

ATTACHMENT 1

STRATFORD COAL MINE – DEVELOPMENT CONSENT

Notice of Modification

Section 96(2) of the *Environmental Planning and Assessment Act 1979*

Under Section 96(2) of the *Environmental Planning and Assessment Act 1979*, I, the Acting Deputy Director-General, Office of Sustainable Assessments and Approvals, Department of Planning, modify the development consent referred to in Schedule 1, as set out in Schedule 2.

Yolande Stone
Acting Deputy Director-General
(as delegate for the Minister for Planning)

SIGNED YOLANDE STONE 18 JANUARY 2006

Sydney

2005

Red text represents Roseville West Pit Modification – 16 February 2007

Blue text represents the Coal Handling Infrastructure Modification – 1 September 2008

SCHEDULE 1

The development consent (DA No. 23-98/99) for the Stratford coal mine, which was granted by the Minister for Urban Affairs and Planning on 5 February 1999.

SCHEDULE 2

1. Replace “Schedule 2” of the Minister’s consent with the following text.

SCHEDULE 2

DEFINITIONS

AEMR	Annual Environmental Management Report
Applicant	Stratford Coal Pty Limited
Council	Gloucester Shire Council
DA	Development Application
Day	Day is defined as the period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning
DEC	Department of Environment and Conservation
DNR	Department of Natural Resources
DPI	Department of Primary Industries
Director-General	Director-General of the Department of Infrastructure Planning & Natural Resources, or delegate
DST	Daylight Standard Time
EIS	Environmental Impact Statement
EST	Eastern Standard Time
Evening	Evening is defined as the period from 6pm to 10pm
Land	Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent
Night	Night is defined as the period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays;
Privately-owned land	Land that is not owned by a public agency, a mining company or its subsidiary; or where relevant, land that is not covered by a private agreement between the Applicant and the land owner that specifically allows for variances to criteria for environmental performance in this consent.
Site	Land to which the DA applies
SEE	Statement of Environmental Effects

1. GENERAL

1.1 Obligation to Minimise Harm to the Environment

The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

1.2 Terms of Approval

- (a) The Applicant shall carry out the development generally in accordance with the:
- DA 23-98/99;
 - EIS titled *Stratford Coal Project*, dated September 1994, and prepared by Peter Ryan and Chris Ellis;
 - SEE titled *Proposal to Increase Saleable Coal Production to 1.7 Mtpa*, and associated documents, dated April 1996, and prepared by Stratford Coal Pty Limited;
 - SEE titled *Proposed Modifications to the Stratford Coal Mine*, dated August 1998, and prepared by Resource Strategies Pty Ltd;
 - SEE titled *Stratford Coal Mine Modification*, dated July 2003, and prepared by Resource Strategies Pty Ltd, including the *Stratford Coal Mine Operating Noise Impact Assessment*, dated August 2005, prepared by Heggies Australia Pty Ltd;
 - SEE titled *Stratford Coal Mine Roseville West Pit Modification*, dated October 2006, and prepared by Resources Strategies Pty Ltd;
 - SEE titled *Stratford Coal Mine Coal Handling Modification*, dated June 2008, and prepared by Stratford Coal Pty Ltd; and
 - conditions of this consent.
- (b) If there is any inconsistency between the above documents, the latter document shall prevail over the former to the extent of the inconsistency. However, the conditions of this consent shall prevail over all other documents to the extent of any inconsistency.
- (c) The Applicant shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
- any reports, plans or correspondence that are submitted in accordance with this consent; and
 - the implementation of any actions or measures contained in these reports, plans or correspondence.

1.3 Period of Approval

In respect of the right to conduct coal mining operations, this consent is limited to a period of 17 years from the date of grant of the mining lease ML 1360 for the Stratford coal mine.

Note: Under this consent, the Applicant is required to rehabilitate the site to the satisfaction of the DPI and the consent will continue for this and related purposes.

1.4 Limits on Approval

- (a) The Applicant shall not transport more than 2.3 million tonnes of coal a year from the Stratford coal mine (including coal from the Bowens Road North mining operations).
- (b) The Applicant shall not carry out any development at the Roseville Pit (including the Roseville West Pit) to the north of Bowens Road at night.

1.5 Contributions to Council

The Applicant shall pay a community infrastructure contribution of \$86,000 a year (payable quarterly and indexed to CPI Sydney [all groups] index from 1998) to the Council until the completion of mining activities.

2. MINE MANAGEMENT

2.1 Rejects from Duralie

The Applicant shall ensure that all rejects associated with the coal from the Duralie mine are managed to the satisfaction of the DPI.

2.3 Mining Operations, Waste Management and Rehabilitation

The Applicant shall:

- prepare a Mining Operations Plan for all mining operations on the site;

- dispose of coarse and fine rejects on the site; and
 - rehabilitate the site,
- to the satisfaction of the DPI.

3. LAND AND SITE ENVIRONMENTAL MANAGEMENT

3.1 Appointment of Environmental Officer

The Applicant shall appoint an Environmental Officer whose qualifications are acceptable to the DPI to oversee the environmental management, monitoring, auditing and reporting on the site.

3.2 Heritage Assessment and Management

The Applicant shall:

- protect Aboriginal artefact scatter No. 31.1.8;
 - monitor topsoil removal; and if any Aboriginal objects are found or observed,
 - immediately advise DEC and carry out any requirements DEC may have,
- to the satisfaction of the DEC.

3.3 Flora and Fauna Assessment and Management

- (a) The Applicant shall:
- implement the approved plan of management for the proposed Wildlife Corridor as proposed in the EIS (see condition 1.2);
 - protect the remnant Squirrel Glider habitat ; and
 - carry out flora and flora monitoring within the Wildlife Corridor, to the satisfaction of the Director-General.
- (b) The Applicant shall carry out a range of measures to improve the riparian vegetation in Avondale Creek to the north of the mine to the satisfaction of the Director-General to compensate for the removal of riparian vegetation associated with the extension of the Roseville Pit to the north of Bowens Road. By the end of **April 2007**, the Applicant shall prepare (and subsequently implement) a Compensatory Habitat Plan to the satisfaction of the Director-General. This plan must:
- describe the measures that would be implemented to improve the riparian vegetation in Avondale Creek; and
 - describe how the performance of the measures would be monitored.

3.4 Visual Amenity & Landscaping

The Applicant shall:

- implement the approved Landscaping Plan for the site; and
 - carry out any supplementary tree planting or visual enhancement works that are required by Council to maintain the visual amenity of the local area,
- to the satisfaction of Council.

3.5 Bushfire and Other Fire Controls

The Applicant shall:

- provide adequate fire protection works on site, including one fully equipped fire fighting unit on stand-by (or alternative facilities specified by the Council); and
 - undertake annual hazard reduction works in accordance with Council's Bushfire Management Plan,
- to the satisfaction of Council.

4. WATER MANAGEMENT

4.1 Water Discharges

The Applicant shall only discharge water from the site in accordance with the provisions of a DEC Environment Protection Licence.

4.2 Site Water Balance

The Applicant shall:

- prepare a detailed site water balance for the development;
- measure:
 - water use on site; and

- water transfers across the site;
- review the site water balance for the development annually; and
- report the results of this review in the AEMR, to the satisfaction of the Director-General.

4.3 Erosion and Sediment Control

The Applicant shall implement a range of standard erosion and sediment controls on the site to the satisfaction of the Director-General, in general accordance with the requirements of the Department of Housing's *Managing Urban Stormwater: Soils and Construction* manual.

4.4 Surface Water Monitoring

The Applicant shall regularly monitor:

- the volume and quality of water discharged from the site;
- surface water quality upstream and downstream of the development in Avondale Swamp, Avondale Creek, Dogtrap Creek and the Avon River; and
- report the results of this monitoring in the AEMR, to the satisfaction of the Director-General.

4.5 Ground Water Monitoring

The Applicant shall regularly monitor:

- the volume of ground water seeping into the open cut mine workings;
- regional groundwater levels and quality in the vicinity of the site; and
- report the results of this monitoring in the AEMR, to the satisfaction of the Director-General.

4.6 Setback From Avondale Creek

The Applicant shall ensure that all the development associated with the Roseville Pit (including the Roseville West Pit) to the north of Bowens Road is located at least 40 metres from the bank of Avondale Creek, or as otherwise agreed by the Director-General.

4.7 Water Management Plan

By the end of May 2006, the Applicant shall prepare (and subsequently implement) a Water Management Plan for the Stratford coal mine, including the Bowens Road North operations, in consultation with the DNR, and to the satisfaction of the Director-General. This plan must include:

- a site water balance;
- an Erosion and Sediment Control Plan;
- a Surface Water Monitoring Program;
- a Ground Water Monitoring Program; and
- a Surface and Ground Water Response Plan, to address any potential adverse impacts associated with the development such as the reduction or loss of groundwater in bores in the vicinity of the mine.

4.8 Final Void Management Plan

By the end of September 2009, unless otherwise directed by the Director-General, the Applicant shall prepare (and subsequently implement) a Final Void Management Plan for the site, in consultation with the DPI and DNR, and to the satisfaction of the Director-General. This plan must:

- investigate options for the future use of the final void; and
- describe what actions and measures would be implemented to:
 - minimise any potential adverse impacts associated with the final void; and
 - manage and monitor the potential impacts of the final void over time.

5. AIR QUALITY, BLAST, NOISE AND LIGHT MANAGEMENT

5.1 Acquisition Upon Request

- (a) Upon receiving a written request for acquisition from the landowner listed in Table 1, the Applicant shall acquire the land in accordance with the procedures in condition 6.3 of this consent.

90b - Bagnall	49 - Isaac (s)	68 - Devereaux
58 - Bramley	48 - Isaac (n)	90a - Battaglini

69 - D Blanch	93a - Blanch	24 - Ellis
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Table 1: Land subject to acquisition upon request

Note: For more information on the numbering and identification of properties used in this consent, see Appendix 2.

- (b) By the end of May 2006, the Applicant shall notify the owners of the land listed in Table 1 that they have voluntary acquisition rights.

5.2 Noise and Dust Limits in the Acquisition Zone

While the land listed in Table 1 is privately-owned, the Applicant shall ensure that the noise generated by the development does not exceed the noise limits in Table 2, and the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria in Tables 7, 8, and 9 at any residence on the land.

Day L _{Aeq} (15 minute)	Evening L _{Aeq} (15 minute)	Night L _{Aeq} (15 minute)	Land Number
41	41	47	58 – Bramley (deleted by Feb 07 Modification)
37	37	45	90b - Bagnall
37	36	43	93a - Blanch
37	36	42	48 – Isaac (north) 49 – Isaac (south) 68 – Devereaux 69 – D Blanch 90a – Battaglini 93a – Blanch (deleted by Feb 07 Modification)

Table 2: Noise limits for land in the acquisition zone

Notes:

- If the Applicant has a written agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DEC, then the Applicant may exceed the noise limits in Table 2 or the air quality impact assessment criteria in Tables 7, 8, and 9 in accordance with the negotiated noise agreement.
- See notes in condition 5.3 for more detail on how to interpret these limits.

5.3 Noise Limits

The Applicant shall ensure that the noise generated by the development does not exceed the noise limits set out in Table 3.

Day L _{Aeq} (15 minute)	Evening L _{Aeq} (15 minute)	Night L _{Aeq} (15 minute)	Land Number
37	35	40	Craven Village
37	35	40	93c – Standen 93 - Campbell
37	35	39	95 – Smith 89 - McIntosh
37	35	35	18 – Atkins 13 – Teidman 46 - Wadland
35	35	35	All other privately-owned land excluding the land in Table 1

Table3: Noise limits

Notes:

- If the Applicant has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and the DEC, then the Applicant may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement.
- Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the $L_{Aeq}(15 \text{ minute})$ noise limits in the above table.
- Where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- Noise from the development is to be measured at 1 metre from the dwelling façade to determine compliance with the $L_{A1}(1 \text{ minute})$ noise limits in the above table. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). *(this note deleted by February 2007 Modification)*
- The noise emission limits identified in the above table apply under meteorological conditions of:
 - Wind speeds of up to 3 m/s at 10 metres above ground level; or
 - Temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

5.3A Roseville West Pit Noise Limits

During the commencement of the Roseville West Pit until mining operations are 10 metres below natural ground level, the Day noise limits applicable for:

- Stratford rural residences in Table 3 are increased by 2 dB(A);
- Stratford village residences in Table 3 are increased by 1 dB(A); and
- Issac (south) residence in Table 2 is increased by 1 dB(A).

5.3B Coal Handling Modification Noise Limits

The day noise limit (Table 2) applicable for the Bagnall residence is increased by 2 dB(A), until the construction of the new coal stockpile and coal ROM stacker is complete, or 30 June 2009, whichever is the sooner.

5.4 Noise Acquisition Criteria

If the noise generated by the development exceeds the criteria in Table 4 at any privately-owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in condition 6.3 of this consent.

Day $L_{Aeq}(15 \text{ minute})$	Evening $L_{Aeq}(15 \text{ minute})$	Night $L_{Aeq}(15 \text{ minute})$	Land
42	41	40	Craven Village 93c – Standen 93 – Campbell 95 – Smith 89 – McIntosh 18 – Atkins 13 – Teidman 46 - Wadland
40	41	40	<i>All other privately-owned land excluding the land in Table 1</i>

Table 4: Land acquisition criteria dB(A)

Note: Noise generated by the development is to be measured in accordance with the notes presented below Table 3.

Additional Noise Mitigation Measures

5.5 Upon receiving a written request from:

- a landowner of the land listed in Table 1; or
 - the owner of any residence where noise monitoring shows the noise generated by the development is greater than, or equal to, $L_{Aeq}(15 \text{ minute})$ 38 dB(A) at night,
- the Applicant shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at any residence on the land in consultation with the landowner. These additional mitigation measures must be reasonable and feasible. If within 3 months of receiving this request from the

landowner, the Applicant and the landowner 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 Director-General for resolution.

5.5A

Prior to the operation of the new coal stockpile or new coal ROM stacker at the coal handling facility, the Applicant shall fully implement the additional noise mitigation measures described in Section 4.2 of the SEE titled *Stratford Coal Mine Coal Handling Modification*, dated June 2008.

5.6 Noise Monitoring

By the end of May 2006, the Applicant shall prepare (and subsequently implement) a Noise Monitoring Program for the Stratford coal mine, including the Bowens Road North operations, to the satisfaction of the Director-General. This program shall include a noise monitoring protocol for evaluating compliance with the noise limits and acquisition criteria in this consent.

5.7 Noise - Continuous Improvement

The Applicant shall:

- investigate ways to reduce the noise generated by the development, including maximum noise levels which may result in sleep disturbance;
- investigate ways to transport as much coal as possible during the day and evening;
- implement all reasonable and feasible noise mitigation measures on the site; and
- report on these investigations and the implementation of any new noise mitigation measures on site in the AEMR,

to the satisfaction of the Director-General.

5.7 Airblast Overpressure Criteria

The Applicant shall ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 4 at any residence on privately owned land or noise sensitive location as defined in the DEC's *Industrial Noise Policy*.

Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
115	5% of the total number of blasts over a period of 12 months
120	0%

Table 5: Airblast overpressure impact assessment criteria

5.8 Ground Vibration Impact Assessment Criteria

The Applicant shall ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 5 at any residence on privately owned land or noise sensitive location as defined in the DEC's *Industrial Noise Policy*.

Peak particle velocity (mm/s)	Allowable exceedance
5	5% of the total number of blasts over a period of 12 months
10	0%

Table 6: Ground vibration impact assessment criteria

5.9 Blasting Hours

The Applicant shall only carry out blasting at the development between 9 am and 5 pm (EST) and 9 am and 6 pm (DST) Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the DEC.

5.10 Blasting - Operating Conditions

- (a) The Applicant shall ensure that all blasting at the site is carried out in accordance with best practice to:
- ensure the safety of people, property, and livestock; and
 - minimise the dust and fume emissions from blasting, particularly during adverse meteorological conditions,
- to the satisfaction of the Director-General.
- (b) If established by an expert, whose appointment has been approved by the Director-General, that blasting at the site causes damage to property or structures, the Applicant shall rectify the damage in consultation with the landowner, and to the satisfaction of the Director-General. The Applicant is to pay any costs associated with the appointment and assessment undertaken by the appointed expert.

5.11 Blast Monitoring

Prior to carrying out any blasting in the Roseville Pit to the north of Bowens Road, the Applicant shall prepare (and subsequently implement) a Blast Monitoring Program for the Stratford coal mine, including the Bowens Road North operations, to the satisfaction of the Director-General.

5.12 Air Impact Assessment Criteria

The Applicant shall ensure that the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 7, 8, and 9 at any residence on any privately owned land, excluding the land listed in Table 1.

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 7: Long-term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Table 8: Short-term impact assessment criterion for particulate matter

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Table 9: Long-term impact assessment criteria for deposited dust

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

5.13 Air Quality - Operating Conditions

The Applicant shall:

- ensure any visible air pollution generated by the development is assessed regularly, and that mining operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately owned land and public roads, such as Bowens Road and Bucketts Way; and
 - implement all reasonable and feasible measures to minimise the off-site odour and fume emissions generated by any blasting or spontaneous combustion at the development,
- to the satisfaction of the Director-General.

5.14 Air Quality Monitoring

By the end of May 2006, the Applicant shall prepare (and subsequently implement) a detailed Air Quality Monitoring Program for the Stratford coal mine, including the Bowens Road North operations to the satisfaction of the Director-General. This program shall include a protocol for evaluating compliance with the air quality impact assessment criteria in Tables 7, 8 and 9.

5.15 Lighting Emissions

The Applicant shall:

- take all feasible and reasonable measures to mitigate off-site lighting impacts from the development; and
- ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the Director-General.

6. ADDITIONAL PROCEDURES FOR AIR QUALITY AND NOISE MANAGEMENT

6.1 Notification of Landowners

If the results of the air quality and/or noise monitoring required in this consent identify that the air pollution and/or noise generated by the development is greater than any of the air quality and/or noise criteria in section 5 of this consent, excluding the landowners in Table 1, then the Applicant shall notify the Director-General and the affected landowners accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the air quality and/or noise criteria in section 5 of this consent.

6.2 Independent Review

- (a) If a landowner considers the development to be exceeding the air quality and/or noise criteria in section 5 of this consent, excluding the landowners in Table 1, then he/she may ask the Applicant in writing for an independent review of the air pollution and/or noise impacts of the development on his/her land.

If the Director-General is satisfied that an independent review is warranted, the Applicant shall within 3 months of the Director-General advising that an independent review is warranted:

- consult with the landowner to determine his/her concerns;
- commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct air quality and/or noise monitoring on the land, to determine whether the development is complying with the relevant air quality and/or noise criteria in section 5 of this consent; and
- give the Director-General and landowner a copy of the independent review.

- (b) If the independent review determines that the development is complying with the relevant air quality and/or noise criteria in section 5 of this consent, then the Applicant may discontinue the independent review with the approval of the Director-General.

- (c) If the independent review determines that the development is not complying with the relevant air quality and/or noise criteria in section 5 of this consent, then the Applicant shall:

- take all reasonable and feasible measures, in consultation with the landowner, to ensure that the development complies with the relevant air quality and/or noise criteria; and
- conduct further air quality and/or noise monitoring to determine whether these measures ensure compliance; or
- secure a written agreement with the landowner to allow exceedances of the air quality and/or noise criteria in section 5 of this consent,

to the satisfaction of the Director-General.

If the additional monitoring referred to above subsequently determines that the development is complying with the relevant air quality and/or noise criteria in section 5 of this consent, then the Applicant may discontinue the independent review with the approval of the Director-General.

If the measures referred to in above do not achieve compliance with the noise land acquisition criteria in section 5 of this consent, and the Applicant cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then the Applicant shall, upon receiving a written request from the landowner, acquire the landowner's land in accordance with the procedures in condition 6.3 of this consent.

- (d) If the landowner disputes the results of the independent review, either the Applicant or the landowner may refer the matter to the Director-General for resolution.

6.3 Land Acquisition

- (a) Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on:

- the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the development the subject of the DA, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date;
- the reasonable costs associated with:
 - relocating within the Gloucester local government area, or to any other local government area determined by the Director-General;

- obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and
- reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.

If either party disputes the independent valuer's determination, then the independent valuer should refer the matter back to the Director-General.

Upon receiving such a referral, the Director-General shall appoint a panel comprising the:

- (i) appointed independent valuer;
 - (ii) Director-General and/or nominee/s; and
 - (iii) President of the Law Society of NSW or nominee,
- to consider submissions from both parties, including meeting with the parties individually if requested, and to determine a fair and reasonable acquisition price for the land, and/or the terms upon which the land is to be acquired.

Within 14 days of receiving the panel's determination, the Applicant shall make a written offer to purchase the land at a price not less than the panel's determination.

If the landowner refuses to accept this offer within 6 months of the date of the Applicant's offer, the Applicant's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.

- (b) The Applicant shall bear the costs of any valuation or survey assessment requested by the independent valuer, panel, or the Director-General and the costs of determination referred above.
- (c) If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision, and registration of the plan at the Office of the Registrar-General.

7. TRANSPORT AND UTILITIES

7.1 Rail Transport

- (a) The Applicant shall only transport coal from the site by rail.
- (b) The Applicant shall only receive and unload coal from the Duralie mine between 7am and 10pm.

7.2 Monitoring of Coal Transport

The Applicant shall:

- keep records of the:
 - amount of coal transported from the site each year; and
 - number of coal haulage train movements generated by the development (on a daily basis); and
- include these records in the AEMR.

7.3 Crossing of Bowens Road

- (a) The Applicant shall construct, maintain, and operate the proposed crossing of Bowens Road to the satisfaction of Council.
- (b) Prior to constructing the proposed crossing, the Applicant shall prepare (and subsequently implement) a Traffic Management Plan for a **sealed** crossing to the satisfaction of Council. This plan must describe the measures that would be implemented to:
 - maintain the proposed crossing in a safe and serviceable condition during all weather conditions; and
 - operate the proposed crossing safely to ensure there is no danger to other road users.
- (c) By the end of **2011**, unless otherwise agreed to by the Director-General, the Applicant shall close the proposed crossing of Bowens Road, and rehabilitate the road and adjoining land to the satisfaction of Council.

8. MONITORING, AUDITING, AND REPORTING

8.1 Environmental Management Strategy

- (a) By the end of May 2006, the Applicant shall prepare (and subsequently implement) an Environmental Management Strategy for the Stratford coal mine, including the Bowens Road North operations, to the satisfaction of the Director-General. This strategy must:
- provide the strategic context for the environmental management of the development at the mine;
 - describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operations at the mine;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the development;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - describe the role, responsibility, authority, and accountability of all key personnel involved in the environmental management of the development with contact details.
- (b) Within 3 months of the completion of each Independent Environmental Audit required in this consent, the Applicant shall review, and if necessary revise, the Environmental Management Strategy to the satisfaction of the Director-General.

8.2 Environmental Monitoring Program

- (a) By the end of May 2006, the Applicant shall prepare (and subsequently implement) an Environmental Monitoring Program for the Stratford coal mine, including the Bowens Road North operations, to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in this consent into a single document.
- (b) Within 3 months of the completion of the Independent Environmental Audit required in this consent, the Applicant shall review, and if necessary revise, the Environmental Monitoring Program to the satisfaction of the Director-General.

8.3 Annual Reporting

Each year, the Applicant shall prepare an AEMR to the satisfaction of the Director-General. This report must:

- identify the standards and performance measures that apply to the development;
- include a summary of the complaints received during the past year, and compare this to the complaints received in the previous 5 years;
- include a summary of the monitoring results on the development during the past year;
- include an analysis of these monitoring results against the relevant:
 - limits/criteria in this consent;
 - monitoring results from previous years; and
 - relevant predictions in the EIS and SEEs for the document;
- identify any trends in the monitoring over the life of the development;
- identify and discuss any non-compliance during the previous year; and
- describe what actions were, or are being, taken to ensure compliance.

8.4 Independent Environmental Audit

- (a) By the end of 2006, and every three years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
- be conducted by a suitably qualified, experienced, and independent person whose appointment has been endorsed by the Director-General;
 - be consistent with *ISO 19011:2002 – Guidelines for Quality and/or Environmental Systems Auditing*, or equivalent updated versions of these guidelines;
 - assess the environmental performance of the development, and its effects on the surrounding environment;
 - assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
 - review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and
 - if necessary, recommend measures or actions to improve the environmental performance of the development, and/or the environmental management strategy or monitoring systems.

- (b) Within 3 months of commissioning this audit, the Applicant shall submit a copy of the audit report to the Director-General, with a response to any of the recommendations contained in the audit report.

8.5 Community Consultative Committee

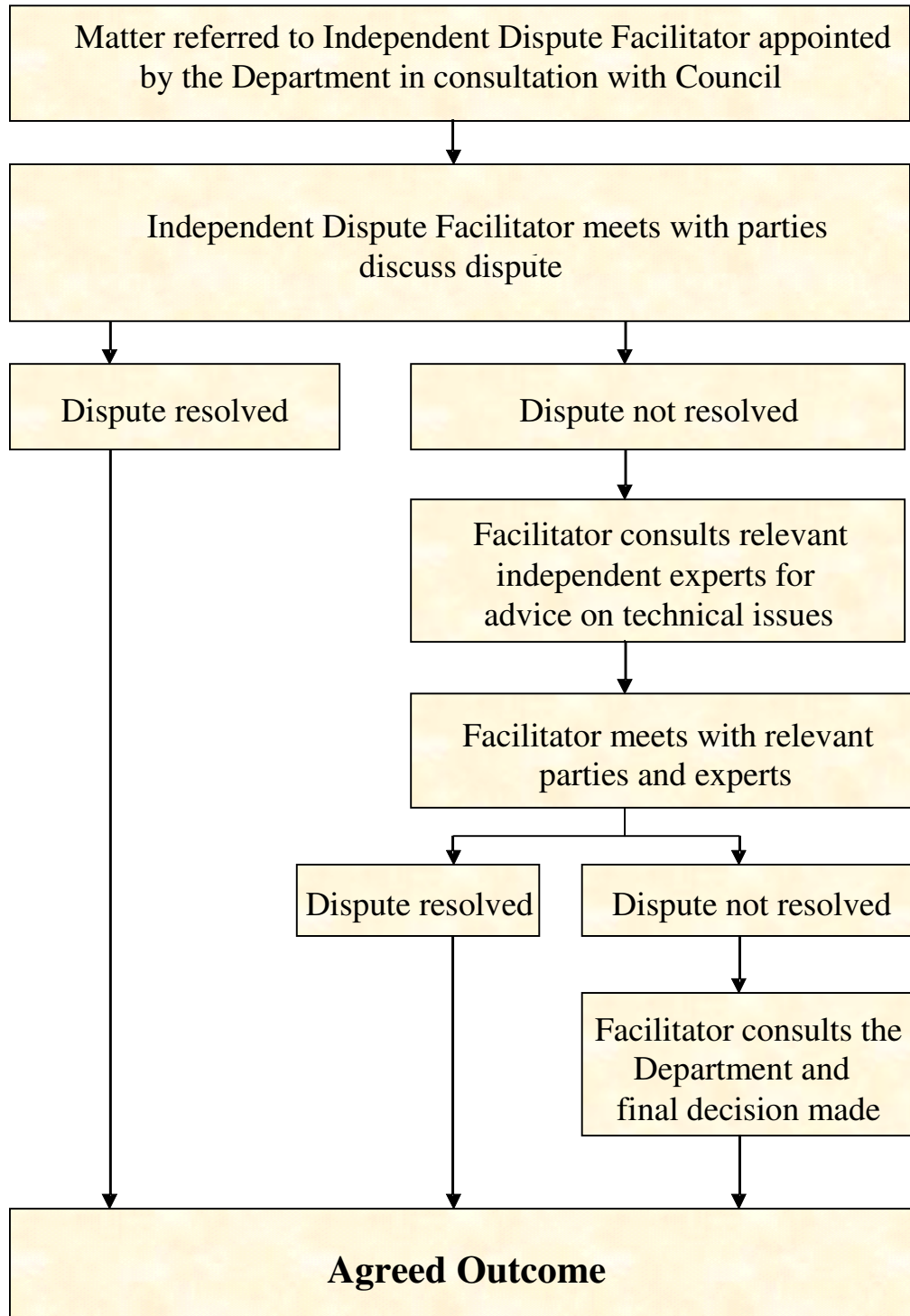
- (a) The Applicant shall ensure that there is a Community Consultative Committee to oversee the environmental performance of the development. This committee shall:
- be comprised of:
 - 2 representatives from the Applicant, including the person responsible for environmental management at the mine;
 - at least 1 representative from Council; and
 - at least 5 representatives from the local community, including 2 representatives from community groups,whose appointment has been approved by the Director-General in consultation with the Council;
 - be chaired by the representative from Council;
 - meet at least four times a year, or as determined by the Director-General; and
 - review and provide advice on the environmental performance of the development, including any management plans, monitoring results, audit reports, or complaints.
- (b) The Applicant shall, at its own expense:
- ensure that 2 of its representatives attend the Committee's meetings;
 - provide the Committee with regular information on the environmental performance and management of the development;
 - provide meeting facilities for the Committee;
 - arrange site inspections for the Committee, if necessary;
 - take minutes of the Committee's meetings;
 - make these minutes available on the Applicant's website within 14 days of the Committee meeting, or as agreed to by the Committee;
 - respond to any advice or recommendations the Committee may have in relation to the environmental management or performance of the development;
 - forward a copy of the minutes of each Committee meeting, and any responses to the Committee's recommendations to the Director-General within a month of the Committee meeting; and
 - reimburse the Council and representatives from the local community for all reasonable expenses incurred in attending the Committee's meetings.

8.6 Access to Information

- (a) Within 1 month of the approval of any management plan or monitoring program required under this consent (or any subsequent revision of these management plans or monitoring programs), the completion of the independent audits required under this consent, or the completion of the AEMR, the Applicant shall:
- provide a copy of the relevant document/s to the Council, relevant agencies and the CCC; and
 - ensure that a copy of the relevant documents is made publicly available at the mine, to the satisfaction of the Director-General.
- (b) During the life of the development, the Applicant shall:
- make the results of the monitoring required under this consent publicly available at the Council and the mine; and
 - update these results on a regular basis (at least every 4 months), to the satisfaction of the Director-General.

**APPENDIX 1
INDEPENDENT DISPUTE RESOLUTION PROCESS**

**Independent Dispute Resolution Process
(Indicative only)**



APPENDIX A
NOISE AND BLASTING ASSESSMENT



HEGGIES

REPORT 10-3140-R4

Revision 0

**Stratford Coal Mine
Section 75W Modification
Mine Operating and Rail Transport
Noise Impact Assessment**

PREPARED FOR
Stratford Coal Pty Ltd
PO Box 168
GLOUCESTER NSW 2422

9 JUNE 2010

HEGGIES PTY LTD
ABN 29 001 584 612



Stratford Coal Mine

Section 75W Modification

Mine Operating and Rail Transport

Noise Impact Assessment

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
10-3140-R4	Revision 0	9 June 2010	Glenn Thomas	Yang Liu	Glenn Thomas



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1 INTRODUCTION

1.1 Background

In December 1994, Stratford Coal Pty Ltd (SCPL), a wholly owned subsidiary of Gloucester Coal Ltd (GCL), was granted approval to develop the Stratford Coal Mine (SCM), an open cut mine utilising drill and blast, truck and shovel extractive methods with on-site processing. A summary of the SCM approvals history is provided in the main text of the Section 75W Modification report. The mine is situated between the villages of Stratford and Craven, New South Wales (NSW), with consent to operate for a period of 17 years.

The approved SCM includes:

- An open cut coal mine based on the Stratford Main Deposit (the SCM Main Pit operations were completed in August 2003) with existing and approved open cut mining in the Roseville Pit, the Roseville Pit Extension (RPE) and the Roseville West Pit (RWP).
- A coal handling and preparation plant (CHPP) and run-of-mine (ROM) and product coal stockpiles.
- A rail loop to facilitate transport of product coal to Newcastle and ROM coal from the Duralie Coal Mine (DCM).
- ROM coal production at a rate of up to 3.4 million tonnes per annum (Mtpa), including ROM coal from the DCM.
- Unloading, loading, processing and washing of coal from the DCM.
- Emplacement of CHPP rejects, including those generated by the processing of DCM ROM coal, within the SCM site.
- Mining of ROM coal from the Roseville Seam between the hours of 7.00 am and 10.00 pm.

In 2001, the Bowens Road North (BRN) coal mine was granted development consent with operations commencing in early 2003. The cumulative daytime and evening mine operating noise, rail transportation noise and blasting emissions associated with the simultaneous operation of the BRN and the SCM were presented in the BRN Environmental Impact Statement (EIS).

1.2 Proposed Modification and Noise Assessment

In November 2009, GCL (through its other subsidiary Duralie Coal Pty Ltd [DCPL]) lodged the Duralie Extension Project Environmental Assessment (DCPL, 2009) to facilitate an increase in ROM coal production rate at the DCM. This additional DCM ROM coal would be railed to the SCM. Additional ROM coal is also proposed from a deeper RWP (additional 1.4 Mt) and BRN pit cutback (additional 1.4 Mt). Additional BRN ROM coal is the subject of a separate modification application lodged in June 2010. These changes would, in-turn, require an increase in the CHPP processing rate at the SCM and would require additional DCM trains to be unloaded on the Stratford rail loop. In order to accommodate this, SCPL proposes a modification of the SCM Development Consent.

Heggies Pty Ltd (Heggies) has been engaged by SCPL to evaluate and assess the cumulative mine operating and rail transport noise impacts associated with the modification to the SCM, herein referred to as the proposed Modification. This noise assessment includes consideration of the potential cumulative impacts associated with the June 2010 BRN modification application, where applicable.

A detailed comparison of the approved and modified Projects is presented in **Appendix A**.

The assessment of on-site mine operating noise impact has been guided by the *NSW Industrial Noise Policy* (INP) (Environment Protection Authority [EPA], 2000) and associated application notes dated 21 February 2008. The assessment of off-site rail transport noise impact has been guided by NSW Department of Environment, Climate Change and Water (DECCW) *Environmental Assessment Requirements for Rail Traffic-Generating Developments*. The assessment of construction noise has been conducted in accordance with the DECCW's *Interim Construction Noise Guidelines* (ICNG).



1.3 Existing Approvals and Assessment Requirements

The SCM incorporates the existing RWP and operates (with respect to noise and vibration emissions) in accordance with the following approvals:

- Environment Protection Licence (EPL) No 5161 anniversary date 30 June, review date 24 April 2011 (relevant sections attached as **Appendix B1**).
- Development Consent (DA 23-98/99) dated 5 February 1999 (relevant sections attached as **Appendix B2**).

Relevant previous noise impact assessments are listed below. The relevant assessments include the BRN assessments because the two mines are in close physical proximity to each other and operate in an integrated fashion, with some mobile equipment being common to both mines and BRN ROM coal being processed at the SCM CHPP:

- Heggies Report 10-1033-R1 Bowen Road North Project Operating and Transportation Noise and Blasting Impact Assessment dated 17 January 2001 - including predictive daytime and evening noise emissions from the cumulative SCM and BRN operations.
- Heggies Report 10-3140-R1 Stratford Coal Mine Operating Noise Impact Assessment dated 19 August 2005 - including predictive daytime, evening and night-time noise emissions from the cumulative SCM/RPE and BRN operations.
- Heggies Report 10-3140-R2 Stratford Coal Mine Roseville West Pit Modification Operating Noise and Blasting Impact Assessment dated 4 October 2006 - including predictive daytime and evening noise emissions from the cumulative SCM/RPE/RWP and BRN operations. This modification is referred to herein as the 2006 RWP Modification.
- Heggies Report 10-3140-R3 Stratford Coal Mine Coal Handling Modification Noise Impact Assessment dated 2 June 2008 - including predictive daytime, evening and night-time noise emissions from the cumulative SCM/RPE/RWP and BRN operations. This modification is referred to herein as the 2008 Coal Handling Modification.

In view of the foregoing, the purpose of this noise impact assessment is as follows:

- Review existing mine noise emissions presented in recent quarterly monitoring reports and assess compliance with the approved noise limits.
- Review the status of the SCM noise mitigation programme.
- Investigation of feasible and reasonable noise mitigation measures and recommendation of additional noise mitigation measures with the aim of reducing predicted noise levels from the proposed Modification.
- Assess the daytime, evening and night-time cumulative mine operating and rail transport noise impacts associated with the proposed Modification.
- Assess the daytime construction noise impact associated with the loop augmentation.

Blasting operations at the SCM would remain generally unchanged as a result of the proposed modification. On this basis, a quantitative blasting assessment is not required as blasting emissions are not expected to change relative to the existing situation.



2 PROJECT OVERVIEW

2.1 Noise Sensitive Receivers

The SCM and surrounding area are shown on the Land Ownership Plan attached as **Appendix C**. The nearest potentially affected privately-owned residential and rural dwellings beyond the Mine Lease boundary are presented in **Table 1** including property numbers, landholder names, dwelling locations and coordinates.

2.2 Comparative Plant and Equipment Schedules

The potential for machinery to emit noise is quantified as the sound power level (SWL) expressed in A-weighted decibels (dBA) re 1 pW. At the receptor, the received noise is quantified as the sound pressure level (SPL) expressed in dBA re 20 µPa. The INP's energy equivalent (L_{eq}) assessment parameters has introduced greater mathematical rigour to the prediction of received noise levels as it enables the use of L_{eq} SWL as noise model inputs. In general terms, any variation in mine site L_{eq} SWL will produce a similar variation in the $L_{eq}(15\text{minute})$ sound pressure level at the receiver.

Comparative plant and equipment fleets are presented in **Table 2** together with the overall mine site L_{eq} SWLs from the SCM as approved in 1999 (DA 23-98/99), the approved SCM/RWP Modification (September 2008) and the proposed Modification.

As shown above, the overall site L_{eq} SWL from the proposed Modification (131 dBA) is marginally (1 dBA) greater than the approved SCM/RWP (130 dBA) and significantly lower by comparison with the SCM as approved in 1999 (DA 23-98/99) (136 dBA).



Table 1 Nearest Potentially Affected Residential and Rural Dwellings

Locality	Property Number/ Landholder	Previous Notation ⁴	Description	ENM Dwelling Coordinates ¹		
				East (m)	North (m)	Elevation (m)
Stratford/ Craven Residential	315 Bagnall ^{2,3}	90b Bagnall	The Bucketts Way, Craven	8278	12300	125
	31 Isaac (south) ²	49 Isaac (south)	The Bucketts Way, Stratford	8680	13520	130
	31 Isaac (north) ²	48 Isaac (north)	The Bucketts Way, Stratford	8550	13850	130
	Craven Village	Craven Village	The Bucketts Way, Craven	9276	10578	130
	42 Blanch ²	69 Blanch	The Bucketts Way, Craven	9450	10575	140
	41 Devereaux ²	68 Devereaux	The Bucketts Way, Craven	9575	10700	145
	39 Standen	93c Standen	Off Woods Road, Craven	8675	10665	138
	Stratford Village	Stratford Village	The Bucketts Way, Stratford	8650	14775	130
	33 Battaglini ²	90a Battaglini	Off The Bucketts Way, Stratford	8100	13150	130
	26 Lowrey	84 Lowrey	Off The Bucketts Way, Stratford	8100	14800	120
	40 Blanch ²	93a Blanch	The Bucketts Way, Craven	8800	11050	133
	18 Denyer ^{2,3}	24 Ellis	Off Wenhams Cox Road, Stratford	12250	16000	130
Stratford/ Craven Rural	13 AGL Energy Limited	18 Atkins	Wheatleys Road, Stratford	10284	16560	110
	32 McIntosh	89 McIntosh	Off Upper Avon Road, Stratford	7500	12950	145
	151 Wadland ³	46 Wadland	Off Bowens Road, Stratford	13258	13328	252
	6 AGL Gloucester Le Pty Ltd & AGL Gloucester MG Pty Ltd	13 Tiedeman	Off Fairbairns Lane, Stratford	11150	17450	120
	9 Williams	16 Williams	Off the Bucketts Way, Stratford	9100	17140	130
	25 Thompson	83 Thompson	Off The Bucketts Way, Stratford	7600	14400	140
	11 Walker	29 Walker	Off The Bucketts Way, Stratford	8575	16700	130
	5 Bignell	10 Bignell	Off The Bucketts Way, Stratford	8750	18300	130
	7 Burrel	6 Burrel	Off Fairbairns Lane, Stratford	12575	17925	125
	21 Clarke	26 Clarke	Off Bowens Road, Stratford	13175	14250	150
	15 GS & GL Falla Superannuation Pty Ltd (north)	19 Wadland	Off Wenhams Cox Road, Stratford	9159	15990	120
	14 Wenham	31 Wenham	Off Wenhams Cox Road, Stratford	9032	15718	120
	15 GS & GL Falla Superannuation Pty Ltd (south)	33 Wadland	Off Wenhams Cox Road, Stratford	9302	15856	120
	10 Whatmore	78a Whatmore	Off The Bucketts Way, Stratford	8352	17022	145
	10 Whatmore	78b Whatmore	Off The Bucketts Way, Stratford	7954	17278	140
	202 Wenham	31a Wenham	Off The Bucketts Way, Stratford	8287	15573	128
	16 Pickett	82a Pickett	Off The Bucketts Way, Stratford	8950	15773	120
	291 Stackman & Partridge	N/A	Off Upper Avon Road, Craven	6639	12377	140
	34 Hall	N/A	Off Upper Avon Road, Craven	6713	12380	140
	36 Wallace	N/A	Off Woods Road, Craven	7270	11195	155
	298 Yates	N/A	Off Woods Road, Craven	7543	10686	152

Note 1: To convert to ISG coordinates add 380,000 mE and add 1,430,000 mN.

Note 2: Properties identified in the SCM Consent as being in the Noise Acquisition (Affection) Zone.

Note 3: Properties identified in the BRN Consent as being in the Noise Acquisition (Affection) Zone.

Note 4: Previous Notation taken from Coal Handling Modification (Heggies, 2008).



Table 2 Approved SCM and Proposed Modification Equipment Fleet

Equipment Description	SCM (July 1999 Approval)		Approved SCM/RWP (September 2008 Modification)		SCM/RWP Coal Haulage Scenario				BRN Coal Haulage Scenario			
					SCM Modification		BRN Modification		SCM Modification		BRN Modification	
	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL
Drills	1	116	1	119	1	119	-	-	1	119	-	-
Excavators (Coal)	2	115	1	108	1	108	-	-	-	-	1	115
Excavators (Waste)	2	120	2	116	1	109	2	116	2	112	-	-
Excavators (Ripping)	-	108	-	108	1	108	1	107	1	108	1	107
789 Haul Trucks	6	132	-	-	-	-	-	-	-	-	-	-
785 Haul Trucks	6	131	-	-	-	-	-	-	-	-	-	-
775 Haul Trucks	-	-	4	126	4	126	7	128	4	126	7	128
A40D Haul Trucks	-	-	3	117	4	118	-	-	4	118	-	-
A30D Haul Trucks	-	-	-	-	-	-	-	-	-	-	-	-
Dozers (Inpit)	1	114	-	-	2	124	2	124	2	124	2	124
Dozers (waste)	1	119	2	120	1	120	1	120	1	120	1	120
Water Cart	1	120	1	113	1	120	1	112	1	112	1	120
Loaders (ROM)	1	117	1	110	1	110	-	-	1	110	-	-
Graders	1	115	1	112	1	112	1	112	1	112	1	112
Mobile Fleet	22	135	16	129	18	130	15	130	18	130	14	131
Primary Crusher		107		107		107		-		107		-
Secondary Crusher		113		106		106		-		106		-
CHPP		122		122		122		-		122		-
Stockpile Dozer	1	120	1	112	1	112		-	1	112		-
Coal Stockyard		109		111		111		-		111		-
Trains/Rail Loadout		114		114		113		-		113		-
Rail Loading		112		113		118		-		118		-
Coal Handling		125		124		124		-		124		-
Overall Total		136		130		131		130		131		131

Note 1: SWL (dB re 1 pW).

Note 2: Two scenarios (SCM/RWP Coal Haulage and BRN Coal Haulage scenario) have been modelled to account for operational constraints that mean that when one pit is producing coal, the other is producing waste rock only.



2.3 Proposed Modification

Summary

The proposed Modification is limited by comparison to the approved development with only minor changes to active mining and waste areas, coal handling and preparation plant (CHPP) and coal handling, stock pile and rail loop areas are proposed (**Appendix D**).

The proposed Modification comprises:

- an increase in the annual CHPP ROM coal processing rate from approximately 3.4 Mtpa up to approximately 4.6 Mtpa;
- an increase in the number of DCM trains unloaded on the SCM rail loop (i.e. increase of three to four per day, on average);
- alteration to the DCM train unloading times at the SCM;
- an increase in the amount of product coal transported via rail from the SCM from 2.3 to 3.3 Mtpa, to be accommodated by the use of longer product coal trains;
- augmentation of the SCM rail loop with an additional 400 metre (m) section of track immediately adjacent to the current track;
- a deepening of the Roseville West Pit to facilitate access to an additional 1.4 Mt of ROM coal with an associated additional 8 million bulk cubic metres (Mbcm) of waste rock to be mined;
- irrigation of water from the Stratford East Dam on a portion of the rehabilitated Stratford Waste Emplacement; and
- an increase in the volume of CHPP rejects to be deposited in the Stratford Main Pit.

The proposed SCM and BRN provisional development schedule is presented in **Table 3**.



Table 3 SCM and BRN Approved and Modified Provisional Development Schedule

Year End	SCM		BRN	SCM and BRN
	Main Deposit	RWP		Coal Handling
June 2001	7	-	0	SCM coal
June 2002	8	-	1 ²	SCM and BRN coal
June 2003	9	-	2	SCM, BRN and DCM coal
June 2004	Closed	-	3	
June 2005	-	-	4	
June 2006	-	-	5	
June 2007	-	0	6	
June 2008	-	1 ¹	7	
June 2009	-	2 ¹	8	
June 2010	-	3	9	
June 2011	-	4	10	
June 2012	-	5	11	
June 2013	-	6	12	DCM coal only
June 2014	-	Closed	Closed	
June 2015	-	-	-	
June 2016	-	-	-	
June 2017	-	-	-	
June 2018	-	-	-	
June 2019	-	-	-	

Note 1: RWP Year 1 (Phase 1) and Year 2 (Phase 2) in accordance with existing approvals.

Note 2: Actual operations did not commence until 2003.

The approved SCM and BRN hours of operation are presented in **Table 4**.



Table 4 SCM and BRN Approved and Modified Hours of Operation

Phase	Approved SCM	Modified SCM	Approved BRN	Modified BRN ³
Mine Operation	24 hours ¹	As per SCM ¹	0700 hrs to 1900 hrs	As per BRN
Coal handling, processing and stockpiling	24 hours	24 hours	n/a	As per BRN
On-site train unloading	0700 hrs to 2200 hrs	0700 hrs to 0200 hrs 7 days per week	n/a	As per BRN
On-site train loading	24 hours	As per SCM	24 hours	As per BRN
Export Coal Off-site rail transportation	24 hours	As per SCM	24 hours	As per BRN
Domestic Coal Off-site rail transportation	24 hours	As per SCM	0700 hrs to 2200 hrs ²	As per BRN
Blasting	0900 hrs to 1700 hrs Monday to Saturday (EST) 0900 hrs to 1800 hrs Monday to Saturday (DST)	As per SCM	0900 hrs to 1700 hrs Monday to Saturday	As per BRN

Note 1: RWP Approved and Modified hours of operation 0700 hrs to 2200 hrs 7 days per week only.

Note 2: Unless loading outside these hours is determined to be unavoidable by the Rail Access Corporation, National Rail and/or FreightCorp.

Note 3: Refer to separate BRN Modification (SCPL, 2010).

Roseville West Pit (RWP)

The ROM coal production rate at the modified SCM would remain unchanged at up to 2.1 Mtpa. An additional 1.4 million tonnes (Mt) of ROM coal would be mined from the RWP over a period of approximately two years (mining to cease in approximately 2013). The additional coal would be mined via a deepening of the Roseville West Pit.

Total waste rock would increase by approximately 8 million bank cubic metres (Mbcm). No changes to the mining method would be necessary and the mining fleet would be generally unchanged.

Coal Handling and Preparation Plant (CHPP)

No change (apart from increased utilisation) to the SCM CHPP or coal handling fixed infrastructure would be necessary for the Modification. The existing CAT988 front end loader operating on the product coal stockpile would be replaced by a CAT992K front end loader in late 2010 to accommodate increased coal production.

The proposed Modification would involve an increase in the maximum rate of processing in the SCM CHPP from approximately 3.4 Mtpa to 4.6 Mtpa, mostly due to the additional DCM ROM coal (1.2 Mtpa), as a result of the proposed Duralie Extension Project. The proposed Modification would result in an increase in the maximum rate of production of saleable product coal of 1.0 Mtpa (ie an increase from 2.3 Mtpa to 3.3 Mtpa). Processing of ROM coal in the SCM CHPP would continue up to 2019 and the SCM CHPP would continue to operate 24 hours per day, seven days per week.



Stratford Rail Loop (loading and unloading)

The proposed Modification would involve unloading of an increased number of DCM trains on the SCM rail loop, in line with increased ROM coal production at the DCM. The average number of trains that would be used to haul DCM coal to the SCM would increase from three to four, with the peak trains increasing from four to five (following the introduction of GL class locomotives [or equivalent], as discussed below).

In the first year of the Duralie Extension Project¹, the existing locomotives that service the DCM and SCM would continue to be used during the existing/approved hours. From Year 2 (or sooner, subject to contract arrangements and availability of locomotives), the existing locomotives would be replaced by GL class locomotives (or equivalent) which are quieter than the existing DCM locomotives (560 m long trains would be replaced with 600 m long trains). Upon their introduction, the existing/approved ROM coal transportation period (7.00 am to 10.00 pm) would be extended to 2.00 am and the average trains per day would increase from 3 to 4 trains. This extension would facilitate improved access to the Australian Rail Track Corporation (ARTC) network train paths.

In order to accommodate the increased product coal production rates, longer (72 wagon) product coal trains would be introduced from the fourth quarter of 2011 (or earlier, subject to contractual arrangements). These larger trains would involve an additional locomotive (ie three 81/81 class locomotives would be used instead of the current two). This means that the average number of trains per day that would be used to haul product coal from the SCM would remain at an average of 2.5 per day and a peak of 5 per day.

A 400 m section of the existing Stratford rail line would be augmented to facilitate improved access to the existing coal loading/unloading infrastructure. This augmentation would allow two long (72 wagon) export trains to be on the loop at one time, increasing operational efficiency of the rail loop and reducing congestion on the main line (Mid Coast Railway).

Rail Loop Augmentation Construction

Construction of the rail loop augmentation would involve relocation of services in the vicinity of the existing loop, earthworks, ballast placement, line placement, signalling works and points relocation. The earthworks component would involve the most intensive mobile equipment requirement and would take approximately 12 weeks. The typical mobile equipment required comprises:

- D6 dozer
- 30 t excavator
- 2 x 30 t articulated dump trucks
- Water cart (shared with ongoing SCM mining operations)

In addition, limited use of a rock breaker may be required subject to the geotechnical conditions encountered below ground level. Spoil removed from the cutting would be used as fill for other parts of the rail loop duplication, or placed as windrows to the east of the cutting.

2.4 Bowens Road North Open-cut Modification

A cutback of the existing BRN open cut pit is proposed as part of a separate Modification (Bowens Road North Open Cut June 2010 Statement of Environmental Effects, SCPL [2010]). The pit cutback would involve mining of the same coal seams as the existing BRN open cut pit. No changes to the mining method would be necessary and the mining fleet would be generally unchanged with mining anticipated to cease in approximately 2013.

¹ Duralie Extension Project Environmental Assessment, November 2009 (DCPL, 2009) approval currently pending.



The proposed Modification to the BRN open cut pit would result in the additional mining of 1.4 Mt of ROM coal (ie total of 5.4 Mt over the life of mine). An additional 0.5 Mbcm of waste rock would be mined at the BRN (ie total of approximately 8.6 Mbcm of waste rock over the life of mine).

Although approval of this cutback is pending, the BRN operations are included in this assessment for the purposes of cumulative assessment.

3 ACOUSTICAL AND METEOROLOGICAL ENVIRONMENT

3.1 Pre-mining Background Noise Environment

Previous studies detail the background noise environment in the absence of mining operations as being a rural noise environment, with rating background levels (RBLs) ranging from 30 dBA to 32 dBA during the daytime, evening and night-time with insignificant industrial noise contributions. These noise levels have previously formed the basis for the assessment of intrusive mine emissions against the relevant project specific noise levels and the determination of the consented noise limits.

3.2 Mine-inclusive Ambient Noise Environment

Annual Environmental Management Report (AEMR) June 2009

SCPL's 2009 AEMR presents a summary of SCM and BRN noise monitoring results during the reporting period, other noise investigations and control measures and community complaint details. The AEMR states: *"Full daytime, evening and night-time noise compliance was achieved for all noise surveys. The September 2008 results concluded that excursions from the noise criteria were measured, however a moderate temperature inversion was predicted during the entire survey, potentially causing significant noise reinforcement."*

In addition to the routine quarterly monitoring, SCPL regularly undertakes mobile equipment source noise monitoring. The measurements are generally conducted in April (or May) each year however due to adverse weather conditions were deferred to August 2009.

September and December 2009 and March 2010 Noise Monitoring Summary

Routine noise monitoring was conducted in September 2009, December 2009 and March 2010 in accordance with the current SCPL Noise Management Plan (Vipac, 2006). The September report confirms noise compliance was achieved during the daytime, evening and night-time periods at all eight monitoring locations, except at (21) Clarke (south) where a marginal (2 dBA) exceedance was recorded during the daytime survey. Wind speeds on this day fluctuated around 3 metres per second (m/s) (and often above) (which is the maximum wind speed relevant to SCPL's noise limits) on the day of monitoring. The December report confirms noise compliance was achieved during the daytime, evening and night-time periods at all eight monitoring locations.

The March report confirms noise compliance was achieved during the daytime, evening and night-time periods at all eight monitoring locations, except at (31) Issac (south) where a significant (> 5dBA) exceedance was recorded during the evening survey under noise enhancing weather (ie prevailing wind and temperature inversion).

3.3 Noise Complaint Records

Twenty-three complaints were received in 2009 relating to on-site operational noise. This was an increase on previous years, where nine complaints were received in 2008, and six complaints were received in both 2007 and 2006. To date (May 2010) seven operational noise complaints have been received by SCPL in 2010.



In addition to the above, a small number of on-site rail noise complaints were also received, with two received in 2009, four in 2008 and none in 2007.

3.4 Meteorological Environment

The prevailing SCM meteorological conditions have been previously determined in accordance with the INP and for the purposes of this assessment (and for consistency with previous studies) remain unchanged as presented in **Table 5**.

Table 5 Calm and Noise Enhancing Meteorological Modelling Parameters

Period	Meteorological Parameter	Air Temp	Relative Humidity	Wind Velocity	Temperature Gradient
Daytime	Calm	18°C	60%	0 m/s	0°C/100 m
Evening	Calm	14°C	75%	0 m/s	0°C/100 m
Night-time ¹	Wind only	10°C	90%	North north-east 3 m/s	0°C/100 m
Night-time ²	Inversion only Winter	10°C	90%	0 m/s	3°C/100 m
Night-time ³	Inversion and Drainage	10°C	90%	North north-east 2 m/s	3°C/100 m

Note 1: INP default wind speed 3 m/s.

Note 2: INP default temperature inversion 3°C/100 m.

Note 3: INP default temperature inversion 3°C/100 m and 2 m/s north north-east drainage flow.

3.5 Off-site Construction Noise Assessment Criteria

As discussed in **Section 2.3**, the initial stage of the rail augmentation construction would involve some earthworks. DECCW's ICNG has been used for this assessment.

The use of the ICNG is considered appropriate as the rail construction is a discrete, short-term activity (involving a modest bulk earthworks fleet anticipated to take approximately 12 weeks) that would be undertaken by a separate construction contractor, is located on the western extremity of the rail loop, relatively remote from mining activities and is not located on SCPL's mining leases.

The ICNG recommends a construction noise management level (CNML) equivalent to the daytime RBL plus 10 dBA within standard hours (ie daytime) and RBL plus 5 dBA outside standard hours (ie evening and night-time). The ICNG also contains "highly noise affected" daytime CNMLs which are set at 75 dBA LAeq(15minute). As the rail siding construction will be limited to daytime only, the ICNG construction noise management levels are presented in **Table 6**.

Table 6 Modification ICNG LAeq(15minute) Construction Noise Management Levels (dBA re 20 µPa)

Locality	Rated Background Level RBL ¹			Daytime CNML (noise affected) RBL plus 10 dBA	Daytime CNML (highly noise affected)
	Daytime	Evening	Night-time		
Stratford/Craven Residential	32	31	30	42	75
Stratford/Craven Rural	30	31	30	40	75

Note 1: Refer Heggies Report 10-3140-R2 Stratford Coal Mine Roseville West Pit Modification Operating Noise and Blasting Impact Assessment dated 4 October 2006.



4 NOISE MITIGATION AND MODELLING METHODOLOGY

4.1 Approved Mine Mitigation

An appreciable level of effort has been applied by SCPL to identify and implement reasonable and feasible on-site noise controls since the commencement of mining, particularly to minimise the impact of night-time noise emissions from the SCM. The noise controls identified as reasonable and feasible in the 2008 Coal Handling Modification and their implementation status is described in **Table 7**.

Table 7 Implementation Status of 2008 Coal Handling Modification Noise Mitigation Measures

Noise Control	Implementation Status
Installed ROM front-end loader (FEL) CAT988 (or equivalent) with maximum Leq operating SWL of 110 dBA.	Completed - SWL testwork indicates that the FEL is operating at approximately 107 dBA.
Installed 5 m high ROM hopper barrier. ROM coal stockpiles to be maintained at 5 m height whenever possible and FEL to be operated generally within the ROM coal stockpile area.	Completed.
Installed secondary crusher SWL 106 dBA. Note, the RWP noise assessment identified a 10 dBA noise reduction requirement for the crusher with 7 dBA achieved to date.	Ongoing - crushing tower to be completely replaced; replacement structure to be fully cladded to achieve 106 dBA.
The new coal stockpile would replace approximately 150 m of a visual/noise bund wall located to the west of the CHPP. The primary purpose of the bund (relative level [RL] 137 m) was to provide a modest level of noise attenuation from the ground levels of the CHPP, particularly for dwellings located to the south-west (ie Craven village). The new coal stockpile would retain a minimum RL 137 (even when empty) and the effective height of the barrier (provided by the existing bund) would not be compromised.	Completed.
The remaining southern length of the visual/noise bund wall adjacent to the CHPP would be increased in height by approximately 3 m to RL 140 m.	Completed.
Installed coal stockpile CAT D10 Dozer (or equivalent) with an operating Leq SWL of 110 dBA.	Completed.
Installed new conveyors and drives (new product stockpile and ROM conveyor/stacker) to be consistent with current low noise conveyor system technology and commissioned in accordance with an acoustic design specification. Hence, the new conveyor systems would be installed with lower noise emissions by comparison with the existing conveyor systems.	Ongoing - implementation of new equipment substantially completed with noise testwork and verification to be completed.

Source: SCPL (2010).

4.2 Proposed Modification Mitigation

SCPL is obligated under the current Development Consent requirements to implement all reasonable and feasible noise mitigation measures. The mitigation measures described in **Section 4.1** have been adopted in this noise assessment. In addition, Heggies conducted an investigation of reasonable and feasible noise mitigation measures, particularly in relation to night-time operations. A number of iterative steps were undertaken to develop noise mitigation measures for the proposed Modification, including:

1. Preliminary noise modelling of scenarios representative of the maximum noise emissions from the proposed Modification to identify the potential for noise exceedances.
2. Evaluation of various combinations of noise management and mitigation measures to assess their relative effectiveness.
3. Review of the effectiveness of these measures and assessment of their feasibility by SCPL.
4. Adoption by SCPL of a range of noise management and mitigation measures (including low noise equipment and operational controls) to appreciably reduce noise emissions associated with the proposed Modification, including (refer to **Table 8**).



Table 8 Proposed Modification Mitigation Measures

Component	Description of Mitigation Measure
Coal Handling and Preparation Plant	Partial enclosure of the ground and first floor levels of the CHPP and acoustic lining of 50% of the interior and commissioned in accordance with an acoustic design specification. Heggies Report 5083-R12 Stratford Coal Mine Coal Crushers and Preparation Plant Noise Impact dated 16 July 1997 presents a detailed assessment of alternative CHPP noise reduction measures involving partial enclosure of the CHPP building. The enclosure would comprise additional 0.47 millimetres (mm) (TCT) Colorbond Profile Steel Iron Cladding on the ground and first floor level excluding the northern facade (ie adjacent to the hardstand area). In addition, to reduce the internal reverberant sound level within the CHPP building, absorptive lining would be applied to 50% of the total internal surface area comprising of 50 mm rockwool sealed in a thin Mylar film and perforated steel sheeting or equivalent treatment (eg QUASH Acoustic Absorber or equivalent).
Stratford Rail Loop	Install two adjacent acoustic barriers approximately 60 m in length, with an elevation of 5 m above rail level and an offset distance no greater than 3 m from the nearest outer rail. The barriers would be located adjacent to the “at rest location” of idling locomotives on the southern (ie inbound) side of the rail loop. The barriers to be constructed from a material with surface density not less 18 kilograms (kg) per square metre (eg CSR Hebel Sound Barrier or equivalent materials).
Coal Handling	Install low noise idlers on conveyors CV18 and CV17 consistent with current (super) low noise conveyor system technology and commissioned in accordance with an acoustic design specification.
Coal Loading and Unloading Stations	Partial enclosure of the eastern and western wings of the coal loader comprising 0.47 millimetres (mm) (TCT) Colorbond Profile Steel Iron Cladding (or equivalent) extending from ground level up to a minimum height of 10 m. Similarly, enclosure of the coal unloader comprising iron cladding extending from rail down to ground level

4.3 Mine Noise Modelling Procedure

The SCM and BRN validated mine computer model was modified to incorporate the noise sources associated with the proposed Modification. The surrounding terrain and nearby potentially affected residential receivers were also included in the model. In addition, the model was updated and calibrated using recent on-site noise monitoring of SWLs of on-site equipment (refer VIPAC report dated 29 August 2009).

The computer model was prepared using RTA Technology Pty Ltd software Environmental Noise Model (ENM for Windows, Version 3.06), a commercial software system developed in conjunction with the (then) NSW Environmental Protection Agency (EPA). The acoustical algorithms utilised by this software have been endorsed by the Australian and New Zealand Environment Council and all State Environmental Authorities throughout Australia as representing one of the most appropriate predictive methodologies currently available.

There are two relevant operating scenarios for the Modification:

1. RWP ROM coal and waste rock haulage with simultaneous BRN waste haulage.
2. BRN ROM coal and waste rock haulage with simultaneous RWP waste haulage.

The cumulative mobile equipment and fixed plant associated with these two scenarios are summarised in **Table 9**.



Table 9 Proposed Modification Operating Scenarios

Mining Activity	Proposed Modification (RWP Coal Haulage)	Proposed Modification (BRN Coal Haulage)
RWP	RWP coal haulage to SCM ROM stockpile, waste haulage to Stratford Pit waste emplacement	RWP waste haulage to Stratford Pit waste emplacement
BRN	BRN waste haulage to in-pit waste emplacement	BRN coal haulage to SCM ROM stockpile, waste haulage to in-pit waste emplacement
CHPP and Coal Stockpiling	Operating	Operating
Train Loading or Train Unloading	Operating	Operating

Modelling of mining operations included all existing and proposed plant items operating concurrently to simulate the overall maximum energy equivalent (ie $L_{Aeq(15\text{minute})}$) intrusive noise level. Specific assessment against the $L_{Aeq(\text{period})}$ amenity project specific noise levels is not required for this assessment as the $L_{A15(\text{minute})}$ intrusive noise limits are more stringent and determine compliance.

The model includes both coal loading or coal unloading operations and train movements on the rail loop. A large proportion of the mobile equipment is operated in repeatable routines and a relatively smaller proportion of the emissions emanate from continuous fixed plant items.

The L_{Aeq} SWLs given for each item of mobile equipment do not include noise emissions which emanate from alarms. In the event that alarm noise is considered to be a source of disturbance, the alarm noise level should be checked against the appropriate Australian Standard and/or requirements and the necessary mitigating action taken to achieve an acceptable noise reduction without compromising safety standards. It is noted that SCPL have installed broad-band “quacker” reversing alarms on the mobile equipment fleet.

5 CONSTRUCTION NOISE IMPACT ASSESSMENT

5.1 Daytime - Modification Construction

The daytime rail augmentation construction $L_{Aeq(15\text{minute})}$ intrusive emissions to the nearest residential receivers are presented in **Table 10** together with the CNMLs nominated in **Section 3.5**.

This assessment indicates that noise levels would be within the “highly noise affected” CNML stipulated in the ICNG.

One privately-owned noise receiver (315 Bagnall) would exceed the “noise affected” CNML. This receiver is located in close proximity to the North Coast Railway, the Bucketts Way and the SCM rail spur and would be in close proximity to rail construction activities.

It is noted that the predicted construction noise levels are lower than the corresponding predicted operational noise levels (**Section 6**) with the exception of 315 Bagnall.



Table 10 Daytime Construction LAeq(15minute) Noise (dBA re 20 µPa)

Locality	Land Owner	Intrusive Level Calm ¹		Daytime CNML (noise affected)	Daytime CNML (highly noise affected)
		Rail Loop Construction without Rockbreaking	Rail Loop Construction with Rockbreaking		
Stratford/ Craven Residential	315 Bagnall ^{2,3}	58 ⁴	65 ⁴	42	75
	31 Isaac (south) ²	26	30		
	31 Isaac (north) ²	24	28		
	Craven Village	15	17		
	42 Blanch ²	14	17		
	41 Devereaux ²	15	17		
	39 Standen	15	20		
	Stratford Village	17	22		
	33 Battaglini ²	29	33		
	26 Lowrey	17	22		
	40 Blanch ²	19	24		
Stratford/ Craven Rural	18 Denyer ^{2,3}	4	12	— ⁵	75
	13 AGL Energy Limited	4	7	40	
	32 McIntosh	28	33		
	151 Wadland ³	6	13		
	6 AGL Gloucester Le Pty Ltd	2	8		
	9 Williams	7	11		
	25 Thompson	18	23		
	11 Walker	9	13		
	5 Bignell	2	6		
	7 Burrel	0	3		
	21 Clarke	0	6		
	15 Falla (north)	9	14		
	14 Wenham	11	16		
	15 Falla (south)	9	15		
	10 Whatmore	8	14		
	10 Whatmore	3	9		
	202 Wenham	13	18		
	16 Pickett	11	16		
	291 Stackman & Partridge	21	25		
	34 Hall	22	25		
	36 Wallace	24	27		
	298 Yates	21	25		

Note 1: Meteorological modelling parameters as described in **Table 5**.

Note 2: Properties identified in the SCM Consent as being in the Noise Acquisition (Affectation) Zone.

Note 3: Properties identified in the BRN Consent as being in the Noise Acquisition (Affectation) Zone.

Note 4: Construction Noise Level above the CNML (noise affected).

Note 5: Currently subject to commercial agreement between SCPL and the landowner.



6 MINE NOISE IMPACT ASSESSMENT

6.1 Daytime - Modification Operation

The cumulative daytime proposed Modification operating LAeq(15minute) intrusive emissions to the nearest dwellings are presented in **Table 11** together with the consented noise limits.

Table 11 Cumulative Daytime Operation LAeq(15minute) Noise (dBA re 20 µPa)

Locality	Land Owner	Intrusive Level Calm ¹				SCM Consented Noise Limits
		RWP Coal Haulage		BRN Coal Haulage		
		Train Loading	Train Unloading	Train Loading	Train Unloading	
Stratford/ Craven Residential	315 Bagnall ^{2,3}	39 ⁴	40 ⁴	39 ⁴	40 ⁴	37
	31 Isaac (south) ²	36	34	36	33	37
	31 Isaac (north) ²	36	33	36	33	37
	Craven Village	32	33	32	33	37
	42 Blanch ²	31	31	31	31	37
	41 Devereaux ²	34	33	34	33	37
	39 Standen	32	33	32	33	37
	Stratford Village	33	33	33	32	35
	33 Battaglini ²	38 ⁴	32	38 ⁴	32	37
	26 Lowrey	28	28	28	27	35
	40 Blanch ²	34	35	34	35	37
Stratford/ Craven Rural	18 Denyer ^{2,3}	45	45	42	42	— ⁵
	13 AGL Energy Limited	38 ⁴	38 ⁴	36	36	37
	32 McIntosh	37	34	37	34	37
	151 Wadland ³	33	33	32	32	37
	6 AGL Gloucester Le Pty Ltd	35	35	33	33	37
	9 Williams	33	33	32	32	35
	25 Thompson	31	30	30	29	35
	11 Walker	32	32	31	31	35
	5 Bignell	29	29	27	27	35
	7 Burrel	28	28	26	26	35
	21 Clarke	24	24	23	23	35
	15 Falla (north)	34	34	32	32	35
	14 Wenham	32	32	31	31	35
	15 Falla (south)	34	34	32	32	35
	10 Whatmore	32	32	30	30	35
	10 Whatmore	21	21	20	20	35
	202 Wenham	32	32	31	31	35
	16 Pickett	31	31	30	30	35
	291 Stackman & Partridge	27	25	27	25	35
	34 Hall	27	25	27	25	35
	36 Wallace	29	29	29	29	35
	298 Yates	26	26	27	26	35

Note 1: Meteorological modelling parameters as described in **Table 5**.

Note 2: Properties identified in the SCM Consent as being in the Noise Acquisition (Affection) Zone.

Note 3: Properties identified in the BRN Consent as being in the Noise Acquisition (Affection) Zone.

Note 4: Noise level above consented noise limits.

Note 5: Currently subject to commercial agreement between SCPL and the landowner.



The cumulative daytime noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 3 dBA exceedance), 33 Battaglini (minor 1 dBA exceedance) and 13 AGL Energy Limited (minor 1 dBA exceedance).

Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent, whilst the noise level at 13 AGL Energy Limited would be elevated by 1 dBA to 38 dBA.

6.2 Evening - Modification Operation

The cumulative evening Modification operating LAeq(15minute) intrusive emissions to the nearest dwellings are presented in **Table 12** together with the consented noise limits.

Table 12 Cumulative Evening Operation LAeq(15minute) Noise (dBA re 20 µPa)

Locality	Land Owner	Intrusive Level Calm ¹				SCM Consented Noise Limits
		RWP Coal Haulage		BRN Coal Haulage		
		Train Loading	Train Unloading	Train Loading	Train Unloading	
Stratford/ Craven Residential	315 Bagnall ^{2,3}	39 ⁴	41 ⁴	39 ⁴	41 ⁴	37
	31 Isaac (south) ²	36	33	36	33	36
	31 Isaac (north) ²	36	32	36	32	36
	Craven Village	33	34	32	33	35
	42 Blanch ²	31	31	31	31	36
	41 Devereaux ²	34	34	34	33	36
	39 Standen	33	33	33	33	35
	Stratford Village	32	30	31	30	35
	33 Battaglini ²	39 ⁴	32	38 ⁴	32	36
	26 Lowrey	27	26	26	25	35
Stratford/ Craven Rural	40 Blanch ²	35	36	35	36	36
	18 Denyer ^{2,3}	30	30	29	29	— ⁵
	13 AGL Energy Limited	31	31	31	31	35
	32 McIntosh	37 ⁴	34	37 ⁴	34	35
	151 Wadland ³	31	31	30	29	35
	6 AGL Gloucester Le Pty Ltd	27	27	26	26	35
	9 Williams	28	28	28	28	35
	25 Thompson	30	28	30	27	35
	11 Walker	27	27	27	27	35
	5 Bignell	23	23	23	23	35
	7 Burrel	22	22	21	21	35
	21 Clarke	20	20	19	19	35
	15 Falla (north)	30	29	29	29	35
	14 Wenham	29	29	29	29	35
	15 Falla (south)	30	30	30	30	35
	10 Whatmore	28	27	27	27	35
	10 Whatmore	18	18	18	18	35
	202 Wenham	29	29	29	28	35
	16 Pickett	29	28	28	28	35
	291 Stackman & Partridge	27	25	27	24	35
	34 Hall	28	25	27	25	35
	36 Wallace	30	29	30	29	35
	298 Yates	26	26	26	26	35

Note 1: Meteorological modelling parameters as described in **Table 5**.

Note 2: Properties identified in the SCM Consent as being in the Noise Acquisition (Affection) Zone.

Note 3: Properties identified in the BRN Consent as being in the Noise Acquisition (Affection) Zone.

Note 4: Noise level above consented noise limits.

Note 5: Currently subject to commercial agreement between SCPL and the landowner.



The cumulative evening noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 4 dBA exceedance), 33 Battaglini (moderate 3 dBA exceedance) and 32 McIntosh (minor 2 dBA exceedance).

Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent, whilst the noise level at 32 McIntosh would be elevated by 2 dBA to 37 dBA.

These results are considered to be conservative as they include operations at BRN, even though these operations would cease at 1900 hours daily (ie BRN operations only occur for one hour of the evening period of 1800 hours to 2200 hours).

6.3 Night-time - Modification Operation

The cumulative night-time Modification operating LAeq(15minute) intrusive emissions to the nearest dwellings are presented in **Table 13** together with the consented noise limits.

Table 13 Cumulative Night-time Operation LAeq(15minute) Noise (dBA re 20 µPa)

Locality	Land Owner	Intrusive Level NNE Wind ¹		Intrusive Level Inversion ¹		Intrusive Level Inversion & Drainage ¹		SCM Consented Noise Limits
		Loading	Unloading	Loading	Unloading	Loading	Unloading	
Stratford/ Craven Residential	315 Bagnall ^{2,3}	49⁴	44	43	43	50⁴	46⁴	45
	31 Isaac (south) ²	32	29	42	39	37	35	42
	31 Isaac (north) ²	31	28	42	39	36	34	42
	Craven Village	40	40	36	36	40	40	40
	42 Blanch ²	40	40	36	36	40	40	42
	41 Devereaux ²	40	40	37	37	41	41	42
	39 Standen	39	39	35	35	40	40	40
	Stratford Village	24	21	35	32	28	24	35
	33 Battaglini ²	39	31	44⁴	38	44⁴	38	42
	26 Lowrey	20	18	31	28	24	22	35
	40 Blanch ²	42	42	38	38	42	42	43
Stratford/ Craven Rural	18 Denyer ^{2,3}	15	14	25	24	18	17	— ⁵
	13 AGL Energy	12	12	24	24	14	15	35
	32 McIntosh	40⁴	37	41⁴	39	42⁴	40⁴	39
	151 Wadland ³	23	23	29	29	27	26	35
	6 AGL Gloucester	12	11	23	23	14	14	35
	9 Williams	15	13	25	24	17	16	35
	25 Thompson	26	23	36⁴	33	34	31	35
	11 Walker	17	15	27	26	20	17	35
	5 Bignell	10	9	21	20	13	12	35
	7 Burrel	7	8	19	19	11	11	35
	21 Clarke	8	8	23	22	12	12	35
	15 Falla (north)	14	13	26	26	17	16	35
	14 Wenham	16	15	28	28	19	18	35
	15 Falla (south)	15	14	28	26	18	17	35
	10 Whatmore	18	16	26	25	21	19	35
	10 Whatmore	7	6	19	16	10	9	35
	202 Wenham	17	15	29	28	20	17	35
	16 Pickett	19	16	30	28	22	19	35
	291 Stackman & Partridge	34	31	33	31	36⁴	33	35
	34 Hall	35	32	34	32	36⁴	34	35
	36 Wallace	36⁴	35	33	32	37⁴	36⁴	35
	298 Yates	36⁴	35	32	32	36⁴	36⁴	35

Note 1: Meteorological modelling parameters as described in **Table 5**.



Note 2: Properties identified in the SCM Consent as being in the Noise Acquisition (Affectation) Zone.

Note 3: Properties identified in the BRN Consent as being in the Noise Acquisition (Affectation) Zone.

Note 4: Noise level above consented noise limits.

Note 5: Currently subject to commercial agreement between SCPL and the landowner.

The cumulative night-time noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 5 dBA exceedance), 32 McIntosh (moderate 3 dBA exceedance), 33 Battaglini (minor 2 dBA exceedance), 36 Wallace (minor 2 dBA exceedance), 25 Thompson (minor 1 dBA exceedance), 291 Stackman & Partridge (minor 1 dBA exceedance), 34 Hall (minor 1 dBA exceedance) and 298 Yates (minor 1 dBA exceedance).

Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent. The night-time noise level at 32 McIntosh is elevated to 42 dBA and would constitute an exceedance of the affectation zone criteria in the SCM Development Consent.

The night-time noise level at 36 Wallace would be elevated by 2 dBA to 37 dBA, whilst the noise levels at 25 Thompson, 291 Stackman & Partridge, 34 Hall and 298 Yates would be elevated by 1 dBA to 36 dBA.

The proposed Modification operating night-time LAeq(15minute) intrusive noise contours during inversion only and inversion with drainage are presented as **Appendices E1** and **E2**, respectively. Note, the calculation of the noise contours involves numerical interpolation of a noise level array with a graphical accuracy of up to approximately ± 2 dBA. This means that in some cases the contour locations will differ from the values in **Table 12**, particularly where topographic effects are prominent.

7 OFF-SITE RAIL TRANSPORT NOISE

7.1 Railway Noise Criteria

The ARTC controls and operates the North Coast Railway in NSW. Noise emissions from the railway are regulated via the ARTC's EPL (EPL No 3142).

Section L6 of the EPL nominates general airborne noise limits at residential receivers as follows:

L6.1.1 General Noise Limits

It is an objective of this Licence to progressively reduce noise levels to the goals of 65 dB(A)Leq, (day time from 7am - 10pm), 60 dB(A)Leq, (night time from 10pm - 7am) and 85dB(A) (24 hr) max pass-by noise, at one metre from the façade of affected residential properties through the implementation of the Pollution Reduction Program.

The goals do not represent unobtrusive noise levels. Rather, the objectives recognise that railway operations are inherently noisy and represent a compromise between what may be desirable from a community point of view (ie maintaining amenity) and what is necessary to enable trains to continue to operate.

Based on the foregoing, the general noise limits for the North Coast Railway are presented in **Table 14** and form the basis of guideline noise assessment criteria.

Table 14 ARTC's Guideline Noise Assessment Criteria

Railway	Licence Holder	Descriptor	Rail Traffic Goal
North Coast Railway	ATRC EPL 3142	Daytime/evening LAeq(15hour)	65 dBA
		Night-time LAeq(9hour)	60 dBA
		Maximum Pass-by LAmax	85 dBA



The DECCW has recently released “Environmental Assessment Requirements for Rail Traffic-Generating Developments” (update March 2010). Rail noise assessment trigger levels are provided in the DECCW requirements and are reproduced in **Table 15**.

Table 15 DECCW Rail Noise Assessment Trigger Levels for Rail Traffic Generating Developments

Descriptor	Rail Traffic Goal
LAeq(24hour)	60 dBA
Maximum Pass-by LAmax (95th percentile)	85 dBA

Note: 95th percentile equates to the 5% exceedance value.

The DECCW rail noise assessment trigger levels are similar to the ARTC’s EPL noise goals, however the DECCW trigger levels have an averaging period of 24 hours, rather than daytime (15 hours) and night-time (9 hours) for the ARTC’s goals. Potential rail noise for the Modification has been assessed against both sets of criteria (ie ARTC’s EPL and the DECCW requirements).

7.2 Rail Traffic Movements

The existing, additional and cumulative daytime/evening, night-time and 24 hour train movements are presented in **Table 16** together with the estimated operating conditions on the portion of the North Coast Railway between the DCM and the SCM.

Table 16 Existing, Additional and Cumulative 24 Hour Train Movements

Scenario	Train Type	Period	Train Pass-bys						Train Length (m)	Train Speed (kph)
			Daytime/Evening		Night-time		24 Hours			
			Average Passby	Peak Passby	Average Passby	Peak Passby	Average Passby	Peak Passby		
Existing/ Approved	Passenger trains	Monday to Saturday	5	5	1	1	6	6	205	60
		Sunday	5	5	1	1	6	6		
	Freight trains	Monday to Saturday	7	9	3	4	10	13	1500	60
		Sunday	9	9	2	2	11	11		
	SCM (Product Coal)	Monday to Saturday	4	8	1	2	5	10	760	60
		Sunday	4	8	1	2	5	10		
Proposed Modification	SCM & DCM (Product Coal)	Monday to Saturday	3	6	2	4	5	10	Up to 1,300	60
		Sunday	3	6	2	4	5	10		
Approved and Duralie Extension (Year 1)	DCM (ROM Coal)	Monday to Saturday	6	8	0	0	6	8	560	60
		Sunday	0	0	0	0	0	0		
Proposed Duralie Extension (from Year 2)	DCM (ROM Coal)	Monday to Saturday	6	8	2	2	8	10	600	60
		Sunday	0	0	0	0	0	0		
Cumulative Monday to Saturday existing/approved plus Duralie Extension Year 1			22	30	5	7	27	37		
Cumulative Sunday existing/approved plus Duralie Extension (Year 1)			18	22	4	5	22	27		
Cumulative Monday to Saturday existing (non-mine) plus proposed Modification plus Duralie Extension (from Year 2)			21	28	8	11	29	39		
Cumulative Sunday existing (non-mine) plus proposed Modification plus Duralie Extension (from Year 2)			17	20	5	7	22	27		



The calculation of the daytime/evening and night-time equivalent continuous noise levels and the maximum pass-by levels have been conducted using a computer prediction model developed by Heggies. This model has previously been accepted by the DoP and DECCW and has been further validated against the field measurements of rail noise on the North Coast Railway as presented in the Duralie Extension Project Environmental Assessment.

The prediction model uses characteristic noise levels for the various sources (locomotive engine and exhaust noise as a function of throttle notch, wheel/rail noise as a function of train speed, and wagon type, etc.) at a fixed reference distance. The model then makes adjustments for the train length and distance from the track (assuming no barriers) and façade reflection (2.5 dBA).

Parameters including the LAeq(24hour) and maximum pass-by levels can then be determined by summing the effects of the individual noise sources and by incorporating the number of train events as appropriate.

As noted in **Section 2.3** the existing DCM locomotives would be replaced by GL Class locomotives from Year 2 of the Duralie Extension Project. The GL Class locomotives are the same (or equivalent) in terms of noise in operation at the SCM and are relatively quieter than the existing DCM trains. During Year 1 of the Duralie Extension Project, the existing DCM locomotives would be used during the existing approved hours (ie no movements of DCM trains at night-time). The rail traffic noise assessment presented below presents the noise levels for these two scenarios for the daytime/evening periods.

7.3 Rail Traffic Noise Assessment - ARTC Criteria

The daytime/evening LAeq(15hour) and maximum (5% exceedance) passby noise levels for the existing and approved rail traffic (DCM Year 1) are presented in **Table 17** together with cumulative trains (DCM Year 2) following the introduction of “GL” class locomotives and the larger SCM product coal trains. Train movements are considered on an average and peak basis.

Table 17 Daytime/Evening Predicted Train Noise Emissions (dBA re 20 µPa)

Distance to Receiver ³	Receivers	Existing and Approved Rail Movements ¹ and Duralie Extension Year 1			Cumulative Rail Movements ² from Duralie Extension Year 2		
		Average LAeq(15hour)	Peak LAeq(15hour)	Pass-by Maximum	Average LAeq(15hour)	Peak LAeq(15hour)	Pass-by Maximum
0-20 m	Nil	65	66	96	64	65	93
20-40 m	R1-R3	62	63	90	61	62	87
40-60 m	R4-R12	60	62	85	60	61	83
60-80 m	R13-R33	59	60	83	58	60	81
80-100 m	R34-R35	58	60	81	58	59	79

Note 1: Rail traffic noise from existing passenger/freight trains and approved SCM and DCM coal trains.

Note 2: Rail traffic noise from existing passenger/freight trains, approved SCM coal trains and Duralie Extension Project from Year 2.

Note 3: Train noise level calculated to the maximum distance within the receiver range. Receivers are shown in **Appendix F**.

The following assessments are derived from the predicted rail traffic levels and the ARTC's guideline noise assessment criteria of daytime/evening 65 LAeq(15hour) and maximum pass-by 85 dBA:

- The existing/approved peak LAeq(15hour) rail noise for Duralie Extension Project Year 1 is predicted to meet the 65 dBA criterion at a distance of 25 m (and greater).
- From Duralie Extension Project Year 2, the cumulative peak LAeq(15hour) rail noise would decrease by approximately 1 dBA and meet the daytime 65 dBA criterion at a distance of 20 m (and greater).



- The existing/approved maximum pass-by noise level for Duralie Extension Project Year 1 is predicted to meet the criterion of 85 dBA at a distance of 60 m (and greater). Approximately 12 receivers (R1 to R12 as shown in **Appendix F**) currently exceed the maximum pass-by criterion of 85 dBA as a result of existing/approved rail movements.
- A comparison of the existing/approved maximum pass-by rail noise for Duralie Extension Project Year 1 with the cumulative level (Duralie Extension Project from Year 2) indicates that with the introduction of the “GL” class locomotives for the DCM trains, the maximum pass-by rail noise would decrease and meet the 85 dBA criterion at a distance of 50 m (and greater). Five receivers (R8 to R12 as shown in **Appendix F**) that previously exceeded the 85 dBA maximum pass-by criterion would meet the criterion.

The night-time $L_{Aeq(9hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic (Duralie Extension Project Year 1) are presented in **Table 18** together with cumulative trains (Duralie Extension Project Year 2) following the introduction of “GL” class locomotives. Train movements are considered on an average and peak basis. As no DCM trains would operate at night-time during Year 1, this assessment applies from Duralie Extension Project Year 2.

Table 18 Night-time Predicted Train Noise Emissions (dBA re 20 μ Pa)

Distance to Receiver ³	Receivers	Existing and Approved Rail Movements ¹			Cumulative Rail Movements ² from Duralie Extension Year 2		
		Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum
0-20 m	Nil	60	62	93	62	64	93
20-40 m	R1-R3	58	59	87	59	61	87
40-60 m	R4-R12	56	57	83	58	59	83
60-80 m	R13-R33	55	56	81	57	58	81
80-100 m	R34-R35	54	55	79	56	57	79

Note 1: Rail traffic noise from existing passenger/freight trains and approved SCM coal trains.

Note 2: Rail traffic noise from existing passenger/freight trains, approved SCM coal trains and Duralie Extension Project from Year 2.

Note 3: Train noise level calculated to the maximum distance within the receiver range. Receivers are shown in **Appendix F**.

The following assessments are derived from the predicted rail traffic levels and the ARTC's EPL noise assessment criteria presented in **Table 18**:

- The existing/approved peak $L_{Aeq(9hour)}$ rail noise for Duralie Extension Project Year 1 is predicted to meet the 60 dBA criterion at a distance of 30 m (and greater). Two receivers (R1 and R2 as shown in **Appendix F**) currently exceed the night-time 60 dBA criterion as a result of existing/approved peak rail movements.
- From Duralie Extension Project Year 2, the cumulative peak $L_{Aeq(9hour)}$ rail noise would increase marginally (up to 2 dBA) and meet the night-time 60 dBA criterion at a distance of 50 m (and greater). Five additional receivers (R3 to R7 as shown in **Appendix F**) are predicted to exceed the night-time 60 dBA criterion as a result of cumulative rail movements.
- The existing/approved maximum pass-by rail traffic noise meet the 85 dBA criterion at a distance of 50 m (and greater). Approximately seven receivers (R1 to R7 as shown on in **Appendix F**) currently exceed the maximum pass-by criterion of 85 dBA as a result of existing/approved rail movements. This would remain unchanged for the Modification.



7.4 Rail Traffic Noise Assessment - DECCW Criteria

The LAeq(24hour) and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 19** together with together cumulative trains (DCM Year 2) following the introduction of “GL” class locomotives and the larger SCM product coal trains. Train movements are considered on an average and peak basis.

Table 19 24 Hour Predicted Train Noise Emissions (dBA re 20 µPa)

Distance to Receiver ¹	Receivers	Combined Existing/Approved and Project Rail Movements - Duralie Extension Year 1			Combined Existing/Approved and Project Rail Movements from Duralie Extension Year 2		
		Average LAeq(24hour)	Peak LAeq(24hour)	Passby Maximum	Average LAeq(24hour)	Peak LAeq(24hour)	Passby Maximum
0-20 m	Nil	64	65	96	63	65	93
20-40 m	R1-R3	61	62	90	61	62	87
40-60 m	R4-R12	59	60	85	59	60	83
60-80 m	R13-R33	58	59	83	58	59	81
80-100 m	R34-R35	57	58	81	57	58	79

Note 1: Rail traffic noise from existing passenger/freight trains and approved SCM coal trains.

Note 2: Rail traffic noise from existing passenger/freight trains, approved SCM coal trains and Duralie Extension Project from Year 2.

Note 3: Train noise level calculated to the maximum distance within the receiver range. Receivers are shown in **Appendix F**.

The following assessments are derived from the predicted rail traffic levels and the DECCW's rail noise assessment trigger levels presented in **Table 19**:

- The existing/approved (and Duralie Extension Project Year 1) peak LAeq(24hour) rail noise is predicted to meet the 60 dBA criterion at a distance of 60 m (and greater). Twelve receivers (R1 to R12 as shown on in **Appendix F**) currently exceed the LAeq(24hour) 60 dBA criterion as a result of existing/approved peak rail movements.
- From Duralie Extension Project Year 2, the cumulative peak LAeq(24hour) rail noise would be similar to the existing/approved situation. This is because whilst two additional train pass-bys would be introduced, “GL” class locomotives (or equivalent) would be used which are relatively quieter than the existing DCM trains. In addition, the larger SCM product coal trains do not materially increase the LAeq(24hour) rail noise.
- The existing/approved (and Duralie Extension Project Year 1) maximum pass-by rail traffic noise would meet the 85 dBA criterion at a distance of 60 m (and greater). Approximately 12 receivers (R1 to R12 as shown in **Appendix F**) currently exceed the maximum pass-by criterion of 85 dBA as a result of existing/approved rail movements.
- From Duralie Extension Project Year 2, maximum pass-by rail traffic noise would exceed the 85 dBA criterion at a distance of 50 m (and greater). Five receivers (R8 to R12 as shown in **Appendix F**) where the maximum pass-by criterion is currently exceeded are predicted to meet the criterion.



8 SUMMARY OF FINDINGS

8.1 Modification Noise Assessment Procedure

In November 2009, GCL (through its other subsidiary DCPL) lodged the Duralie Extension Project Environmental Assessment (DCPL, 2009) to facilitate an increase in ROM coal production rate at the DCM. This additional DCM ROM coal would be railed to the SCM. Additional ROM coal is also proposed from a deeper RWP (additional 1.4 Mt) and BRN pit cutback (additional 1.4 Mt). Additional BRN ROM coal is the subject of a separate modification application lodged in June 2010. These changes would, in-turn, require an increase in the CHPP processing rate at the SCM and would require additional DCM trains to be unloaded on the Stratford rail loop. In order to accommodate this, SCPL proposes a modification of the SCM Development Consent.

Current noise limits (ie Development Consent and EPL) for the SCM/RPE/RWP mining operations were determined from previous noise impact assessments. Each noise impact assessment was conducted in accordance with the requirements of the INP (or applicable criteria at the time of assessment).

8.2 Modification Noise Mitigation

SCPL is obligated under the current Development Consent requirements to implement all reasonable and feasible noise mitigation measures. In addition to the mitigation measures described in **Section 4.1**, Heggies conducted an investigation of feasible and reasonable noise mitigation measures, particularly in relation to night-time operations. A number of iterative steps were undertaken to develop noise mitigation measures for the proposed Modification, including:

1. Preliminary noise modelling of scenarios representative of the maximum noise emissions from the proposed Modification to identify the potential for noise exceedances.
2. Evaluation of various combinations of noise management and mitigation measures to assess their relative effectiveness.
3. Review of the effectiveness of these measures and assessment of their feasibility by SCPL.
4. Adoption by SCPL of a range of noise management and mitigation measures (including low noise equipment and operational controls) to appreciably reduce noise emissions associated with the proposed Modification, including:

Component	Description of Mitigation Measure
Coal Handling and Preparation Plant	Partial enclosure of the ground and first floor levels of the CHPP and acoustic lining of 50% of the interior and commissioned in accordance with an acoustic design specification. Heggies Report 5083-R12 Stratford Coal Mine Coal Crushers and Preparation Plant Noise Impact dated 16 July 1997 presents a detailed assessment of alternative CHPP noise reduction measures involving partial enclosure of the CHPP building. The enclosure would comprise additional 0.47 millimetres (mm) (TCT) Colorbond Profile Steel Iron Cladding on the ground and first floor level excluding the northern façade (ie adjacent to the hardstand area). In addition, to reduce the internal reverberant sound level within the CHPP building, absorptive lining would be applied to 50% of the total internal surface area comprising of 50 mm rockwool sealed in a thin Mylar film and perforated steel sheeting or equivalent treatment (eg QUASH Acoustic Absorber or equivalent).
Stratford Rail Loop	Install two adjacent acoustic barriers approximately 60 m in length, with an elevation of 5 m above rail level and an offset distance no greater than 3 m from the nearest outer rail. The barriers would be located adjacent to the “at rest location” of idling locomotives on the southern (ie inbound) side of the rail loop. The barriers to be constructed from a material with surface density not less 18 kilograms (kg) per square metre (eg CSR Hebel Sound Barrier or equivalent materials).
Coal Handling	Install low noise idlers on conveyors CV18 and CV17 consistent with current (super) low noise conveyor system technology and commissioned in accordance with an acoustic design specification.



Component	Description of Mitigation Measure
Coal Loading and Unloading Stations	Partial enclosure of the eastern and western wings of the coal loader comprising 0.47 millimetres (mm) (TCT) Colorbond Profile Steel Iron Cladding (or equivalent) extending from ground level up to a minimum height of 10m. Similarly, enclosure of the coal unloader comprising iron cladding extending from rail down to ground level

8.3 Modification Construction Noise Impact Assessment

Noise associated with construction of the rail augmentation was undertaken and assessed against the ICNG. Generally, noise levels are well below the corresponding operational noise level predicted for the proposed Modification (with the exception of one privately-owned receiver).

This assessment concluded that noise levels would be within the “highly noise affected” CNML stipulated in the ICNG.

One privately-owned noise receiver (315 Bagnall) would exceed the “noise affected” CNML. This receiver is located in close proximity to the North Coast Railway, the Bucketts Way and the SCM rail spur and would be in close proximity to rail loop construction activities.

Whilst it is noted that this receiver is located within the “acquisition upon request” condition in the SCM Development Consent (DA 23-98/99), it is recommended that SCPL keeps the owner of the receiver 315 Bagnall informed of the timing and progress of construction activities and provides periods of respite during rockbreaking activities (should it be required).

8.4 Modification Operating Noise Impact Assessment

8.4.1 Cumulative Assessment SCM and BRN

The cumulative Modification operating intrusive noise emissions were predicted via computer modelling using plant and equipment schedules anticipated for use and updated (where available) with recent noise data collated from the SCPL noise monitoring programme and application of SCPL agreed noise mitigation measures. In conclusion:

Daytime

- The cumulative daytime noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 3 dBA exceedance), 33 Battaglini (minor 1 dBA exceedance) and 13 AGL Energy Limited (minor 1 dBA exceedance).
- Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent, whilst the noise level at 13 AGL Energy Limited would be elevated by 1 dBA to 38 dBA.

Evening

- The cumulative evening noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 4 dBA exceedance), 33 Battaglini (moderate 3 dBA exceedance) and 32 McIntosh (minor 2 dBA exceedance).
- Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent, whilst the noise level at 32 McIntosh would be elevated to 37 dBA.
- These results are considered to be conservative as they include operations at BRN, even though these operations would cease at 1900 hours daily (i.e. BRN operations only occur for one hour of the evening period of 1800 to 2200 hours).



Night-time

- The cumulative night-time noise levels are expected to meet the relevant noise limits, except at 315 Bagnall (moderate 5 dBA exceedance), 32 McIntosh (moderate 3 dBA exceedance), 33 Battaglini (minor 2 dBA exceedance), 36 Wallace (minor 2 dBA exceedance), 25 Thompson (minor 1 dBA exceedance), 291 Stackman & Partridge (minor 1 dBA exceedance), 34 Hall (minor 1 dBA exceedance) and 298 Yates (minor 1 dBA exceedance).
Of these receivers, 315 Bagnall and 33 Battaglini are already subject to acquisition upon request clauses in the SCM Development Consent. The night-time noise level at 32 McIntosh is elevated to 42 dBA and would constitute an exceedance of the affectation zone criteria in the SCM Development Consent.
- The night-time noise level at 36 Wallace would be elevated by 2 dBA to 37 dBA, whilst the noise levels at 25 Thompson, 291 Stackman & Partridge, 34 Hall and 298 Yates would be elevated by 1 dBA to 36 dBA.

With the implementation of the feasible and reasonable noise mitigation measures proposed by SCPL, it is concluded that predicted noise levels are generally acceptable and would require only minor alterations to the existing consented cumulative SCM noise limits.

8.4.2 BRN Component

A proposed modification to the BRN open cut would result in a minor change to the footprint of the BRN and has been separately assessed by SCPL. Given that the existing fleet would remain generally unchanged, it is considered that there would be minimal change to the existing noise emissions associated with the BRN. Therefore, the BRN modification is considered to be of minimal noise impact.

8.5 Modification Rail Transport Noise Impact Assessment

The average and peak existing, additional and cumulative train movements and associated rail noise levels have been determined for communities neighbouring the North Coast Railway between the DCM and the SCM.

The existing DCM locomotives would be replaced by GL Class locomotives from approximately Year 2 the Duralie Extension Project. The GL Class locomotives are the same (or equivalent) model in operation at the SCM and are relatively quieter than the existing DCM trains and increased in length to accommodate the increased product coal production.

In order to accommodate the increased product coal production rates, longer (72 wagon) product coal trains would be introduced from the forth quarter of 2011 (or earlier, subject to contractual arrangements). This means that the average number of trains per day that would be used to haul product coal from the SCM would remain at an average of 2.5 per day and a peak of 5 per day.

The following assessments are derived from the predicted rail traffic noise levels and the DECCW's rail noise assessment trigger levels (60 dBA LAeq(24hour) and maximum pass-by 85 dBA):

- The existing/approved (and Duralie Extension Project Year 1) peak LAeq(24hour) rail noise is predicted to meet the 60 dBA criterion at a distance of 60 m (and greater). Twelve receivers (R1 to R12 as shown on in **Appendix F**) currently exceed the LAeq(24hour) 60 dBA criterion as a result of existing/approved peak rail movements.
- From Duralie Extension Year 2, the cumulative peak LAeq(24hour) rail noise would be similar to the existing/approved situation. This is because whilst two additional train pass-bys would be introduced, "GL" class locomotives (or equivalent) would be used which are relatively quieter than the existing DCM trains. The longer SCM product coal trains also do not materially increase the LAeq(24hour) rail noise.



- The existing/approved (and Duralie Extension Project Year 1) maximum pass-by rail traffic noise would meet the 85 dBA criterion at a distance of 60 m (and greater). Approximately 12 receivers (R1 to R12 as shown in **Appendix F**) currently exceed the maximum pass-by criterion of 85 dBA as a result of existing/approved rail movements.
- From Duralie Extension Year 2, maximum pass-by rail traffic noise would exceed the 85 dBA criterion at a distance of 50 m (and greater). Five receivers (R8 to R12 as shown in **Appendix F**) where the maximum pass-by criterion is currently exceeded are predicted to meet the criterion.

COMPARISON OF THE APPROVED AND MODIFIED PROJECTS

Table A1
Comparison of the Approved and Modified Stratford Coal Mine

Development Component	Approved SCM	SCM Including the Modification
Life of Mine ROM Coal	Up to approximately 24.15 Mt.	Additional 1.4 Mt from the Roseville West Pit (i.e. total of approximately 25.55 Mt).
Annual ROM Coal Production Rate	Up to 2.1 Mtpa.	Unchanged.
Coal Processing Rate	CHPP processing of up to 3.4 Mtpa of ROM coal (from SCM, BRNOC and DCM).	CHPP processing of up to approximately 4.6 Mtpa of ROM coal (from SCM, BRNOC and DCM).
Annual Saleable Coal Production	Up to 2.3 Mtpa.	Up to 3.3 Mtpa.
CHPP Rejects	Deposition within Stratford Main Pit.	Approximately an additional 8 Mt CHPP rejects to be deposited into Stratford Main Pit.
Waste Emplacement	Combination of in-pit and out-of-pit waste emplacement.	Unchanged.
Total Waste Mined	Approximately 74 million bank cubic metres (Mbcm).	Additional 8 Mbcm from the Roseville West Pit (total of approximately 82 Mbcm).
Mine Fleet	Excavators, haul trucks, water trucks, dozers, graders, scrapers, drills. Fleet now reduced due to cessation of mining in the Stratford Main Pit.	Unchanged.
General Infrastructure	Access roads, electricity supply and distribution, rail loop, CHPP, train loading and unloading infrastructure, ROM coal stockpiles, coal handling equipment.	Augmentation of an approximate 400 m section of rail at the Stratford rail loop. All other infrastructure unchanged.
Operational Workforce	Up to 110 people.	Unchanged.
Life of Mine	17 Years from grant of ML 1360.	Additional 2 years mining and processing followed by 6 years processing of ROM coal and export of product coal only
Duralie Coal Train	- Hours of operation 7.00 am to 10.00 pm. - Average of three trains per day. - Train length 560 m.	- Hours of operation 7.00 am to 2.00 am¹. - Average of four trains per day¹. - Train length 600 m¹.
Product Coal Trains	24 hours per day, seven days per week. - Average of 2.5 trains per day (including BRNOC). - Train length 760 m.	- Unchanged. - Unchanged. - Train length up to 1,300 m.
Open Cut Mine Operating Hours	Roseville West Pit only mined between 7.00 am and 10.00 pm.	Unchanged.
Water Supply	Pit inflows and the on-site water management system.	Unchanged.
Road Transport	Road traffic associated with the workforce, consumables, visitors and general deliveries and maintenance vehicles.	Minor increase in truck deliveries (approximately 10 per week increase).

¹ The transportation period would be extended to 2.00 am, the number of trains increased to four on average per day and the train length would be extended to 600 m upon introduction of the GL class locomotives (or equivalent) as described in the Duralie Extension Project EA.

ENVIRONMENT PROTECTION LICENCE NO 5161 - STRATFORD COAL MINE

L6 Noise Limits

L6.1 Noise from the premises must not exceed:

Land Holder	Daytime (7.00 am to 7.00 pm)	Evening (7.00 pm to 10.00 pm)
	Stage 1: Cumulative Bowens Road North and Stratford LAeq(15minute)	Stage 1: Cumulative Bowens Road North and Stratford LAeq(15minute)
McIntosh	39	39
Atkins	38	35
Tiedeman	38	35
Campbell	37	37
Thompson	36	36
Williams	35	35
Bowen	35	35
Clarke	35	35
Bignell	35	35
Morgan	35	35
Isaac (South)	41	41
Isaac (North)	40	40
Craven Village	40	40
Grono/DBlanch	40	40
Blanch	40	40
Standen/Mulliett	39	39
Stratford Village	38	36
Van Der Drift	38	38
Battaglini	38	38
Lowrey	36	36
All Other Craven Village Residential Properties	40	40
All Other Stratford Village Residential Properties	38	36
All Other Stratford/ Craven Rural Properties	35	35

L6.2 Noise from the premises is to be measured or computed at the most noise-affected point at the property boundary of the receptors listed in L6.1, or a distance within 30 metres of the residence where the boundary is more than 30 metres from the residence of the most affected receiver to determine compliance with this condition.

Noise Measurement:

For the purpose of noise measures required for this condition, the LAeq noise level must be measured or computed for the required period (ie, 15 minutes or full day, evening or night) using "FAST" response on the sound level meter.

For the purpose of the noise limits for this condition, 5 dB (A) must be added to the measured level if the noise is substantially tonal, impulsive, intermittent or low frequency in nature. Where two or more of these characteristics are present the maximum addition to the measured noise level is limited to 10 dB(A).

L6.3 The noise emission limits identified in this licence apply under all meteorological conditions except:

- during rain and wind speeds (at 10 m height) greater than 3m/s; and
- under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

DEVELOPMENT CONSENT (DA NO 23-98/99) - STRATFORD COAL MINE

5.1 AIR QUALITY, BLAST, NOISE AND LIGHT MANAGEMENT

5.1 Acquisition Upon Request

- a. Upon receiving a written request for acquisition from the landowner listed in Table 1, the Applicant shall acquire the land in accordance with the procedures in Condition 6.3 of this consent.

90 b - Bagnall	49 - Isaac (s)	68 - Devereaux
58 - Bramley	48 - Isaac (n)	90a - Battaglini
69 - D Blanch	93a - Blanch	24 - Ellis

Table 1: Land subject to acquisition upon request

Note: For more information on the numbering and identification of properties used in this consent, see Appendix 2.

- b. By the end of May 2006, the Applicant shall notify the owners of the land listed in Table 1 that they have voluntary acquisition rights.

5.2 Noise and Dust Limits in the Acquisition Zone

While the land listed in Table 1 is privately-owned, the Applicant shall ensure that the noise generated by the development does not exceed the noise limits in Table 2, and the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria in Tables 7, 8, and 9 at any residence on the land.

Day LAeq(15minute)	Evening LAeq(15minute)	Night LAeq(15minute)	Land Number
37	37	45	90 b - Bagnall
37	36	43	93 a - Blanch
37	36	42	48 - Isaac (north) 49 - Isaac (south) 68 - Devereaux 69 - D Blanch 90 a - Battaglini

Table 2: Noise limits for land in the acquisition zone

- Notes:
- If the Applicant has a written agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DEC, then the Applicant may exceed the noise limits in Table 2 or the air quality impact assessment criteria in Tables 7, 8, and 9 in accordance with the negotiated noise agreement.
 - See notes in Condition 5.3 for more detail on how to interpret these limits.

5.3 Noise Limits

The Applicant shall ensure that the noise generated by the development does not exceed the noise limits set out in Table 3.

Table 3: Noise limits

Day LAeq(15minute)	Evening LAeq(15minute)	Night LAeq(15minute)	Land Number
37	35	40	Craven Village
37	35	40	93 c - Standen 93 - Campbell
37	35	39	95 - Smith 89 - McIntosh
37	35	35	18 - Atkins 13 - Teidman 46 - Wadland
35	35	35	All other privately-owned land excluding the land in Table 1

Notes:

DEVELOPMENT CONSENT (DA NO 23-98/99) - STRATFORD COAL MINE

- If the Applicant has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and the DEC, then the Applicant may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement.
- Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the LAeq(15 minute) noise limits in the above table.
- Where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- The noise emission limits identified in the above table apply under meteorological conditions of:
 - Wind speeds of up to 3 m/s at 10 metres above ground level; or
 - Temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

5.3A Roseville West Pit Noise Limits

During the commencement of the Roseville West Pit until mining operations are 10 metres below natural ground level, the Day noise limits applicable for:

- Stratford rural residences in Table 3 are increased by 2 dB(A);
- Stratford village residences in Table 3 are increased by 1 dB(A); and
- Issac (south) residence in Table 2 is increased by 1 dB(A).

5.3B Coal Handling Modification Noise Limits

The day noise limit (Table 2) applicable for the Bagnall residence is increased by 2 dB(A), until the construction of the new coal stockpile and coal ROM stacker is complete, or 30 June 2009, whichever is the sooner.

5.4 Noise Acquisition Criteria

If the noise generated by the development exceeds the criteria in Table 4 at any privately-owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in Condition 6.3 of this consent.

Day LAeq(15minute)	Evening LAeq(15minute)	Night LAeq(15minute)	Land Number
42	41	40	Craven Village 93 c - Standen 93 - Campbell 95 - Smith 89 - McIntosh 18 - Atkins 13 - Teidman 46 - Wadland
40	41	40	All other privately-owned land excluding the land in Table 1

Table 4: Land acquisition criteria dB(A)

Note: Noise generated by the development is to be measured in accordance with the notes presented below in Table 3.

Additional Noise Mitigation Measures

5.5 Upon receiving a written request from:

- a landowner of the land listed in Table 1; or
- the owner of any residence where noise monitoring shows the noise generated by the development is greater than, or equal to, LAeq(15 minute) 38 dB(A) at night.

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The Applicant shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at any residence on the land in consultation with the landowner. These additional mitigation measures must be reasonable and feasible. If within 3 months of receiving this request from the landowner, the Applicant and the landowner 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 Director-General for resolution.

5.5A

Prior to the operation of the new coal stockpile or new coal ROM stacker at the coal handling facility, the Applicant shall fully implement the additional noise mitigation measures described in Section 4.2 of the SEE titled Stratford Coal Mine Coal Handling Modification, dated June 2008.

5.6 Noise Monitoring

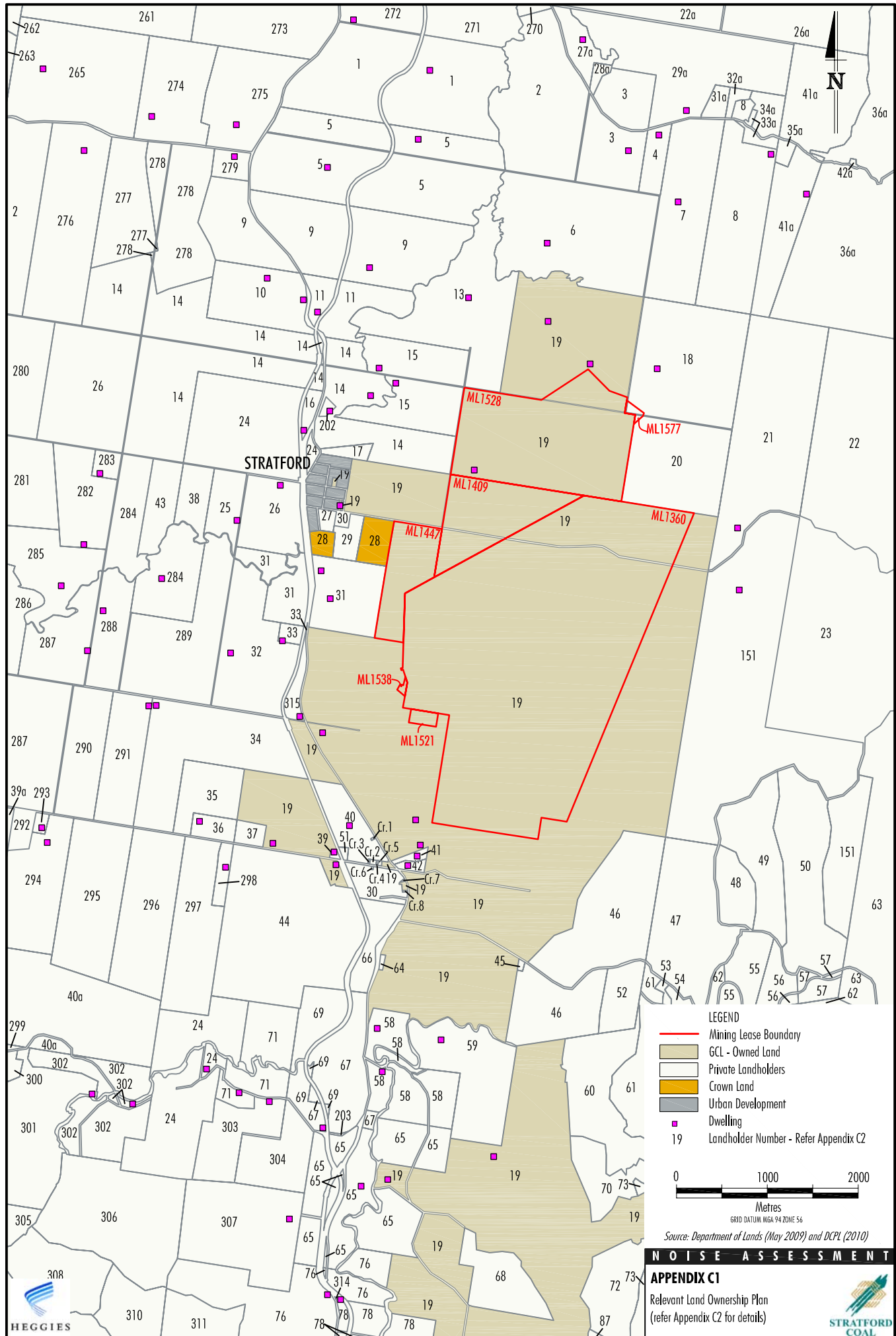
By the end of May 2006, the Applicant shall prepare (and subsequently implement) a Noise Monitoring Program for the Stratford coal mine, including the Bowens Road North operations, to the satisfaction of the Director-General. This program shall include a noise monitoring protocol for evaluating compliance with the noise limits and acquisition criteria in this consent.

5.7 Noise - Continuous Improvement

The Applicant shall:

- investigate ways to reduce the noise generated by the development, including maximum noise levels which may result in sleep disturbance;
- investigate ways to transport as much coal as possible during the day and evening;
- implement all reasonable and feasible noise mitigation measures on the site; and
- report on these investigations and the implementation of any new noise mitigation measures on-site in the AEMR,

to the satisfaction of the Director-General.



1	Wendy Jane Fraser	49	Yvonne Carter	288	Alec Gregory Perrin
2	Farley (Gloucester) Pty. Limited	50	Neil James Porter	289	Eliza Ann Ruth McIntosh
3	D.J. & D.L. Rosenbaum Pty. Limited	51	Gloucester Printing Services Pty Ltd	290	Anne Frances Ryan & Darcy Tordoff
4	Colleen Dawn Crawley & Trevor Allan Crawley	52	Christiane Bertolino	291	Angela Lee Stackman & Mark Richard Partridge
5	Norman Edward Bignell	55	Allan James Hancock & Lynda Margret Hancock	292	James Reginald Fisher & Rhonda Patricia Fisher
6	AGL Gloucester Le Pty Ltd & AGL Gloucester MG Pty Ltd	58	Douglas William Blanch & Evelyn Fay Blanch	293	Kerry Elizabeth Braunton
7	Mary Blanche Burrell	59	Guy William Cassar & Cecile Elizabeth Cassar	294	Gregory Vincent Morcom & Karen Morcom
8	John Ernest Woodford & Marjorie Annette Woodford	60	Philip Weston Greenwood	295	William John Bush & Danielle Elizabeth Bush
9	Norman John Williams	61	Brian John Allman	296	Peter Geoffrey Watson & Heather Irene Watson
10	Kenneth James Whatmore & Anne Grace Whatmore	63	National Parks and Wildlife Service	297	William Marten Bosma
11	Brian Keith Walker, Lesley Jane Walker, Tyson Brian Walker & Lacey Maree Walker	64	Gloucester Shire Council	298	Eric Allan Yates
13	AGL Energy Limited	65	Noeline Elizabeth Weismantle	299	Malcolm Ronald Lee
14	Allen James Wenham & Pamela Diane Wenham	66	Lennard Charles Rogerson	300	Bevan Douglas Hokin & Di Hokin
15	GS & GL Falla Superannuation Pty Limited	67	Ian Robert Bowen	301	Folio Identifier Pty Limited
16	Judith Helen Pickett	68	Julie Dawn Lyford	302	Edwin John Walton & Wendy Walton
17	Darren James Fisher & Claire Louise Smith	69	Ralph Hooper & Bronwyn Ann Bartholmew	303	JSTC Newcastle Pty Limited
18	Tanya Louise Denyer	70	Robert George Knight	304	Ernie Danzil Abeysekera & Sharee Ann Abeysekera
19	Gloucester Coal Ltd	71	Anthony Douglas Burnet & Robyn Annette Burnet	305	Lymaran Holdings Pty Limited
20	Trevor John Ellis	72	Brooke McRae	306	Gregory Hunt & Catherine Hunt
21	Richard Charles Clarke & Carolyn Ann Clarke	73	Rodney John Pearce & Anne Jeanette Pearce	307	Graham John Wolfenden & Rosalind Mary Wolfenden
22	Michael Burns & Leonie Therese Burns	76	Garry Bruce Grant & Terry Paul Grant	308	Pierre Marcel Simon Louys & Marie Therese Chantal Louys
23	Ross Lewis Bagnall	78	Barry Anthony Eves	310	Toni Unthank & Danny Francis Unthank
24	Geoffrey Lawrence Harris	87	Pacific Property Investments Ltd	311	Paul Berthold & Carolyn Berthold
25	Marisa Thompson	151	Trevor William Wadland & Yvonne Louise Carter	314	Dataphone Pty Ltd
26	Kevin John Lowrey & Robyn Lowrey	202	Paul Phillip Wenham	315	Kenneth Bruce Bagnall
27	The Council of the Shire of Gloucester	203	Samuel Taylor	22a	R. O. Sansom & Son Pty. Limited
28	Crown Land	261	Frank Murray Hooke & Susan Elizabeth Hooke	26a	Edward John Mckinley & Shirley June Mckinley
29	Edwin Dennis Ward & Rhonda Fay Ward	262	Noel Albert Davis & Elizabeth Therese O'Sullivan	27a	Douglas Robert Maclean & Janette Ann Maclean
30	The State of New South Wales	263	Patrick Michael Ryan	28a	Peter Stuart Jackson & Beverley Clair Jackson
31	Allan Stanley Isaac	265	Hans Joran Stenstrom & Janete Stenhouse Stenstrom	29a	Mckinleys Lane Pty Limited
32	Eliza Ann Ruth McIntosh & Ronald Keith McIntosh	270	Jason David Collins & Michelle Isobel Barrett	31a	Terence William Cox & Valerie Rita Cox
33	William Joseph Battaglini & Jacklin Maree Battaglini	271	William Alexander Tomb	32a	John Edward Malcom-Coe & Emilia Malcolm-Coe
34	Graham Wesley Hall & Kim Lorraine Hall	272	Allen Taylor & Company Limited	33a	Anthony George Langmead & Elizabeth Anne Langmead
35	Leo John Dillon & Isobel Robyn Dillon	273	Baker Place Investments Pty Limited & Dr PW Brady Pty Limited	34a	Bernard Philip Tresidder
36	Graham Lindsay Wallace & Marion Frances Wallace	274	Warren Neil Wilson & Colleen Therese Wilson	35a	Gary Raymond Perkins & Elly Perkins
37	Timothy James Worth	275	Pace Farm Pty Limited	36a	Anthony Stanford Berecny
38	Paul Michael Johnson & Judith Anne Johnson	276	Alan Luscombe & Carol Luscombe	39a	Woods Road Pty Ltd
39	Paula Anne Standen	277	John William Farley	40a	Howard Kerr Williams & Margaret Russell Williams
40	Leslie Allenby Blanch	278	Mark Anthony Campbell & Roseleen Linette Campbell	41a	Gary Ronald Ferris & Kathleen Grace Ferris
41	Cathryn Louise Devereux	279	John Donald Cullum & Rachel Anne Cullum	42a	William Rainsford Ribbons
42	Douglas John Blanch	280	Clifford John Bramley & Terri Louise Bramley	Cr.1	William Deane Wood
43	Vicki Colleen Moseley	281	Colin William Lewis & Lesley Ann Lewis	Cr.2	Patricia May Black
44	Peter Michael Cross & Kylie Jane	282	Peter Stephen Ross	Cr.3	Yvonne Frances Holden
45	Megan Jane Ellis	283	Janet Nolan	Cr.4	Susan Frances Hoppe
46	Stanley Samuel Ellis	284	Alec Gregory Perrin & Noreen Nita Jean Perrin	Cr.5	John Bruce Punchard & Kerry Lewise Green
47	David Charles Digges, Carolyn Denise Digges, Timothy Charles Hart & Elizabeth Mary Hart	285	Marshall Leon Carter & Theresa Kathleen Carter	Cr.6	Rodger Malcolm Boorer
48	Marion Iris Rounsley	286	Gerard Roland Burley	Cr.7	David Robert Pryce-Jones
		287	Dorothy Kay Sinderberry & Carole Martha Rinkin	Cr.8	Douglas John Blanch & Gwenyth Alison Mcnair

Source: Department of Lands(2010) and DCPL (2010) as at 9-3-10

NOISE AND BLASTING IMPACT ASSESSMENT

APPENDIX C2

Relevant Land Ownership List



HEGGIES

