucester and Avon rivers; produced water management for example) can also be assessed to supplement the work of the Federal Government in their Bioregional Assessment. Council's Water Study Project and the Peer Review of AGL's project specific documentation will enable a comprehensive understanding of potential impacts on existing water assets in light of this proposed development. Council will advocate that no decision be made at either State or Federal level to allow the gas field to move to production before the results of the comprehensive water studies are available.

Council is also keen to negotiate some setback from the approved gasfield to the areas zoned for Large Lot Residential (R5) in the southern parts of the town, and improvements to public infrastructure as a consequence of the development.

Proposed Rocky Hill Coal Mine

Council has established and maintained a long-standing opposition to this proposed mine. This opposition has included documentation of Local Environmental Plans that have zoned the site for environmental conservation purposes in both 2000 and 2010; opposition to the issue of exploration licences over the above-mentioned areas; and opposition to the current development application.

In preparing its current Community Strategic Plan Council surveyed the local community to establish it's preparedness for resources to be allocated to the opposition of this mine. The results of that survey identified that 78% of the local community agreed with Council taking this action.

Council has received independent economic advice that the project is not economically viable and will have only marginal economic benefits in our community. Any potential benefits need to be assessed against potential significant negative impacts on other economic sectors.

In a comprehensive report Council has identified 53 grounds for refusal of the application and has forwarded to this submission to the Department for their consideration in their assessment of this application. A copy of Council's submission is available on Council's web page and in the library.

Amended Project Summary

Project Component	Summary of Component
Mining Method	Open cut mining using convention drill and blast, load and haul methods within three contiguous open cut pits. Blast frequency would depend on the operational requirements of the work area, with up to approximately 120 blasts initiated in any one year and a likely maximum of 4 blasts per week.
The Site and Disturbance Areas	The Site covers approximately 832ha, comprising the following three key components. • Mine Area – an area of approximately 764ha incorporating 497ha of ground disturbance for mining and ancillary activities. • Power Line Corridors – an area of approximately 47ha incorporating a 5km section of re-located 132kV power line and a new 1.6km low voltage power line. • Private Haul Road Corridor – an area of approximately 21ha for a haul road approximately 4.4km in length and involving a disturbance area of up to approximately 13.8ha. The amended Project includes the removal of the previously proposed overland conveyor corridor (approximately 9.4ha), the rail load-out facility (approximately 47.8ha) and the Coal Handling and Processing Plant.
Mine Area Components and Infrastructure	The approximate 497ha area of disturbance would include the following components. • Three contiguous open cut pits - approximately 142ha. • A western and northern amenity barrier – approximately 95ha. • A permanent overburden emplacement - approximately 185ha. • An interim overburden emplacement - approximately 60ha. • General mine-related infrastructure including: – an administration area incorporating site offices, amenities, workshop, water treatment plant and ancillary facilities; – a run-of-mine (ROM) pad incorporating a breaker station, conveyors and a nominal 500t capacity sized coal bin; and – the Mine Area Access Road.
Resource	Approximately 21 million tonnes of ROM coal would be recovered from six coal seams, namely the Avon, Bowen Road, Cloverdale, Glenview, Roseville and various Marker Coal Seams to a depth of approximately 220m below ground level.
Annual Production	ROM coal production would gradually increase over the life of the Mine to a scheduled maximum of 2.0 million tonnes per year produced during Years 10 to 14 of the mine life.
Mine Life	Approximately 21 years covering the site establishment and construction stage (10 months), mining operations (16 years) and mine closure (3 years).
Processing	Preliminary processing involving sizing of ROM coal using a rotary breaker would occur on site, prior to transportation to the Stratford Mining Complex for preparation (washing), stockpiling and despatch by train to the Port of Newcastle.
Products	High fluidity coking coal – approximately 12.5 million tonnes over the mine life. Thermal coal – approximately 0.5 million tonnes over the mine life
Management of Overburden	Approximately 126 million bank cubic metres (bcm) of overburden would be removed and used to construct amenity barriers or would be emplaced in permanent and interim overburden emplacements. Overburden placed in the western and northern amenity barrier and interim overburden emplacement would ultimately be used to backfill the final void once coal extraction operations cease in the Main Pit.

Project Component	Summary of Component
Management of Breaker Rejects	Breaker rejects would comprise approximately 10% of ROM coal, equating to approximately 2.1 million tonnes over the mine life. Breaker rejects would be regularly collected and blended with overburden material and placed at least 5m from the final batters and upper surface of the final landform. When emplaced, the rejects would amount to approximately 0.7% of emplaced overburden (by weight).
Sized Coal Transport	Transportation of sized coal from the sized coal bin to the Stratford Mining Complex would occur via a private haul road. 4.4km of the road lies within the Site boundary of the amended Project. An additional 4.8km of haul road lies within the Stratford Mining Complex. Sized coal would be transported in road registered road multi-combination trucks with two triaxle trailers and a nominal carrying capacity of 60t.
Water Management	Water required for on-site operations (mainly dust suppression) would be sourced from the groundwater intercepted in the open cut pits, sediment dams and the proposed water treatment plant. Water storage and management within the Mine Area would be separated into three categories: • Clean Water – collected from undisturbed areas in dams (for discharge) or diverted around the Mine Area via the proposed diversion channels on the eastern boundary of the Mine Area. • Dirty Water – all potentially sediment-laden water that would be collected in sediment dams from disturbed areas beyond the open cut pits within the Mine Area. • Mine Water – all saline groundwater and water considered to be potentially contaminated through contact with minerals (e.g. salts) would be retained and used on site or treated in the on-site water treatment plant and used on Mine Area and the adjoining land to irrigate pasture and fodder crops.
Workforce	Approximately 60 personnel during construction and peaking at approximately 110 personnel during operations.
Final Landform	The final landform would be very similar in form and drainage pattern to the pre-mining landform and incorporate the following vegetated areas. • Pasture with isolated tree lots – approximately 287ha. • Open woodland - approximately 185ha. • Constructed native vegetation/fauna corridors – approximately 25ha. Undisturbed areas within the Mine Area boundary would remain in their pre-mining condition.
Biodiversity Offset Area	A Biodiversity Offset Area covering approximately 267ha would be secured for the purposes of biodiversity conservation. The proposed Biodiversity Offset Area is located to the east of and adjacent to the Mine Area.
Hours of Operation	Mining (Years 1 to 3) – 7:00am – 6:00pm, Monday – Saturday Mining (Year 4 onwards) – 7:00am – 10:00pm, Monday – Saturday Breaker Station Operations – 7:00am – 6:00pm, Monday – Saturday Sized ROM Coal Despatch (via Private Haul Road) – 7:00am – 6:00pm, Monday – Saturday Maintenance – 7:00am – 10:00pm Monday – Saturday; 8:00am – 10:00pm, Sunday; All other hours, Monday – Sunday (if activities are not audible at privately-owned residences). Breaker station and sized ROM coal despatch operations would only occur on a Saturday in the event protracted operational time is lost during week days. No operations would occur on public holidays.
Capital Investment Value	Approximately A$90.3 million ($2016).

Environmental Issue	Summary of Key Mitigation Measures and Impacts
Noise	• Management of operational noise impacts would include: – the use of interim or permanent amenity barriers; – restricted operations of an evening and under specific meteorological conditions; – use of sound suppressed equipment; – use of predictive meteorological forecasting; – a regime of real-time noise monitoring; and – adaptive site management. • The road construction activities on and near McKinleys Lane would cause daytime noise exceedances for approximately 1 month at two residences near McKinleys Lane and road upgrading activities along Jacks Road would cause daytime noise exceedances for approximately 1 week at the adjoining rural-residential estates. All other construction activities would comply with the required noise levels. • During mining operations, the project specific noise level would be satisfied at all residences and receivers in the vicinity of the Mine Area with the exception of three of the closest privately-owned residences where negligible exceedances of 1 to 2dB(A) are predicted to occur at two residences and a moderate exceedance of 4 to 5dB(A) at one residence, mainly during Years 4 to 7, when out-of-pit overburden emplacement activities are underway.
Blasting and Vibration	• Prior to the commencement of blasting, the Applicant would commission structural surveys of residences within a 2km radius of the open cut pits subject to access being provided by the landowner/occupier. • Each blast would be designed to ensure compliance with the relevant blasting criteria at all privately-owned residences. All residents within 2km of the open cut pits would be notified of the proposed blasting schedules subject to an agreed method of notification. • It is predicted that there would be no exceedances of any blast criteria at any privately-owned residence of public infrastructure. • All blasts would be monitored to enable continuous refinement of blasting practices and the development and updating of blast design and operating procedures based on blast monitoring results.
Air Quality	• No exceedances are predicted for the applicable annual air quality criteria for TSP, PM_{10}, $PM_{2.5}$ or deposited dust and maximum 24 hour average PM_{10} and $PM_{2.5}$ for project only emissions. • No exceedances are predicted for cumulative 1-hour and annual NO_2 levels from blasting and diesel combustion. • Best practice management would be implemented, including utilisation of the predictive meteorological forecasting system and real-time air quality monitoring enabling adaptive management to further reduce the risk of an exceedance.
Visibility	• The key visual controls include one long-term and two interim amenity barriers designed to shield operational activities for the bulk of the life of the amended Project. A range of physical lighting controls, together with restricted operations during the evening would also limit visual impacts after dusk. • The final landform has been designed to create drainage features and slopes comparable with the existing landform. This approach would result in a final landform which would be indistinguishable from the surrounding landscape.

Environmental Issue	Summary of Key Mitigation Measures and Impacts
Groundwater	• There would not be any substantial reduction in availability to the shallow groundwater system and no measurable impact on flows within Waukivory Creek or the Avon River. • The Applicant holds or there are likely to be sufficient water access licences and entitlements available to account for the groundwater inflows from all sources. • No surrounding groundwater users or groundwater dependent ecosystems would be impacted by the amended Project. • Groundwater levels would recover within approximately 10 years after the cessation of coal extraction. • Groundwater monitoring would continue using a combination of the existing groundwater monitoring network and additional and/or replacement bores.
Surface Water	• With the implementation of all proposed surface water management measures, it is assessed that surface water would be appropriately managed with negligible impacts on the surrounding environment, runoff levels, quality downstream or surface water users. • Impacts of the western and northern amenity barrier and the bridge over Waukivory Creek on flood flows and behaviour would be negligible.
Soils and Land Capability	• Soils within the Mine Area disturbance limit are classified as Land and Soil Capability Classes 4 and 5 land (land with moderate to severe limitations). • Soils within the private haul road are predominantly Class 4 land (moderate to severe limitations) with smaller areas of LSC Class 6 (very high limitations) and LSC Class 3 land (moderate limitations). • Subsoil within private haul road and from Soil Mapping Unit 2 would not be used in rehabilitation due to its physical and chemical limitations. • With the implementation of the proposed soil stripping and storage measures, adequate soil resources would be available for successful rehabilitation and return of the land to the pre-mining Land and Soil Capability Classes.
Traffic and Transportation	• Assessed intersections would continue to operate well below their capacity with no significant impacts, • Road upgrades are proposed including: – upgrading of Jacks Road/The Bucketts Way, Jacks Road/Waukivory Road and Waukivory Road/McKinleys Lane intersections; – upgrading the road pavement on Jacks Road and Waukivory Road (east of Jacks Road) and replacement of the single lane Avon River bridge on Jacks Road with a dual lane structure; and – a range of other minor upgrade works, line markings, signage etc. • Payment of contributions for road maintenance, including for The Bucketts Way. • The road upgrades and replacement of the Jacks Road bridge would improve long term access for all motorists and reduce the costs to Council to maintain and repair this existing infrastructure.
Aboriginal Cultural Heritage	• The unavoidable impact to nine sites would be managed through salvage and relocation of the artefacts by a suitably qualified archaeologist in conjunction with Registered Aboriginal Parties with a direct connection to Worimi Country. • Additional sub-surface investigations would occur at three of the sites while monitoring of turf stripping between Waukivory Creek and Fairbairns Road would be undertaken in conjunction with Registered Aboriginal Parties with an association to Worimi Country. • An educational program would be undertaken during Site induction which would aim to inform site personnel of their responsibilities regarding Aboriginal Cultural Heritage and guide the identification and management of unexpected finds.

Environmental Issue	Summary of Key Mitigation Measures and Impacts
Historic Heritage	• Historic heritage impacts are not anticipated, however the Applicant would observe the demolition and removal of the "Aminya" cottage and removal of turf 30m around the cottage to record any items of historical significance. • Views of the amended Project are not considered to be heritage views, nor is the landscape of the Stroud-Gloucester Valley considered to be a heritage landscape.
Terrestrial Ecology	• Residual impacts to terrestrial ecology relate principally to the removal of 51.8ha of native vegetation and associated potential habitat. Given the scattered nature of some remnant native vegetation, the effective clearing area would be 41.5ha. • Biodiversity within the Site would be managed through a comprehensive Biodiversity Management Plan while the establishment of a 267ha offset area would offset the unavoidable removal of native vegetation and potential habitat.
Aquatic Ecology	• Potential impacts to aquatic ecosystems relate principally to the potential changes in water flow resulting from capture of water on site and removal of base flow to the Avon River and Waukivory Creek. These impacts have been assessed and are not expected to significantly impact in-stream ecology. • The proposed replacement of bridge crossings of the Avon River and Waukivory Creek would provide a benefit to aquatic ecosystems. • Monitoring of groundwater has indicated that it is unlikely that substantial numbers of stygofauna are present. Management of aquatic ecology would occur principally through monitoring.
Bush Fire Hazard	• Bush fire hazard throughout the Site is classified as low. However, a series of safeguards and controls would be implemented including the development of a Bush Fire Management Plan in consultation with the Rural Fire Service.
Agricultural Lands and Enterprises	• Continued use of GRL land for agricultural activities through lease agreements, for example, the agreement with the Speldon Partnership and their land improvements undertaken to date have substantially increased milk production and direct and indirect employment. These increases more than offset the temporary loss of land during the proposed mining and would be further offset by the proposed ongoing land management measures. • No significant impacts are expected upon other surrounding agricultural land or enterprises. • Overall, it is assessed that the amended Project would result in a long-term positive net benefit on surrounding agricultural resources and enterprises.
Social Impact	• Social risks associated with the capacity of existing social infrastructure and community facilities would be mitigated through a Community Grants Program established to assist the Gloucester community to better adapt to population changes. • A series of 22 recommendations, that were the outcomes of comprehensive social research presented by Key Insights Pty Ltd, to benefit and mitigate potential impacts to the local community would be adopted.
Economic Impact	• A cost benefit analysis has estimated the net benefits and costs to the NSW community resulting from the amended Project and determined that a net benefit of approximately $89.5 million (NPV) would be expected. • The provision of an average of 97 full time equivalent jobs during operations, associated wage payments and non-labour spending of approximately $65 million annually over the life of the amended Project represent predominantly local benefits. • Environmental, social and transport effects would occur at a national, State and local level, and have been estimated to represent a cost of approximately $3.3 million (NPV) at a State level and $23,000 per year (NPV) at a local level over the life of the amended Project. Other external costs have been assessed to be negligible or difficult to quantify and, would need to exceed the quantified costs by a factor of approximately 20 and hence are not expected to exceed the identified benefits.

Management and Mitigation and Contingency Measures

This report records 22 recommendations to enhance the potential positive impacts and mitigate potential negative impacts if the amended Project were to be approved. It is acknowledged that some of these recommendations have been announced through a set of

[10] Economic Assessment of Amended Rocky Hill Coal Project. Deloitte Access Economics June 2016.

press releases by the Applicant during the preparation of the 2013 EIS and that ongoing engagement with the local community has occurred through until the present time. This report concludes that, with the implementation of the recommendations, there would be a net socio-economic benefit associated with the amended Project.

Communication and Engagement Strategies

1. Community Consultative Committee (CCC)

The existing Community Consultation Committee was established for GRL's exploration activities within its three ELs including EL 6523 which incorporates the majority of the Rocky Hill Coal Project Mine Area. In the absence of a specific CCC as would be required under development consent, the Exploration CCC has become a de-facto Project CCC and mechanism for information dissemination. While members are dedicated, mostly they have no clear links and reporting pathways to the community, despite this being part of their Charter. (Current CCC members have advised that this is being addressed and the membership is about to expand). CCC minutes are posted on the amended Project website as are CCC membership and contact details. The amended Project would benefit from a project-specific CCC with a clear Charter and representative structure that reflects the broader community.

The CCC is the corner stone of community engagement and should be the starting point for open communication between GRL, the community, Council and other stakeholders.

Recommendation 1 Establish a Rocky Hill Coal Project Community Consultative Committee.

The CCC should be established and be operated in line with Planning NSW guidelines. (http://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/~/media/D5076EC854E54D1EB4BEF4855FACD949.ashx)

Project CCC membership should comprise:

- An independent chairperson[11]
- Representatives (3-5) of the local community and other stakeholders: Health Sector (Local Hospital Management), Community Sector (with links to Housing and Employment Training, e.g. the Gloucester Neighbourhood Group), Business Sector (e.g. Chamber of Commerce), Near Neighbour, Environmental Group and Indigenous representatives.
- One representative of Council
- Two or three representatives of GRL, including the person with direct managerial responsibility for environmental management at the amended Project.

The new CCC should commence with a Training and Corporate Governance workshop that details the objectives of the CCC, how the CCC will be a conduit between the community and the company, member responsibilities (both community and company representatives), reporting mechanisms and annual evaluation of CCC performance against agreed objectives.

[11] Note an independent Chair has been appointed at the start of 2016 and many of the sub-recommendations here are in progress)

2. An Accessible Rocky Hill Coal Project Shop Front / Office

The broader community would require easy access to information about the Rocky Hill Coal Project. While a number of methods should be utilised such as newspaper features and newsletters, the community would benefit from being able to casually select information at a time that suits them. This is a community that is generally feeling over consulted and yet there are some groups of people who feel they do not have enough information. A shop front is a passive communication mechanism that allows community members to decide when and how they engage with GRL. It would also make a tangible contribution to the Gloucester business centre if it involved leasing one of the existing vacant shops.

Recommendation 2 Establish a Rocky Hill Coal Project Shop Front in the centre of Gloucester.

Functions to be delivered through the Shop Front could include all or some of:

- Presentation of EIS studies in multi-media formats
- Reporting on environmental monitoring
- Availability of newsletters and fact sheets
- CCC information / contact mechanism
- Community feed-back / question forms / complaints
- Recruitment information
- Training information
- Community Grants Information and Applications
- School Project packages

3. Stakeholder Engagement Plan

There are a range of stakeholders who require varying levels of contact on the amended Project. GRL has initiated a visiting program, has offered to meet with individuals on request and meets with key stakeholders. Recommendations 1 and 2 above are the key components of the Stakeholder Engagement Plan, which also includes a range of other strategies. A structured commitment to including everyone in communications according to their need reduces stress in the community and improves relationships and community building.

Recommendation 3 Formalise existing strategies in a detailed Stakeholder Engagement Plan.

This Stakeholder Engagement Plan has been developed in draft form as part of this SIA and GRL management has been actively communicating with stakeholders during the development of the amended Project. The formalised Plan should include:

- full list of stakeholders and contact details
- appropriate forms of communication including methods and frequency;
- a risk assessment of engagement; and
- evaluation strategies of the effectiveness of engagement.

Tools that support the Stakeholder Engagement Plan (and are already in use as warranted) include the following.

- Newsletters
- Fact Sheets
- Media Releases
- The Rocky Hill Coal Project Website (http://www.rockyhillproject.com.au/) and Exploration website (http://grlmines.com.au/)

4. Community Grants Program

As identified above, GRL has committed to a Community Grants Program that is generous by industry standards. GRL has committed to a Community Grants Program (50 cents per tonne of coal sold)[12]. The program would allow the community to reap benefits from the presence of the amended Project beyond employment, training, economic growth and infrastructure improvements. There is an opportunity to sponsor a range of community projects that would enhance the amenity of the town, support local cultural and sporting events, attract tourism and business and provide important social infrastructure.

Recommendation 4 Establish a Trust (or contribute to an existing Trust) to administer the Funds Provided under the Community Grants Program with clearly defined application and eligibility criteria.

The criteria for the Community Grants Fund should prioritise key potential impact areas and key community concerns related to mining, namely:

- health (health infrastructure and programs and healthy lifestyle activities such as sport);
- housing (particularly alleviating housing stress for low income earners);
- young people, including Indigenous youth (programs aimed at development);
- local amenity (maintaining character of the township); and
- community building and community events (particularly focused on business and tourism development).

The Board of Trustees or Community Trust could comprise the following.

- Highly respected local leader as chairperson.
- Business person with recognised commercial acumen.
- Community sector person with recognised expertise in community infrastructure.
- Health sector person.
- Mayor or appointed Councillor.
- GRL representative.
- GRL secretarial support.

[12] http://www.rockyhillproject.com.au/2012/03/media-release-grl-announces-generous-community-grants-program/

The role of the Community Trust would be to:

- set clear guidelines and priorities for submissions for funding;
- receive community proposals and assess them for viability, sustainability and compliance with the specified guidelines and parameters;
- allocate grants according to documented priorities and available budget; and
- receive project evaluations and acquit funds annually.

5. Employment Strategies

The employment associated with the operation of the amended Project would be of maximum benefit to the Gloucester community if a large proportion of employees settle in Gloucester or if employment opportunities are taken up by local people, particularly local school leavers. It is important to minimise the number of employees who travel to and from the coast, Newcastle or even further afield to work at the amended Project. Travelling to and from shifts has serious OH&S implications and reduces the contribution employees make in terms of community participation and in dollars spent locally.

A social risk associated with targeting local employees is that existing businesses and farms will potentially lose workers to the mining industry as they cannot compete on wages. This is a pre-existing issue for Gloucester with local businesses already having reported the movement of staff to existing local mines and mines outside the Gloucester area.

Given that employing locals has risks and benefits the following recommendations need to occur concurrently.

Recommendation 5	**Set a target of 50% of employees living locally (within the LGA and surrounding area) in the first two years with a longer term (end of year 3) target of 75%.**
Recommendation 6	**Conduct joint recruitment operations with existing organisations to attract families to live in Gloucester.**

Local organisations have identified that they have difficulty attracting qualified staff. Joint recruitment programs could attract employees with partners who are, for example, health workers. Offering packages where two people could be employed in Gloucester increases the chances of attracting more families to the area. The local hospital is one organisation that has indicated that they would be interested in joint recruiting.

Recommendation 7	**Investigate an incentive package for employees to relocate to Gloucester.**

Incentive packages for relocation should include:

- Financial assistance to meet the costs of relocation.
- Administrative assistance in finding accommodation.
- Provision of information about schools, sporting clubs and other community infrastructure.

Recommendation 8 Actively promote job opportunities to local school leavers through school visits and information packages.

It will be of benefit to the amended Project and to the local schools for a relationship to be built with the education community. The exodus of young people from Gloucester to other areas can be partially addressed through sustainable employment on the amended Project or on GRL's agricultural properties.

Recommendation 9 Develop an Indigenous Employment Strategy to target local Indigenous people.

Local Indigenous people are an already identified "at risk" group in the local community. In partnership with the Gloucester Neighbourhood Group, GRL could develop a project that takes existing unemployed people from pre-employment through to project work and full employment on the amended Project.

Recommendation 10 Implement a preferred supplier policy that utilises local suppliers as far as possible.

In the tendering process for all contracts, assign a weighting to businesses that have a presence within the Gloucester LGA.

Recommendation 11 Preferentially contract with suppliers who employ local people.

In the tendering process assign a weighting (slightly less than for local businesses) to businesses from outside the Gloucester Shire who employ Gloucester residents.

Recommendation 12 Investigate partnering with other stakeholders to provide relocation incentives to suppliers prepared to establish their businesses in Gloucester and employ local people.

Work with Council, the business sector (including other resources companies) and groups such as Advance Gloucester to identify opportunities to attract new businesses to the Shire and incentivise them to relocate. This would be part of a broader economic development strategy for the area and would require a number of contributors to achieve this recommendation.

Recommendation 13 Investigate the use of a local voucher system for rewards and incentives for employees.

It is of benefit to the local businesses to have people working in the Gloucester LGA spending locally. Any rewards and incentives for employees should be offered in the form of local vouchers as far as possible (e.g. shopping vouchers, dinner vouchers, accommodation, etc.).

Recommendation 14 Participate in the Chamber of Commerce and other business and agricultural networks to monitor flow of employees from local commerce into mining.

It is difficult to stop employees from targeting jobs that provide higher wages or more career opportunities. It would be a serious infringement of the rights of individuals to attempt to restrict them in this way. Losing qualified staff to other businesses, particularly mining, is an existing issue from time to time depending on the status of the resources sector, in most places in Australia, including Gloucester. However, by connecting regularly with the business and agricultural communities, GRL can monitor the local situation and look for opportunities to support local businesses.

Recommendation 15 Plan joint training and employment strategies to assist suppliers retain local staff.

Joint recruitment strategies, shared training and joint participation in business promotion events can assist in staff retention for employers. These strategies should be explored on a case by case basis over time with suppliers to the amended Project and other Gloucester businesses.

6. Education and Training

Enhancement of education and training opportunities in Gloucester could be one of the largest social benefits associated with the amended Project. GRL has already publicly made significant education and training commitments that will occur in addition to Community Grants Program[13]. These are to:

- Sponsor up to 3 tertiary education scholarships annually in fields such as mining, engineering, agriculture and environmental science;
- Provide trade apprenticeships for local youth at the Rocky Hill Coal Project;
- Provide competency training and certification on mining-related equipment to assist local men and women gain employment in mining or other related fields; and
- Provide local training and employment for local people through the Applicant's farming enterprises or farming enterprises on the Applicant's land.

Recommendation 16 Implement tertiary education scholarships, trade apprenticeships and training programs as per commitments.

7. Housing

Participation in local housing initiatives may mitigate the potential stress on the housing market associated with any influx of GRL employees. Particular issues with near neighbours will be dealt with through private consultations with landowners and potentially mitigation activities or voluntary acquisition.

In order to attract employees to live locally, there will have to be an availability of housing/land for both sale and rent. While growth in the housing market will be demand driven, there is also likely to be increased pressure on those already experiencing housing stress.

GRL has committed to a Community Grants Program (50 cents per tonne of coal sold)[14] and it may be appropriate to direct some of that funding towards community housing projects.

Recommendation 17 Consider projects that address housing stress for local people as one of the priority areas for the Community Grants Program.

GRL should take expert advice from local organisations such as the Neighbourhood Group and integrate with Council initiatives to partly fund or sponsor housing projects that would alleviate housing stress for low income earners.

[13] http://www.rockyhillproject.com.au/2012/03/media-release-grl-announces-generous-community-grants-program/
[14] http://www.rockyhillproject.com.au/2012/03/media-release-grl-announces-generous-community-grants-program/

Recommendation 18 Initiate the development of a data base of local rentals including rooms and board to promote to employees.

This recommendation may be contracted out to a local real estate agent or GRL may choose to appoint a Housing Officer to implement this recommendation.

Recommendation 19 Explore options for temporary and short term accommodation for employees not relocating full time to Gloucester.

If employees do not live locally, the next best option is that they are temporarily accommodated in the area over the days that they work. This means they will be spending some money locally and they will not be travelling long distances on The Bucketts Way every day. Some possibilities warranting consideration would include:

- the purchase of some houses in near-by estates to establish boarding-style shared accommodation;
- long term leases of near-by B&Bs;
- long term leases at local caravan parks;
- boarding arrangements with local people; and
- innovative approaches to short term accommodation and approvals for leasing from local people.

8. Health

The amended Project would meet Australian Standards in terms of emissions and environmental impacts. It would also have to meet rigorous workplace standards in regards to worker safety and health. However, as health, including mental health, has been raised as a concern by some members of the community and as the research has identified existing gaps in health infrastructure and equipment, it would be important for GRL to apply some funding to the local health sector. GRL should also pay attention to the outcomes of the HNEAHS study and its monitoring of health impacts and respond accordingly. It is noted that GRL has already made the following public commitment (outside the Community Grants program) to:

- Assist the provision of enhanced medical services and facilities to the local area. The details of this assistance package will be determined in consultation with local health professionals[15];

Recommendation 20 Nominate projects that address healthy lifestyles for local people as one of the priority areas for the Community Grants Program.

GRL should take expert advice from local health organisations and integrate with NSW Health initiatives to partly fund or sponsor health programs that will address community health issues. These projects may be undertaken jointly with other mines and businesses in the area.

[15] http://www.rockyhillproject.com.au/2012/03/media-release-grl-announces-generous-community-grants-program/

Recommendation 21 Monitor the HNEAHS Study in the Upper Hunter Region and respond accordingly.

9. Ongoing Agriculture on the Mining Lease

Ongoing agricultural use of the land is important to local people both during and post mine operations. The existing partnership with Speldon and lease arrangements with other farmers that enables dairy farming and other agricultural operations to continue on GRL's landholding is to be applauded and every effort should be made to ensure continuity of agribusiness for the life of the mine and beyond.

Recommendation 22 Develop a pastoral plan for GRL's landholdings, including the mining lease area, in consultation with local farmers.

E: Senior Ecologist's Comments

Memo to: **Wayne Burgess**
MidCoast Council

Our Reference: MP - SSD - 5156 - Rocky Hill
Your Reference:

Contact: Mr Mat Bell
Telephone: 6591 7243

30 September 2016

Dear Mr Burgess,

Re: Comments to the Amended Rocky Hill Coal Project, Gloucester (MP - SSD - 5156 - Rocky Hill)

Summary

This memo provides comment to the Amended Rocky Hill Coal Project in relation to biodiversity issues. It has been prepared following a review of relevant exhibition and published documents, site inspections and phone communication with the relevant OEH officer.

This submission has identified and raises issues with nine (9) separate matters associated with the proposal, concerning:

- The currency and adequacy of some of the flora and fauna field surveys
- The vegetation community description and mapping used in the Assessment
- The impacts to threatened fauna species (Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler)
- The inadequate offsetting of residual biodiversity impacts
- Ecological considerations of the Gloucester Local Environmental Plan 2010
- McKinleys Lane significant roadside area
- Aquatic assessment and catchment health and function
- Ecological assessment of works to widen Jacks Road and Waukivory Road
- Cumulative impacts and the strategic ecological context

It is my opinion that some issues can be addressed by Conditions in a positive determination of the Application. However, there are some critical and instructive issues that mandates, in my opinion, that the Application should not be positively determined at this time as additional biodiversity investigations and assessments are required to be prepared, documented and reviewed. This can be part of a Response to Submissions process and should include proactive further consultation with relevant agency staff, including MidCoast Council.

This Submission

This memo seeks to provide comment to the Amended Rocky Hill Coal Project in relation to biodiversity issues.

This memo has been prepared by MidCoast Council's Senior Ecologist. It has been prepared on the basis of a review of the information provided in:

- Biosys Pty Ltd. 2016, *Terrestrial biodiversity assessment.* Volume 4, Part 7 of the Specialist Consultant Studies Compendium for the Amended Rocky Hill Coal Project Development Application No. SSD 5156
- Cardno Ecology Lab. 2016, *Aquatic ecology assessment.* Volume 4, Part 8 of the Specialist Consultant Studies Compendium for the Amended Rocky Hill Coal Project Development Application No. SSD 5156

I have attended the land of the proposed Rocky Hill Coal Project. The site inspection was guided by Gloucester Resources Ltd personnel and occurred on the 25th August 2016. I also inspected the roadside habitats of Fairbairns Road, Jacks Road, Waukivory Road and McKinleys Lane on the 29th September 2016.

I had a telephone discussion with the NSW Office of Environment and Heritage officer, Mr Steve Lewer, on the 20th September 2016 in relation to biodiversity issues and the amended Rocky Hill Coal Project. This discussion assisted the drafting of this submission.

I have also read through the submission prepared by Gloucester Shire Council in response to the original Rocky Hill Coal Project EIS.

This memo provides a merits review of the proposal in relation to biodiversity issues. It seeks to provide comment on:

- The appropriateness and reasonableness of the ecological assessment submitted in support of the proposed development
- The appropriateness and reasonableness of the proposed development in relation to biodiversity impacts (including threatened biodiversity, connectivity, offsets, ecosystem services functions and cumulative impacts)
- Any conditions of consent I believe should be adopted in any positive determination of the application

I have previously provided ecological comments to the exhibition of the original Rocky Hill Coal Project proposal. These comments were set-out in a memo to the Department of Planning and Infrastructure, dated 25 October 2013. These comments were based on a review of information contained within a Terrestrial Biodiversity Assessment prepared by Ecotone Ecological Consultants (2013).

In 2014, Gloucester Resources Ltd (through R. W. Corkery & Co) prepared a *Response to Submissions* report. I have considered the *2014 Response to Submissions* report in this memo.

The Proposal

From information published on the Department of Planning and Environment website and information contained within the Environmental Impact Statement for the Amended Rocky Hill Coal Project, the proposal involves:

- The development and operation of a new open-cut coal mine to produce up to 2 million tonnes of run-of-mine (ROM) coal per year for up to 21 years
- The construction and operation of a 80,000-tonne capacity ROM pad, rotary breaker and loading facility for 60t nominal capacity haul trucks
- The construction and operation of a private coal haul road to link the Rocky Hill Coal Project with the Stratford Coal Complex. This haul road crosses Waukivory Creek.
- The re-location of an existing 132kV power line
- The progressive and final rehabilitation of the site to a mixture of pasture, open woodland and vegetation belt/ fauna corridors
- The establishment and management of a 267-hectare biodiversity offset area
- The continued facilitation of agricultural enterprises on the lands owned by the Applicant outside the development site via lease agreements. This includes dairy cattle, beef cattle and fodder production enterprises

The previously exhibited Rocky Hill Coal Project has been modified by the deletion of on-site coal handling and preparation infrastructure and coal loading infrastructure. The amended proposal will not be operated at night and will not be operated during the evening for the first 3-years of approved operations.

No threatened flora species have been detected on the site.

Eleven (11) threatened fauna species have now been detected on the Site:

- Spotted Harrier
- Wompoo fruit-dove
- Grey-crowned Babbler
- Brush-tailed Phascogale (anecdotal evidence)
- Squirrel Glider
- Yellow-bellied Sheathtail-bat
- Little Bentwing-bat
- Eastern Bentwing-bat
- Southern Myotis
- Eastern Freetail-bat
- Grey-headed Flying-fox

The Terrestrial Biodiversity Assessment predicts that the proposal would have a residual impact on 51.8-hectares of native vegetation, comprising:

- 46.9-hectares of Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland (of low to moderate/ good condition)
- 0.7-hectares of River Oak/ Cabbage Gum/ Broad-leaved Apple Riparian Forest

- 4.2-hectares of Giant Stinging Tree/ Fig Rainforest Gully (EEC)

Discussion

This critical review and assessment has identified a number of biodiversity issues associated with the proposal and its' supporting information. These are discussed below:

Issue 1. The Currency and Adequacy of some of the Field Surveys

Information provided by the EPA (02/04/2012) in relation to "*relevant additional matters*" for the Director-General's Requirements clearly notes that "*recent surveys and assessments*" can be used in the biodiversity assessment field survey. However, the EPA defines "*recent*" as "*less than five years old*".

Flora field surveys on which the Terrestrial Biodiversity Assessment relies (and other than the private haul road investigations) were undertaken during July 2010, March 2011, August 2011 and May 2012. This included plots and transects associated with the application of the Biobanking Assessment Methodology. The fauna field surveys were undertaken in April 2011, October 2011 and January 2012

The July 2010, March 2011 and August 2011 flora surveys and the April 2011 fauna surveys all fall outside of the five-year currency period of the EPA for field surveys.

The material significance of this (ie. whether updated flora and fauna field surveys are required prior to any positive determination) needs to be determined by the NSW Department of Planning and Environment with consultation from the NSW Office of Environment and Heritage.

It might be reasonably considered that the landscape of the proposed development has not likely changed significantly since the original surveys and that the field surveys are only just out of currency. As such, this issue may not necessitate the need for renewed or updated field surveys. It may however place significant importance on the appropriate development of biodiversity and threatened species management plans (should the development be approved) to incorporate (and be based on) satisfactory additional, targeted field examinations.

Nevertheless, this does highlight a failure of the Applicant to invest in additional ecological work to address key uncertainties associated with the type, nature and significance of biodiversity-related impacts of the proposal. For instance, there remains notable ecological uncertainties in respect of:

- The status of a population of the Brush-tailed Phascogale in the McKinleys Lane area of the Study Area;
- The extent of the population, occupied habitat and connectivity of the Squirrel Glider population of the Study Area;
- The extent of the population, occupied habitat and connectivity of the Grey-crowned Babbler population of the Study Area;
- A more accurate and comprehensive analysis of vegetation community types and patterns across the Study Area;
- Floral and faunal investigations of the road reserve of Jacks Road/ Waukivory Road that are potentially removed for road widening necessitated by the project; and
- Bridge investigations (roosting bats, faunal habitats) and evaluation of the riparian area of the Avon River at the Jacks Road Bridge

There is an argument that the application should not be positively determined in the absence of the above biodiversity information. This is not an unreasonable requirement in a precautionary assessment.

It is not, in my opinion, reasonable to defer the undertaking of such studies because the outcomes of such investigations may have a significant and material influence on the form and manner of the development and indeed, whether it has a significant or unreasonable biodiversity impact.

Summary of Comment	Implications
1a) Key elements of the flora and fauna field surveys used as the basis for the Biodiversity Assessment are now more than 5-years old and which exceeds the stated requirements of the DGR's	The NSW DPE, with advice from OEH, needs to consider whether the current investigations are adequate to make any positive determination of the proposal or whether additional or updated flora and fauna field surveys are critically required
1b) Additional flora and fauna field surveys are required to provide the necessary completeness of biodiversity investigations to provide a positive and comprehensive determination of the Application. These additional studies include: • Studies into the status of a population of the Brush-tailed Phascogale in the McKinleys Lane area; • Studies into the extent of the population, occupied habitat and connectivity of the Squirrel Glider population; • Studies into the extent of the population, occupied habitat and connectivity of the Grey-crowned Babbler population; • More accurate and comprehensive analysis of vegetation community types and patterns across the Study Area; • Floral and faunal investigations of the road reserve of Jacks Road/ Waukivory Road that are potentially removed for road widening necessitated by the project; and • Bridge investigations (roosting bats, faunal habitats) and evaluation of the riparian area of the Avon River at the Jacks Road Bridge	Defer any positive determination of the Application until such time as the additional investigations have been completed, published and reviewed as part of a response to submissions process.

2. Vegetation Community Description and Mapping

Having benefitted from a site inspection and published analyses of ecological investigations proximal to the Site of the Rocky Hill Coal Project proposal, I am of the opinion that there are pertinent issues associated with the vegetation community descriptions and mapping in the Terrestrial Biodiversity Assessment.

In general, it is my opinion that the Study Area exhibits a greater floristic diversity and complexity than is presented in the Terrestrial Biodiversity Assessment.

That is, the Assessment overly simplifies the vegetation of the Study Area by excessive aggregation of distinct types. Specifically:

- The description of Vegetation Community 1: Cleared Open Pasture as described in the Terrestrial Biodiversity Assessment is overly-broad and does not adequately recognize the parts of the Study Area mapped as this "*low-value*" community that are in fact characterized by broad, drainage-impeded, derived but predominantly native wet grassland or Carex-dominated plant community types. There are areas of Derived Wet Pasture/ Derived Sedgelands that occupy broad low depressions and some watercourse channels through the proposed Disturbance Area. These types should not be aggregated with the "*cleared open pasture*" type. These types are biologically-distinct and are capable of floristic and spatial (API and ground-truthing) resolution. They are also of some ecological significance, especially in relation to ecosystem services provisions. Further, such types will be removed by the proposal and there is no intention of reinstating such in the finished landform and they do not appear represented in the Biodiversity Offset Area that is proposed.

- The distinct areas of Cabbage Gum-dominated forests/ woodlands and Grey Box-dominated forests and woodlands should be separately identified, described and mapped as distinct types and not be aggregated within the Vegetation Community 3: River Oak/ Cabbage Gum/ Broad-leaved Apple Riparian Forest and/ or Vegetation Community 2: Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland. Cabbage Gum Forests, in particular, often conform to the State-listed EEC of River-flat Eucalypt Forest on Coastal Floodplains.

- I remain unconvinced that there is not a significant differentiation in the Vegetation Community 2: Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland across the Study Area. It is my opinion that there is enough differentiation to assign separate Dry Forest/ Woodland communities to those parts of the site on the steep rocky slopes and ridges of the Mograni Range with those of the undulating hills of the disturbance area. Evidence to support this assertion includes:

    - The Dry Forest/ Woodlands of the steep rocky slopes and of the undulating low hills occupy two very distinct geological and geomorphological landscapes that would (and do) influence vegetation patterns. This is clearly demonstrated in the Soils Assessment report submitted with the EIS.
    - All of McKinleys Lane appears to have been mapped in the Terrestrial Biodivesity Assessment as Vegetation Community 2: Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland. However, simply driving along the length of McKinleys Lane, it is obvious that there is significant variation in vegetation types. This is demonstrated below:
        - Chainage 0 – 100m: Cleared pasture grassland
        - Chainage 100 – 300m: Rough-barked Apple Open Forest/ Woodland
        - Chainage 300 – 900m: Ironbark/ Grey Gum/ Mahogany Open Forest/ Woodland
        - Chainage 900 – 1100m: Cabbage Gum Open Forest/ Woodland/ with Grey Box
        - Chainage 1100 – 1900m: Ironbark/ Grey Gum/ Mahogany Open Forest/ Woodland
        - Chainage 1900 – 2000m: Cabbage Gum Open Forest/ Woodland with Prickly-leaved Paperbark and Grey Box
        - Chainage 2000 – 2500m: Ironbark/ Grey Gum/ Mahogany Open Forest/ Woodland
        - Chainage 2500 -2700m: Cabbage Gum Open Forest/ Woodland with Grey Box

      I observed no Spotted Gum along the McKinleys Lane.

Also, stands of Open Forests and Woodlands in the disturbance area are clearly dominated by Cabbage Gum/ Grey Box and not the Ironbark type.
Thus, it appears that the authors of the Terrestrial Biodiversity Assessment have aggregated or simplified the mapping of Dry Open Forests and Woodlands across the Site. This misrepresents the conservation significance and complexity of the landscape. It also prejudices the outcome of the BioBanking Assessment.

- There appears to be a specialization or differentiation of flora species within the Dry Forest/ Woodlands of the steep rocky slopes and of the undulating low hills. A comparison of the flora species in Table A2-2 of the Terrestrial Biodiversity Assessment recorded in Quadrat 5 (steep slopes) and Quadrats 1 and 2 (undulating lands) shows clear differences:
  - Quadrats 5 and 1/2 shared only ten (10 species) (14.3%)
  - Quadrat 5 had twenty-nine (29) distinct species (not recorded in Quadrats 1/2) (41.4%)
  - Quadrats 1/2 had thirty-one (31) distinct species (not recorded in Quadrat 5) (44.3%)

  If the communities were the same on the steep slopes and the undulating lands there would be greater the proportion of shared species and less distinct species.
  Similar differences can be observed in an analysis of the results of a comparison of the flora between Flora Quadrats DVD1-5 and OFD1-5 in Table A2-3.
  I believe that the Biodiversity Offset Area on the steep rocky slopes is a Spotted Gum/ Ironbark community, but that the disturbance area is a combination of areas supporting Ironbark/ Grey Gum/ Mahogany Forests, Cabbage Gum Forests and Grey Box Forests. Given the significance of the project, these separate entities were eminently mappable and should have featured in the BioBanking Assessment.

- Given the above, the Terrestrial Biodiversity Assessment, does not appropriately reflect the presence of different regional plant community types or Biometric types in its reporting. The Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Open Forest/ Woodland vegetation community type is ascribed to the "*Spotted Gum – Broad-leaved Mahogany – Red Ironbark shrubby open forest*" (HU804) type. In the other local floristic studies I consulted, the equivalent types are ascribed to the "*Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast*" type (HU630). Intuitively, this seems a better "*fit*". Interestingly, there is even a reference on Pg7-154 of the Terrestrial Biodiversity Assessment as to the existence of HU630 on the Rocky Hill Site. Additional discussion needs to be provided on more accurate and complex vegetation mapping and typing in order to clarify this and to discuss whether there are any material implications in relation to impacts or proposed offsetting.

- There has been significant discussion provided as to whether Vegetation Community 3: River Oak/ Cabbage Gum/ Broad-leaved Apple Riparian Forest (riparian forest) conforms to the EEC River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions. This community was not identified as such in the Terrestrial Biodiversity Assessment and there is evidence presented in respect of the validation of this assertion. The consideration of this vegetation community type in the Terrestrial Biodiversity Assessment was dismissed on the basis that there is a "*general lack of dominance by eucalypts*" which means that the community "*does not meet the definition of the EEC according to the Final Determination*".

  I now concur that the pure River Oak Riparian Forest is probably not the nominated EEC. In the pre-disturbance state, the Site probably exhibited a narrow and linear River Oak Riparian Forest,

which graded (transitioned) into a Cabbage Gum Forest/ Woodland on low flats in many areas. The historic clearing, suppression of regeneration and land uses of the Study Area has largely displaced this Cabbage Gum Forest/ Woodland element; thus largely depleting the landscape of the River-flat Eucalypt Forest EEC. Nevertheless, occurrences of forests where Cabbage Gum and Rough-barked Apple dominate or co-dominate do occur in the wider study area. The flora surveys and mapping should have identified and differentiated these from the general River Oak Riparian Forest type.

Further, it is relevant that the Terrestrial Biodiversity Assessment now considers the River Oak/ Cabbage Gum/ Broad-leaved Apple Riparian Forest (riparian forest) to be significant through the BioBanking Credit Calculation tool. This reflects that the Riparian Forest is a type that is >70% cleared within its known entire range and is ascribed special considerations. This type is also highly significant in relation to the provision of ecosystem services provisions (water quality, bank stability, aquatic habitat, etc).

Summary of Comment	Implications
2a) The vegetation community mapping and description of the Study Area as published in the Terrestrial Biodiversity Assessment unreasonably aggregates or misrepresents certain vegetation community types, which prejudices the assessment and offsetting process by diminishing the actual complexity of the landscape and failing to recognize important community types. This includes: • Derived Wet Pasture or Carex-dominated Sedgelands within Cleared Open Pasture type • Cabbage Gum Forests and possibly Grey Box Forests within the River Oak Riparian Forest type • Differentiation of Dry Forest types between the steep, rocky lands of the Gloucester Bucketts soil landscapes and the undulating low hills (all currently mapped as Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Forest and Woodland) • Cabbage Gum Forests and Grey Box Forests within Ironbark/ Grey Gum/ Spotted Gum/ White Mahogany Forest and Woodland • Finer and more accurate attribution of the appropriate BioMetric community types based on the updated and more fine-scale mapping	Prior to any positive determination, the Applicant should provide finer and better details of the actual vegetation community types of the Study Area. These finer and more accurate vegetation community types then should be re-attributed to BioMetric Types for re-assessment as part of a BioBanking calculation. This may benefit from the engagement of an independent expert botanist to conduct a review and updated vegetation assessment. This would more meaningfully guide the development of a disturbance and offset footprint. This information could be collated as part of a response to submissions process.

3. Impacts to Threatened Fauna Species

It remains my opinion that the impact assessment of known, certain threatened fauna species is inconsistent with assessment guidelines.

The Grey-crowned Babbler, Brush-tailed Phascogale and Squirrel Glider have been identified as subject species that will be impacted by the project. The Terrestrial Biodiversity Assessment purports that the project has the potential to affect the habitat and lifecycles of these species by causing changes in foraging behaviour, roosting behaviour, displacement of individuals, disruption of the social structure

and potential mortality. It also concludes that even with impact mitigation measures recommended to improve connectivity it is possible that the project could have an adverse effect on the local population. Despite the threats and pressures associated with the proposal, the Assessment then claims that the project is unlikely to have a significant effect. In my opinion, this under-represents the true magnitude and significance of the risks associated with the proposal to the Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler.

The Terrestrial Biodiversity Assessment assumes that the current viability of the Grey-crowned Babbler and Squirrel Glider in the Study Area is "*very tenuous*" due to their apparent isolation from more extensive areas of suitable habitat in the eastern parts of the study area and beyond. This is an assertion without direct scientific evidence. It is critical in assessments that any local population be assumed viable unless scientific evidence is presented that demonstrates otherwise. The Rocky Hill Coal Project had an opportunity to undertake the necessary population (and even genetic) studies of these species to confirm or deny the degree of isolation and/ or viability. Such studies have not been produced. As such, the populations of the Squirrel Glider, Grey-crowned Babbler and even the Brush-tailed Phascogale must be assumed to be viable for assessment purposes.

The Application relies on (as yet) unprepared future Species Management Plans for the Squirrel Glider (with consideration of the Brush-tailed Phascogale) and the Grey-crowned Babbler to implement an adaptive conservation framework for these species such that avoided extinction of the local population is implemented.

The Biodiversity Offset Area is demonstrably sub-optimal to unsuitable habitat for the Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler. Page 7-131 of the Terrestrial Biodiversity Assessment reflects that "*there is no currently available habitat suitable for the Grey-crowned Babbler within the proposed biodiversity offset area*". Squirrel Gliders and Brush-tailed Phascogales have not been observed in the Biodiversity Offset Area and the steep slopes and nature of the habitats present would suggest that the area is not suitable habitat for these species. In relation to the Grey-crowned Babbler, the Assessment reports that the applicant has commenced the creation of additional habitat within roadside vegetation strips along Waukivory Road and more extensive woodland is to be established as part of the rehabilitation plan for the final landform. If the rehabilitation of the final landform is designed to be part of the threatened species management measures, then such habitat resources need to be secured in perpetuity by a permanent legal instrument.

The Terrestrial Biodiversity Assessment concludes that in relation to the Squirrel Glider, Brush-tailed Phascogale and the Grey-crowned Babbler that "*these species may have their short term viability reduced by the amended project but in the long-term, with more extensive native vegetation areas and improved connectivity to the Mograni Range, as a result of the amended Rocky Hill Coal Project, their viability should improve*". Notwithstanding that the Mograni Range habitats are largely unsuitable habitat (at worst) or sub-optimal habitat (at best) for these species, I would assert that enhanced species viability depends on preserving a robust base population in the Study Area and not causing the local extinction of that population. I am not convinced that suitable, precautionary measures are being proposed to achieve this in the current proposal. Thus, I say that there is a significant risk of unreasonable harm to and loss of important populations of threatened species arising from the current proposal.

The proposal needs to be enhanced in relation to avoidance, mitigation and offsetting actions to ensure that threatened fauna species are not significantly or unreasonably harmed by the development.

Summary of Comment	Implications
3a) The assessment of the impacts of the proposal on local populations of the Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler understates the true magnitude and significance of risks associated with the proposal.	Prior to any positive determination, further and better consideration of the type, nature and significance of impacts to certain threatened fauna species appears required such that it can be adequately demonstrated that threatened fauna species impacts are avoided, mitigated and compensated.
3b) The proposal has not provided scientific evidence that the populations of the Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler are *"tenuous"* or of limited viability. In the absence of evidence to the contrary, these populations must for assessment purposes be considered to be viable.	Prior to any positive determination, the Terrestrial Biodiversity Assessment should be supplemented with data that either confirms scientifically that the populations of key threatened fauna species are unviable, or should adopt a planning and assessment approach that assumes such populations are viable.
3c) The proposal relies on as-yet unprepared Species Management Plans for the Squirrel Glider (with consideration of the Brush-tailed Phascogale) and Grey-crowned Babbler such that local extinction is avoided. There is significant risk and uncertainty associated with this approach.	The relevant Plans of Management should be prepared prior to a positive determination of the Application and include relevant field surveys.
3d) The Biodiversity Offset Area is sub-optimal or unsuitable for the Squirrel Glider, Brush-tailed Phascogale and the Grey-crowned Babbler.	Revised consideration of an improved Offset arrangement is required to accommodate the habitat of the relevantly-affected threatened fauna species. This may benefit from a meeting between OEH, the Applicant and MidCoast Council as part of the response to submissions process.
3e) If the proposal relies on the re-creation of habitat for the Grey-crowned Babbler on the finished landform, then there are significant issues with time-scales involved in the creation of suitable habitats as well as the security of the finished landform attributes (in the absence of a legal protective instrument).	Conditions of any approval may need to implement a permanent legal mechanism of protection of the woodlands, tree belts and corridors on the finished landform.
3f) The protective measures for the Squirrel Glider, Brush-tailed Phascogale and Grey-crowned Babbler are not yet satisfactory or sufficient to conserve local populations of these species if the proposal proceeds.	As above for 3a) and 3d).

4. Inadequate Offsetting of Residual Biodiversity Impacts

The proposal purportedly seeks to avoid, mitigate and then offset the biodiversity impacts of the development. The Terrestrial Biodiversity Assessment indicates that impacts are avoided by maximising disturbance in modified/ cleared lands, avoiding clearing the roadside habitat of McKinleys Lane and trees near administration area and private haul road. Impacts are mitigated by the monitoring of Grey-crowned Babbler and Squirrel Glider to better identify how to improve their viability in the long-term, providing landscape plantings on the amenity barriers, along Waukivory Road, on the finished landform, by ripping and revegetating the existing McKinleys Lane pavement and by installing roadkill mitigation on the private haul road. Finally, offsetting has been proposed in the Biodiversity Offset Area and assessed by the BioBanking Assessment Method and BioBanking Credit Calculator v4. This is appropriate, but only where the data and calculations are correctly applied.

is my opinion that, despite the findings of the Assessment, that offsetting currently proposed is inadequate. I say this because:

- On page 7-155 of the Terrestrial Biodiversity Assessment, it is noted that: "*species credits for the Squirrel Glider and Brush-tailed Phascogale have not been assessed as it has been demonstrated that the habitat within the BOA is of a higher quality than that being impacted by the amended Rocky Hill Coal Project, and that retention and management of these areas would have significant benefits for these species*". This is not true. These species have not been detected in the Offset Area and the habitats present in the Biodiversity Offset Area are sub-optimal to unsuitable for these two species. In short, there is no evidence that Squirrel Gliders and Brush-tailed Phascogales would inhabit the majority of the area of the Offset Area now or in any foreseeable future. The steep, rocky, infertile nature and paucity of essential habitat features likely precludes such use. The proposal does not offset residual impacts to the Brush-tailed Phascogale and Squirrel Glider adequately.

- The project seeks to offset habitats occurring in different parts of the landscape to that proposed to be impacted. This is clearly portrayed in Figure 4 of Volume 10 Soil Landscapes of the study area. The bulk of the impact area occurs on undulating low hills on Permian sediments and less extensively on alluvial plains along floodplains and coal measures of the lower and mid slopes (Gloucester, Wards River and Stroud Road soil landscapes). The offset areas occur mostly on steep hills on the Gloucester Bucketts soil landscape, which comprise Permian basics and acidic volcanics and sediments, with poor fertility and rock outcrops/ surface boulders being very common. Consequently (and regardless of the outcomes of a theoretical BBAM test) improve or maintain biodiversity outcomes are not achieved.

- I have demonstrated in this memo that the vegetation community types of the Biodiversity Offset Area are different from the range of types of the disturbance area. Intuitively, there is no equivalence in the offsets proffered in relation to the biological attributes that are lost. Very little to none of the occurrences of Cabbage Gum Dry Forest and Woodland, Ironbark/ Grey Gum/ Mahogany Dry Forest Woodland or Grey Box Dry Forest and Woodland of the disturbance area or minor River Oak Riparian Forest of the haul road area are compensated by the Spotted Gum/ Ironbark complex and Dry Rainforest of the Offset Area. By aggregating and simplifying the forest types of the disturbance area and the offset, this prejudices the outcomes of the BioBanking Assessment; attaining a conclusion that the offset is in fact reasonable and appropriate. On the evidence available, this does not appear to be the case.

- The offsets appear to be driven moreso by residual reservation and availability rather than being a meaningful contribution to maintaining or improving the natural environment, conserving equivalent vegetation types to those of the disturbance footprint and providing for the long-term management of biodiversity values in this sub-region.

- There is no data provided that compares the habitat attributes (availability of hollows, tree trunk diameters) between the Open Forest/ Woodland habitats of the disturbance area and the Open Forest/ Woodland habitats of the proposed offset area. Intuitively, it would appear that the disturbance area contains significantly higher occurrences of over-mature trees and hollow-bearing trees (measured at 36/1,000m^2) than the biodiversity offset areas, which contain younger stands on rocky and infertile soils.

The conservation and restoration of the Mograni Range and its footslopes (as well as the ridges and footslopes of all local lands of the Gloucester Bucketts soil landscape) is a positive ecological and scenic outcome. These lands have greater value for conservation and amenity than any grazing production values they provide. As such, strategic conservation and restoration of these landscapes is important and a positive contribution to ecological goals. Thus, on face value, the offset proposal has ecological merit.

However, it is not, in my opinion reasonable to proffer an offset landscape that is geophysically and biologically very different to the area of disturbance.

Thus, should the development be positively determined, any offset areas must be appropriately located, secured in a timely, effective manner, proactively managed for biodiversity restoration and conservation and maintained in-perpetuity.

The proposal firstly appears to fail to protect in situ features of significance that are vulnerable to direct impact (Squirrel Gliders and Grey-crowned Babblers), but also appears to fail to meet like for like or better outcomes in relation to vegetation types.

Finally, the proposal suggests that the area to be conserved as an offset is likely to be secured by way of a private BioBanking Agreement. The proposal does not explore novel approaches to effective conservation (eg. public dedication of the conservation area with the provision of funding for conservation and restoration, combined with agency and conservation NGO partnership for the long-term management of the offset areas). These novel conservation approaches should be further explored.

Further, we say that if the development is positively determined that:

- The critically important Offset Management Plan that would define and manage the offset area be finalised only through involvement, input and endorsement by MidCoast Council as well as the NSW Office of Environment and Heritage. The native revegetation of the derived grassland parts of the proposed offset area need to be very clear about aspirations concerning climax vegetation community types and the means to achieve these goals rationally and appropriately. This should seek specifically to expand Dry Rainforest in suitable landforms. Such climax vegetation community types would need to be reflective of indigenous community types considering the inherent soil, topographic and landform. Re-creation of functional and resilient, self-sustaining native vegetation from derived grasslands can be very complex and needs very prescriptive action plans to give effect to such to ensure project success.
- As part of the finalisation of the offset areas should the proposal be positively determined, there should be further scientific analysis of the functional avenues of local or sub-regional wildlife connectivity for the proposed offset areas and their contribution to agency and community aspirations. Greater attention to local connectivity opportunities and constraints and sub-regional wildlife corridor targets is required and should be utilised to place a revised offset area into a more effective, broader landscape context with regards to faunal connectivity. This should include reference to key regional corridors, the climate change adaptation corridors projects, existing protected areas and aspirations by MidCoast Council. In a sub-regional context, the locality of the proposal occupies land between larger networks of remnant native vegetation, including conservation reserves associated with the Avon River State Forest/ Berrico Nature Reserve to the west and associated with The Glen Nature Reserve (and surrounding

vegetated privately-held lands to the east). The Avon and Wards River Valleys (and associated tributaries) contain few conservation reserves, despite being recognised as a potentially important area for key regional corridors and/ or climate change adaptation corridors. The conservation offset arrangement proposed as part of this project should strongly consider wider landscape scale in its design process.

- The approved Offset Area Management Plan should consider issues associated with fencing, methods of active revegetation, management of weeds and pests, management of fire, signage and restrictions on access, as well as the relocation of habitat features such as hollows and logs and performance measurement and monitoring. Further, it should discuss pre-clearing capture and translocation of pertinent threatened fauna species from the disturbance area, which may be essential to avoid harm to individual species and serious loss of local populations. Further, it should program the compensation (at least on a 1:1 basis) of the loss of natural hollows from the disturbance area through a relocation of felled trees or artificial nesting box program and define the relocation and placement of other habitat furniture (rocks and fallen timber) into revegetation areas as cover for dependent fauna and to aid nutrient cycling and macro-invertebrate populations.
- It is evident that fire is used excessively and inappropriately in the wider landscape to control bushland regrowth and promote grass growth in very steep lands. Fires have affected the proposed Offset Area on two occasions in three (3) years (in 2013 and 2016), harming the recovery of dry rainforest and open forest habitats and the status of wildlife populations. The failure of the landholder to preserve the proposed Offset Area from harm from fire highlights the key challenges of restoring and conserving the Offset landscape.
- The offset arrangement needs to adequately consider the time delay between clearing and the recreation of climax habitat across the derived grasslands of the Offset Area and provide details as to the staging of revegetation and enhancement works or the techniques to achieve such revegetation.
- The offset area should include the protected and restored McKinleys Lane road reserve
- The offset area should be established within one lot by subdivision or boundary adjustment.
- The offset area should be zoned immediately on project approval for the highest level of Environmental Conservation (E2). The Applicant should facilitate this strategic process with MidCoast Council.
- Any operational lighting needs to be directional lighting, away from the habitats of the offset area.

Identified shortfalls to the company's provision of adequate offsets may benefit from the development of an annual contribution that is proffered by the company and required in consent conditions to MidCoast Council for the purpose of a sub-regional conservation acquisition and management and/ or catchment management program in a manner that is similar to such negotiated between Duralie Coal and the former Great Lakes Council. However, this should not be in lieu of proper avoidance and offsetting arrangements initially.

Summary of Comment	Implications
4a) BioBanking Calculations are constrained by the limitations, coarse resolution and inaccuracies of the vegetation community mapping and description. This prejudices the outcomes of the Assessment by concluding that the currently proposed offset is reasonable and appropriate, when it is not.	BioBanking calculations should be re-run on the basis of improved and finer analysis of vegetation community types in the Project Area. This should be done as part of response to submissions processes and be completed prior to any positive determination of the Application.

Summary of Comment	Implications
4b) The Biodiversity Offset Area conserves significantly different vegetation community types, habitats and soil landscapes than is affected in the disturbance area. Whilst of itself, the Offset Area has merit, it does not serve to maintain or improve environmental values lost from the disturbance area.	As for 4a) above
4c) The Biodiversity Offset Area appears driven by residual reservation and availability than a scientific compensation for the area lost to disturbance.	To be noted.
4d) Habitat elements (hollows, large trees, etc) appear to be very different between the area lost to disturbance and the Biodiversity Offset Area.	Better particulars need to be provided that compares the vegetation types and habitat attributes of the proposed Offset Area with the disturbance footprint to aid decision-making. This should inform a revision of the Biodiversity Offsets proffered in this project.
4e) Further and better consideration should be provided in relation to the location of the Biodiversity Offset Area.	A more consultative and proactive approach to optimizing the determination of the Offset Area appears required prior to any positive determination. This would involve a re-run of the BioBanking Calculations following the improved and finer scale vegetation community mapping and attribution. It should also involve collaborative discussions between the Applicant, OEH and MidCoast Council.
4f) The use of a private BioBanking Agreement is not necessarily the best means of securing the offset and other more innovative approaches to conservation should be considered.	There are different options available that should be explored by collaborative discussions between the Applicant, OEH and MidCoast Council

Summary of Comment	Implications
4g) Any Biodiversity Offset Area Management Plan should: • Be finalized with input from MidCoast Council officers • Include very detailed prescriptions concerning the revegetation of the cleared areas to install functional, indigenous vegetation community types (including expanding the areas of Dry Rainforest) • Include consideration of local and sub-regional wildlife corridors and integration with proximal protected areas • Include prescriptive consideration of fencing, revegetation, pest and weed controls, fire management, signage, restrictions on access, the relocation of habitat features such as logs and hollows, performance measurement and monitoring • Include a program of the relocation of felled hollow trees and nesting boxes to compensate for the loss of natural hollows • Include protection of the area from over-frequent fire • Include details of the staging of revegetation and facilitated natural regeneration works • Establish McKinleys Lane protection area in the Biodiversity Offset Area • Establish the Biodiversity Offset Area in a single lot by subdivision or boundary adjustment • Ensure that the Biodiversity Offset Area is zoned for environmental conservation on the relevant LEP • Operational lighting needs to be directed away from the offset area	These requirements could be installed as conditions of any consent for the Proposal.
4h) Residual shortfalls in the adequacy of the eventual offset area may be addressed through a catchment contribution in the manner determined for Duralie Coal Mine with the former Great Lakes Council	

5. Ecological Considerations of the Gloucester Local Environmental Plan 2010

Regardless of the permissibility of the project in relation to the applicable NSW planning legislation, the proposal is partly located within an area zoned E3 under the applicable Gloucester Local Environment Plan 2010.

The objectives of this zone include biodiversity-related matters:

- To protect, manage and restore areas with special ecological ... values
- To provide for a limited range of development that does not have an adverse effect on those values
- To conserve biological diversity and native vegetation corridors, and their scenic qualities in a rural setting

The proposed mine will have a negative impact and conflicts with biodiversity-related objectives of the E3 zone. In relation to the first objective, the development does not "*protect*" some areas of special ecological value (including habitats of threatened biodiversity).

Concerning the third objective of the E3 zone, I am of the view that it is possible that the biological diversity of the Study Area as well as native vegetation corridors could be "*conserved*" but only where there is an effective, proactive and precautionary offset regime and then only in the medium to long-term.

The Department of Planning and the Environment needs to give due and proper consideration of the zone objectives in relation to the proposed development.

Summary of Comment	Implications
5a) The proposal conflicts with the zone objectives of the E3 zone. The Department needs to give due and proper consideration of the LEP objectives in any determination.	To be noted.

6. McKinleys Lane Significant Roadside Area

The vegetation along McKinleys Lane has been identified as a Significant Roadside Area by the former Gloucester Shire Council.

Partly in recognition of this status, the proposed development seeks to construct and operate a new mine area access road off Waukivory Road, which is approximately 50-metres to the east of, and parallel to, McKinleys Lane. The construction of this sealed access road would permit the ripping of the existing pavement and the regeneration of the full width of the McKinleys Lane road reserve for biodiversity conservation and connectivity. This is a positive measure; which should be endorsed by any conditions of an approval. The McKinleys Lane road reserve should be included in a Biodiversity Offset Area for long-term protection.

This preserves the ecological integrity of the northern half of McKinleys Lane only and those significant roadside habitats of the southern half of McKinleys Lane fall within the mine disturbance area (permanent over-burden emplacement) and would be removed/ permanently-altered.

This is probably not an issue of terminal constraint for the development. However, the loss of significant roadside habitat in the southern half of McKinleys Lane is not adequately compensated or offset in the current proposal. Proper consideration to an offset for the removal of an area of significant roadside habitat should be provided for in any positive determination of this application.

The new Mine Access Road (and new McKinleys Lane) should be appropriately speed-limited (40km/h) to assist protect threatened fauna species from roadkill risks. This should be sign-posted, monitored and enforced through speed reduction measures.

Summary of Comment	Implications
6a) The construction and use of a new Mine Access Road off Waukivory Road is supported for the ecological outcomes. The new road should become McKinleys Lane in the long-term and the gravel pavement of the existing McKinleys Lane should be ripped and rehabilitated and then conserved.	To be conditioned in any project approval.

7. Aquatic Assessment and catchment health and function

I have read and considered the Aquatic Assessment of Cardno Ecology Lab that was submitted as part of the project EIS.

It is my opinion that Aquatic Ecology probably does not constrain the development proposal. There is an absence of threatened aquatic species or their habitats within the project area.

This however depends on satisfactory water quality performance during and after mining activities. Water quality is being separately considered by relevant technical officers of MidCoast Council. The project must not be permitted to worsen water quality in local watercourses or degrade aquatic conditions.

Further, any replacement of the Jacks Road bridge over the Avon River for the project must be conducted in a manner that protects and restores riparian and in-stream habitats and effects proper sediment and erosion controls.

The Aquatic Ecology report did reflect on the fact that the proposal would increase flows to and within Oaky Creek by way of the volume of water collected and distributed via the north-flowing clean water diversion. The Report then argued that monitoring and remediation of any erosion caused by the increased flows should be implemented. I believe that this is not adequate and I would argue that it is incumbent on the proposal (should it be determined) that all substantial Study Area watercourses be subjected to a restoration and enhancement catchment program and implemented as a component of the development.

The Aquatic Ecology report paints a very negative and disturbing picture of the state of the local watercourses in relation to water quality and catchment health. It states:

- *"All watercourses exceeded water quality guidelines for the protection of aquatic ecosystems"*
- *"Riparian and instream habitats have been substantially altered by historical and ongoing agricultural land use practices"*
- *"Aquatic plant assemblages showed little diversity, comprising introduced and native species tolerant to disturbance"*
- *"Macroinvertebrate communities were similarly impaired and dominated by pollution-tolerant taxa"*
- *"Most of the sites visited along the Avon River, Waukivory Creek or Oaky Creek had evidence of habitat impairment, including adjacent land cleared for agriculture and erosion caused by stock access and several waterway crossings"*
- *"Several small unnamed watercourses flow intermittently from a ridgeline to the east of and into and across the Mine Area, and then into Waukivory Creek or the Avon River... These watercourses were extremely degraded"*
- *"Many of the watercourses within the Study Area have been cleared to the bank"*

This demonstrates a failure of proper catchment management and stream protection/ restoration of this landscape. Given that GRL has controlled a large part of the pertinent landscape for a period of years, it is a negative critique of the attitude of the Applicant towards catchment health, water quality protection and biodiversity and ecosystem services enhancement. Of course, the Applicant is not legally-compelled to restore the health and function of local watercourses, but effective, proactive and innovative ecological management should be seen as part of a social license to operate a new coal mine in this landscape.

The Soils Assessment clearly indicates that the soil landscapes of the proposed disturbance area are at serious risk of contributing to water pollution if not properly managed. For instance, it states:

- The Gloucester soil landscape has *"sheet/ gully erosion risk, is strongly acidic and is sodic/ dispersive"*;
- The Wards River soil landscape has *"high gully/ sheet erosion risk and is very strongly acidic"*;
- The Stroud Road soil landscape has *"gully/ sheet erosion risk, has a mass movement hazard and is strongly acidic"*; and
- The Gloucester Bucketts soil landscape has *"high erosion hazard and is strongly acidic"*.

As mentioned, aquatic ecology does not appear to terminally constrain the project (depending upon the outcomes of the associated water quality assessment), but does mandate that any approval is associated with a catchment health program of riparian and watercourse improvement across the GRL holdings and potentially beyond.

Summary of Comment	Implications
7a) Watercourses of the Study Area and wider GRL Holdings are heavily degraded. The proposal does not appear constrained by aquatic ecology considerations but investment in catchment health through riparian and watercourse protection, enhancement and management is very important.	A condition of any project approval should be that GRL is required to develop and implement a Riparian and Watercourse Management Plan for its holdings that would require higher order streams to be enhanced through fencing and stock protection, revegetation, erosion controls, weed and feral animal control, aquatic habitat enhancement, etc. Sections of the Waukivory Creek riparian zone east of the disturbance area should be identified for protection and restoration as part of biodiversity offsetting to con serve River Oak Riparian Forest and restore Cabbage Gum Dry Forest and Woodland habitat and better buffer the Forbesdale urban area from disturbance
7b) A proper investigation and assessment of the ecological impacts of the replacement of Jacks Road Bridge over the Avon River has not been carried out	As part of the response to submissions process, the Applicant needs to examine the impact of any proposal to replace the Jacks Road Bridge over the Avon River.

8. Ecological Assessment of works to widen Jacks Road and Waukivory Road

Parts of Jacks Road and Waukivory Road contain significant roadside vegetation, comprising Dry Forest and Woodland of Grey Box, Cabbage Gum and Ironbark/ Grey Gum/ Mahogany. Jacks Road appears to have an approximately 5.5-metre wide seal with travel shoulders and limited roadside drainage. Waukivory Road is of 6-metre seal but otherwise of similar formation. There is a powerline easement on the northern verge of part of Jacks Road. Significant roadside trees are within approximately 2.5 to 3-metres of the edge of seal for both Jacks Road and Waukivory Road. The bridge over the Avon River

on Jacks Road is likely to be replaced for the project, requiring the straightening of the road alignment and the removal of some roadside trees.

The extent of the loss of significant mature roadside vegetation has not been described or evaluated in the Terrestrial Biodiversity Assessment and so the implications to biodiversity and threatened species are not understood. Further, there is no consideration of avoiding, mitigating or offsetting residual impacts of the upgrade works that appear required.

Summary of Comment	Implications
8a) There has been no Biodiversity Assessment of the potential loss of significant mature roadside habitat as required by upgrading of Jacks Road and Waukivory Road for the project.	As part of the response to submissions process, the Applicant needs to examine the impact of any proposal to widen and reconstruct parts of Jacks Road and Waukivory Road.

9. Cumulative Impact and Strategic Ecological Context

Finally, it is a significant concern that cumulative coal mine proposals are advanced in the Gloucester sub-region in the absence of a strategic framework. The fact that coal mines in the past have gained approval for a limited initial term but have then been subject to modifications and extensions, which expand project timelines and footprints (and thus prolong and expand disturbance to the local environment). This project occupies a minor proportion of the relevant exploration lease.

Thus, coal project proposals in the Gloucester region should be considered in a strategic framework.

In the broader context, MidCoast Council is developing the Tops to Lakes Initiative, which seeks to reinstate and protect connected landscapes and enhance the quality and integrity of natural landscapes to provide environmental services provisions. Relevantly, any decisions relating to this proposal (by way of either a refusal or a conditional approval) of the proposed activity need to recognise the existence and aspirations of Council's Draft Tops to Lakes Initiative and its aspirations.

One of the key goals of the Tops to Lakes Initiative is the establishment and protection of a connecting corridor(s) of functional, resilient natural vegetation between The Glen Nature Reserve (and associated habitats) and the foot-slopes and ranges of Barrington Tops area (via Chichester and Avon River State Forest). This is located in the vicinity of the Wards River and Avon River watersheds and the southern parts of the Gloucester Local Government Area.

Other goals may relate to the protection of priority landscapes, such as the riparian corridors of major watercourses and the ridges and footslopes of the land of the Gloucester Bucketts soil landscapes (and connecting habitat between such).

The Terrestrial Biodiversity Assessment for this project identifies the presence of local habitat corridors associated with:

- McKinleys Lane (connectivity between the project area, Oaky Creek and the Mograni Range)
- Riparian corridors on Waukivory Creek (connectivity between the Avon River and the Mograni Range) and Dog Trap Creek

The Tops to Lakes Project is unlikely to have regional scale corridors in the project area as better cross-valley connectivity options exist near Wards River and/ or Craven.

Coal mining, cumulatively, has the potential to further fragment and sever connecting habitats and make the large-scale restoration of connecting habitats and functional natural areas in the landscapes south and east of Gloucester practically unfeasible and unachievable. However, the strategic planning of coal mines and their associated offset areas and restored perimeter lands represents an opportunity to deliver the connectivity and ecological enhancement/ restoration that is required. This depends however on proactive, committed and strategic planning of coal mines and their associated offset lands. It also requires the timely delivery of offset requirements, in both a practical sense (ie. revegetation of degraded or modified areas) as well as in an administrative sense (public dedication, environmental zoning, conservation mechanisms, etc). Consent authorities and the community need to be assured that conservation outcomes are effectively and appropriately delivered, and managed and secured in perpetuity.

Biodiversity offsets need also consider the long-term sustainability of agricultural production land uses in the local area. This can only be considered in a strategic sense.

I remain concerned that there is an inadequate strategic basis for the determination of coal and coal seam gas proposals and as such, the cumulative risks are difficult to consider and resolve in relation to proper biodiversity conservation and management.

Thus, should the Department deem that the proposal be positively determined, I would ask that the finalisation of all spatial, temporal and administrative details associated with the footprint (avoidance) and offsets for the proposed development be a Deferred Commencement Condition that requires the formation and endorsement of a Final Layout and Offset Strategy, which includes input, review and acceptance of the Strategy by a convened Agency Panel that includes MidCoast Council.

I note that it is important that the true ecological risks and threats of the proposal be clearly understood by the agencies in formulating a decision in relation to this proposed mine.

Summary of Comment	Implications
9a) The proposal is advanced in the absence of a Strategic Conservation Framework for coal mine development in the Gloucester Region, which limits proper assessment of the cumulative impacts of the proposal.	To be noted by the Department.
9b) The proposal should consider the means with which the aspirations and goals of an expanded Tops to Lakes Initiative can be achieved within the context of the development that is proposed and its offsetting measures.	This should be a consideration of the further examination of the proposed offsetting arrangements identified in this memo.
9c) If positively determined, the finalisation of all spatial, temporal and administrative details associated with the footprint (avoidance) and offsets for the proposed development be a Deferred Commencement Condition that requires the formation and endorsement of a Final Layout and Offset Strategy, which includes input, review and acceptance of the Strategy by a convened Agency Panel that includes MidCoast Council	This should be installed as a condition in any project approval.

Concluding Remarks

This is a significant proposal that will cause the clearing and loss of a large area of patchily distributed native vegetation, affects local populations of a number of threatened species and removes and modifies areas of habitat for biodiversity.

This correspondence highlights that there are outstanding and pertinent ecological concerns that should be adequately considered by the authorities ahead of formal, positive determination.

In my opinion, work needs to be completed and considerable consultation and liaison needs to be established before it can be concluded that a reasonable and satisfactory development is occurring and that ecological impacts (at a subject, local and sub-regional scale) are appropriately avoided, mitigated or compensated.

We bring the above technical issues to the attention of the NSW Office of Environment and Heritage and the Department of Planning and Environment in their assessment and determination of the proposal.

I note that I would be available to attend to working meetings on any issue raised in this memo; if that assists resolution or refinement of the issues raised.

It is critical that the Department satisfies itself (and seeks the views of agency or independent experts as part of this process) of the responses to the technical issues raised above to demonstrate compliance with the relevant legislation and to deliver an adequate determination of this development proposal.

Yours faithfully

Mr Mat Bell
Senior Ecologist - MidCoast Council