

Stratford Mining Complex Statement of Environmental Effects

APPENDIX A

NOISE ASSESSMENT



global environmental solutions

Stratford Mining Complex Modification 1

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Stratford Coal Pty Ltd
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Stratford Mining Complex

Modification 1

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1 INTRODUCTION

1.1 Background

Stratford Coal Pty Ltd (SCPL), a wholly owned subsidiary of Yancoal Australia Limited (Yancoal), owns and operates the Stratford Mining Complex (SMC). The existing and approved operation of the SMC incorporates the approved Stratford Extension Project (SSD-4966). The approved Stratford Extension Project provides for the continuation and extension of open cut coal mining and processing at the SMC and was approved by the NSW Planning and Assessment Commission in May 2015. SCPL is the owner and operator of the SMC.

In 1994, SCPL was granted approval to develop the Stratford Coal Mine, with production involving conventional open cut operations commencing in 1995. In 2001 SCPL was granted approval to develop the Bowens Road North Open Cut (BRNOC), with production commencing in 2003. The SMC is located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) in the Gloucester Basin. Product coal from the SMC is transported by rail to Newcastle.

The nearby Duralie Coal Mine (DCM) is also owned by Yancoal and is located approximately 20 km south of the SMC. Sized run-of-mine (ROM) coal from the DCM is transported on the North Coast Railway to the SMC for processing.

SCPL received Development Consent (SSD-4966 dated 29 May 2015) to extend the SMC operations into additional open pit working areas with associated increased production of ROM coal up to approximately 2.6 million tonnes per annum (Mtpa), referred to as the Stratford Extension Project (SEP). The SEP includes completion of the BRNOC, extension of the existing Roseville West Pit (Roseville West Pit Extension) as well as the development of the new Avon North and Stratford East Open Cuts. The existing Stratford Main Pit would be utilised for the storage of waste rock, water and rejects from the coal handling and preparation plant (CHPP).

The BRNOC is scheduled for closure in Year 1 of the SEP.

1.2 The Modification

SCPL is seeking modification to the SMC Development Consent (the Modification) to facilitate proposed interactions between the SMC and the amended Rocky Hill Coal Project (the amended RHCP) (SSD-5156), a proposed open cut mining operation owned by Gloucester Resources Ltd (GRL), located approximately 5 km north of the SMC.

The Environmental Impact Statement (EIS) and related documents for the original Rocky Hill Coal Project were exhibited with the NSW Department of Planning and Environment (DP&E) in August 2013, however the original project was placed on hold by GRL in June 2015 as it was in negotiation regarding a potential commercial arrangement with Yancoal.

The proposed interactions relate to the transportation and processing of RHCP run-of-mine (ROM) coal using SCPL infrastructure. This integration would require the development of a dedicated private haul road between the SMC and the RHCP. The portion of the private haul road relevant to the SMC would be located within the north-eastern portion of SCPL's mining tenements, from which haul trucks would use existing SMC haul roads to allow transport of coal to the ROM pad (**Appendix A**).

The main changes to the operations of the SMC associated with the Modification include:

- Transport of sized ROM coal from the RHCP to the SMC during daytime hours only (0700 hours to 1800 hours Monday to Saturday);
- Extension of the SMC ROM pad to accommodate RHCP sized ROM coal;
- Extension of SMC heavy vehicle parking areas;

- Processing of RHCP coal at the SMC and transportation of the resulting product coal via rail from the SMC to the Port of Newcastle;
- Extension of on-site haul roads to accommodate RHCP haul trucks; and
- An at-grade level crossing (and associated controls) constructed at the intersection of Wenham Cox Road and the private haul road.

There will be no change to the approved product coal train movements from the SMC with the Modification.

SLR Consulting Australia Pty Ltd (SLR) has been engaged by SCPL to evaluate and assess the potential noise impacts associated with the Modification with particular focus on any incremental noise impacts by comparison with the approved SMC and associated noise limits.

1.3 Assessment Requirements

The noise impact assessment procedures for the Modification have been guided by the requirements presented in **Table 1**.

Table 1 Assessment Methodology and Procedure Guidelines - Relevant Report Cross-references

Assessment Guideline ¹	Representative Assessment Scenario	Assessment Criteria	Impact Assessment
Modification Construction Noise Guided by the requirements of the EPA's Interim Construction Noise Guideline (ICNG) (EPA, 2009) in relation to setting construction noise management levels (CNMLs).	Site establishment and construction phase.	Section 5.1	Section 5.1
Modification Operating Noise Guided by the requirements of the NSW Industrial Noise Policy (INP) and associated Application Notes dated 12 June 2013 in relation to setting project specific noise levels (PSNLs).	Year 2; Year 7; and Year 10.	Section 5.2 and Appendix E	Section 7 and Appendix H
Cumulative Industrial Noise Guided by the requirements of the NSW INP in relation to existing and successive industrial developments by setting cumulative LAeq(period) amenity levels for all industrial (i.e. non-transport related) noise in a receiver area.	Existing and approved industrial developments in the vicinity of the Modified SEP.	Section 5.2	Section 8 and Appendix J
Off-site Rail Transport Noise Guided by the requirements of the EPA's Rail Infrastructure Noise Guideline (RING) (Appendix 2) in relation to land-use developments (other than rail projects) likely to generate additional rail traffic on an existing rail network.	Not Applicable - The Modification would not change the approved SMC rail movements and therefore, no further consideration of the RING is required.		
Off-site Road Traffic Noise Guided by the requirements of the EPA's Road Noise Policy (RNP) and associated Application Notes dated 15 February 2013 in relation to setting acceptable LAeq(period) noise levels for sub-arterial, principal haulage route and local roads and assessing any impacts.	Not Applicable - The Modification would not materially change the approved SMC road movements and therefore, no further consideration of the RNP is required.		

Note 1: The Environment Protection Authority (EPA) existed as a legal entity operated within the NSW Office of Environment and Heritage (OEH) which came into existence in 2011. The EPA became a separate statutory authority on 29 February 2012. The OEH was previously part of the NSW Department of Environment, Climate Change and Water (DECCW). The DECCW was also recently known as the NSW Department of Environment and Climate Change (DECC), and prior to that the NSW Department of Environment and Conservation.

In addition, more recently the DP&E has released its Voluntary Land Acquisition and Mitigation Policy (VLAMP): For State Significant Mining, Petroleum and Extractive Industry Developments (NSW Government, 2014) which must also be considered when assessing operational noise impacts from the Modification.

1.4 Other Approved or Proposed Resource Projects

Other existing, approved or proposed resource projects in the Gloucester Valley are summarised in **Table 2**. It is noted that in February 2016, AGL Upstream Infrastructure Investments Pty Ltd (AGL) announced that it was no longer proceeding with the Gloucester Gas Project. However, noise impacts from this approved resource project have been conservatively considered for potential cumulative noise impacts (**Section 8**).

Table 2 Other Approved or Proposed Resource Developments

Proponent	Project	Status
Gloucester Resources Ltd (GRL)	Amended Rocky Hill Coal Project	Proposed SSD-5156 pending lodgement of an Amended EIS.
AGL Upstream Infrastructure Investments Pty Ltd (AGL)	AGL Gloucester Gas Project	Project Approval dated 22 February 2011

2 EXISTING STRATFORD MINING COMPLEX

2.1 Overview

Mining of ROM coal at the SMC involves conventional drill and blast, truck and shovel open cut extractive methods with on-site coal handling, washing and stockpiling. Mining operations are supported by existing on-site facilities including a CHPP, main infrastructure area, water management storages and rail loading and unloading infrastructure.

ROM coal is delivered to the ROM pad via haul trucks and is then transferred into a loading hopper and conveyed to the CHPP for processing. In addition, sized ROM coal from the DCM is transported on the North Coast Railway to the SMC for processing.

Coal products from the CHPP and bypass coal are conveyed to the product coal stockpiles and subsequent reclaim, and loaded onto trains for transport to domestic and export markets. Open cut mining at the SMC ceased in 2014 pending commencement of the Stratford Extension Project.

2.2 Land Ownership and Land Zoning

The Land Ownership Plan (**Appendix B1**) identifies the nearest privately-owned and resource company-owned receivers together with the Land Ownership Details (**Appendix B2**) including a list of property ID numbers, landowners and dwelling co-ordinates. The Gloucester Local Environmental Plan 2010 (LEP) (**Appendix B3**) shows the land use zones in the vicinity of the Modification being dominated by general rural zoning.

2.3 Existing Approvals

With respect to noise (and blasting) emissions, SCPL has consent to operate the SMC in accordance with the following approval and licence conditions:

- Development Consent SSD-4966 dated 29 May 2015 (relevant sections attached as **Appendix C**).
- SMC Environment Protection Licence (EPL) 5161 and EPL 11745.

In addition, NSW Work Cover Dangerous Goods Licences and/or Occupational Health and Safety legislation describe noise specifications for individual equipment, for health and safety purposes.

Development Consent SSD-4966 (**Appendix C**) includes conditions relating to acquisition upon request, additional mitigation upon request, noise criteria (i.e. the SMC approved noise limits) which are reproduced below:

Noise Criteria

4. *The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land.*

Table 4: Noise criteria dB(A)

Land	Day	Evening	Night	Night
	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{A1} (1 min)
40/51/Cr1 – L. Blanch	43	43	43	50
Cr7 – Pryce-Jones	43	43	43	49
42 – D. Blanch	42	42	42	50
Cr 2 – Boorer	41	41	41	49
31(1) – Isaac	40	40	40	48
36 – Wallace	39	39	39	47
44 – Cross / Jane				
60 – Healy / Greenwood	39	39	39	45
37 – Worth	38	38	38	46
29 – Ward	38	38	37	45
23 – Bagnall	37	37	37	45
31(2) – Isaac				
296 – Watson				
297 – Bosma				
298 – Yates	36	36	36	45
15(3) – Falla	39	35	35	45
15(2) – Falla	36	35	35	45
Stratford Village	37	36	35	45
All other privately- owned residences	35	35	35	45

- To interpret the locations referred to in Table 4 see the applicable figure(s) in Appendix 5.
- Stratford village is shown on the figure(s) in Appendix 5.

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

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

The landowners that have (unexercised) acquisition upon request rights in Development Consent SSD-4966 are as follows: 40 (1) Leslie Allenby Blanch, 42 Blanch, 40(2) Blanch, 40(3) Blanch (properties 51 and Cr.1 are owned by Leslie Allenby Blanch and have been relabelled 40(2) and 40(3), respectively), Cr.2 Boorer, and Cr.7 Pryce-Jones.

The landowners that can request additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) are as follows: 31(1) Isaac, 44 Cross/-Jane, 37 Worth, 15(3) Falla, 60 Healy/Greenwood, 36 Wallace and 29 Ward.

SCPL has entered into landholder agreements with the following landowners: 14 Wenham & Wenham, 15 (1) Falla, 15 (2) Falla, 15 (3) Falla, 29 Ward, 31(1) Isaac, 31(2) Isaac, 32 McIntosh & McIntosh, 35 Dillon & Dillon, 37 Worth, 40 (1) Leslie Allenby Blanch, 42 Blanch, 297 Bosma, 298 Yates, Cr.2 Boorer.

2.4 Noise Management and Compliance

2.4.1 Noise Management Plan

A revised Noise Management Plan (NMP) for the SMC was prepared by SCPL and submitted to the Director-General (now Secretary) of the DP&E in May 2011 for approval. This document was subsequently revised in March 2012 and describes the current monitoring regime for the SMC. At the request of the EPA in August 2013, the operator-attended noise monitoring locations were revised to reflect SCPL's property acquisitions and landholder agreements. Noise monitoring was commenced at the revised locations in November 2014.

The current noise monitoring program comprises seven quarterly operator-attended noise monitoring locations, one continuous real-time noise monitoring site and an on-site Automatic Weather Stations (AWS) as shown on the Noise Monitoring Location Plan (**Appendix D**). In accordance with the NMP, operator-attended noise monitoring is used for demonstrating compliance with the SMC approved noise limits (**Appendix C**). Continuous real-time noise monitoring is used as a noise management tool to assist SCPL to take pre-emptive noise management actions.

Real-time noise investigation triggers are set at levels below the SMC approved noise limits and specified in the NMP. An exceedance of the real-time noise investigation triggers results in an investigation into the potential noise source, and implementation of management measures (e.g. relocation or temporary stand-down of equipment) as required and to prevent an exceedance of the approved noise limits.

A summary of the current noise monitoring locations, and associated monitoring frequency, are presented in **Table 3** together with a cross reference to the Land Ownership Details presented in **Section 2.2**.

Table 3 Current Operational Noise Monitoring Locations

Receiver Type	Monitoring Sites ¹	Parameter	Frequency
Privately-owned receivers	26 Lowrey, 34 Hall, Cr.7 Pryce-Jones	Operator-attended monitoring	Routine every 3 months
Resource company-owned receivers	19 (47) SCPL (Clarke Gates), 19 (33) SCPL (Ellis), 13 AGL (Atkins), 19(7) SCPL (Van der Drift)	Operator-attended monitoring	Routine every 3 months
	19 SCPL (RTNM1)	Real-time noise monitoring	Continuous

Source: Carbon Based Environmental Pty Ltd, 2015a

Note 1: Refer to Noise Monitoring Location Plan **Appendix D**.

In accordance with Development Consent SSD-4966 Schedule 3 Condition 6, a new NMP for the SMC was due prior to 31 December 2015, however SCPL sought to amend this timing to be upon commencement of mining operations for the Stratford Extension Project.

2.4.2 Operator-attended Noise Compliance Results 2012

As described in the *Stratford Coal Annual Review 2012* (SCAR 2012) (Carbon Based Environmental, 2012), operator-attended noise monitoring was undertaken on a quarterly basis (i.e. September 2011, December 2011, March 2012 and June 2012) for the 12 month reporting period to June 2012. In addition, SCPL installed a Sentinex real-time noise monitor to assist SCPL to take pre-emptive noise management actions to avoid potential non-compliances.

Based on the findings of the SCAR 2012, there were no recorded non-compliances of the relevant daytime, evening and night-time intrusive $L_{Aeq}(15\text{minute})$ noise limits during the 2012 reporting period except as follows:

- September 2011 survey, during the evening at 31(1) Isaac, where the measured intrusive noise level was 40 A-weighted decibels (dBA) and moderately (4 dBA) above the approved noise limit of 36 dBA. However there is a private agreement between the landowner and SCPL.
- December 2011 survey, during the daytime at 19(7) SCPL (Van der Drift) (representative of Stratford village), where the measured intrusive noise level was 40 dBA and moderately (5 dBA) above the approved noise limit of 35 dBA. While this property is now owned by SCPL, the SCAR concluded that there were no similar excursions at this location over the past two years, and this result did not reflect a systemic (or sustained) breach of the approved noise limit.

2.4.3 Operator-attended Noise Compliance Results 2013

As described in the *Stratford Coal Annual Review 2013* (SCAR 2013) (Carbon Based Environmental, 2013), operator-attended noise monitoring was undertaken on a quarterly basis (i.e. September 2012, December 2012, March 2013 and June 2013) for the 12 month reporting period to June 2013. The Sentinex real-time noise monitor remained in place to assist SCPL to take pre-emptive noise management actions to avoid potential non-compliances.

Based on the findings of the SCAR 2013, there were no recorded non-compliances of the relevant daytime, evening and night-time intrusive $L_{Aeq}(15\text{minute})$ noise limits during the 2013 reporting period except as follows:

- September 2012 survey, during the daytime at the residence 15 (3) Falla, where measured intrusive daytime noise level was 38 dBA and marginally (3 dBA) above the approved noise limit of 35 dBA. A private agreement between the landowner and SCPL was subsequently put in place.
- Furthermore, as presented in **Section 2.3**, in accordance with Development Consent SSD-4966, residence 15 (3) Falla has an approved daytime intrusive noise limit of 39 dBA effective from the 29 May 2015.

2.4.4 Operator-attended Noise Compliance Results 2014

As described in the *Stratford Coal Annual Review 2014* (SCAR 2014) (Carbon Based Environmental, 2014), operator-attended noise monitoring was undertaken on a quarterly basis (i.e. September 2013, December 2013, March 2014 and June 2014) for the 12 month reporting period to June 2014. The Sentinex real-time noise monitor remained in place to assist SCPL to take pre-emptive noise management actions to avoid potential non-compliances.

Based on the findings of the SCAR 2014, there were no recorded non-compliances of the relevant daytime, evening and night-time intrusive $L_{Aeq}(15\text{minute})$ noise limits during the 2014 reporting period.

2.4.5 Operator-attended Noise Compliance Results 2015

As described in the *Stratford Coal Annual Review 2015* (SCAR 2015) (Carbon Based Environmental, 2015a), operator-attended noise monitoring was undertaken on a quarterly basis (i.e. August 2014, November 2014, March 2015 and June 2015) for the 12 month reporting period to June 2015. The Sentinex real-time noise monitor remained in place to assist SCPL to take pre-emptive noise management actions to avoid potential non-compliances.

Based on the findings of the SCAR 2015, there were no recorded non-compliances of the relevant daytime, evening and night-time intrusive $L_{Aeq}(15\text{minute})$ noise limits during the 2015 reporting period except as follows:

- June 2015 survey, during the night-time at Cr.7 Pryce-Jones, where measured intrusive noise level was 36 dBA and negligibly (1 dBA) above the (previously) approved noise limit of 35 dBA and therefore conditionally compliant (i.e. within 2 dB of the applicable noise criteria) in accordance with the INP.
- Furthermore, as presented in Section 2.3, in accordance with Development Consent SSD-4966, residence Cr.7 Pryce-Jones has an approved daytime, evening and night-time intrusive noise limit of 43 dBA effective from 29 May 2015. Hence the night-time intrusive noise level of 36 dBA at Cr.7 Pryce-Jones was therefore in compliance with the noise requirements from the current development consent.

2.4.6 Operator-attended Noise Compliance Results 2016 (to December 2015)

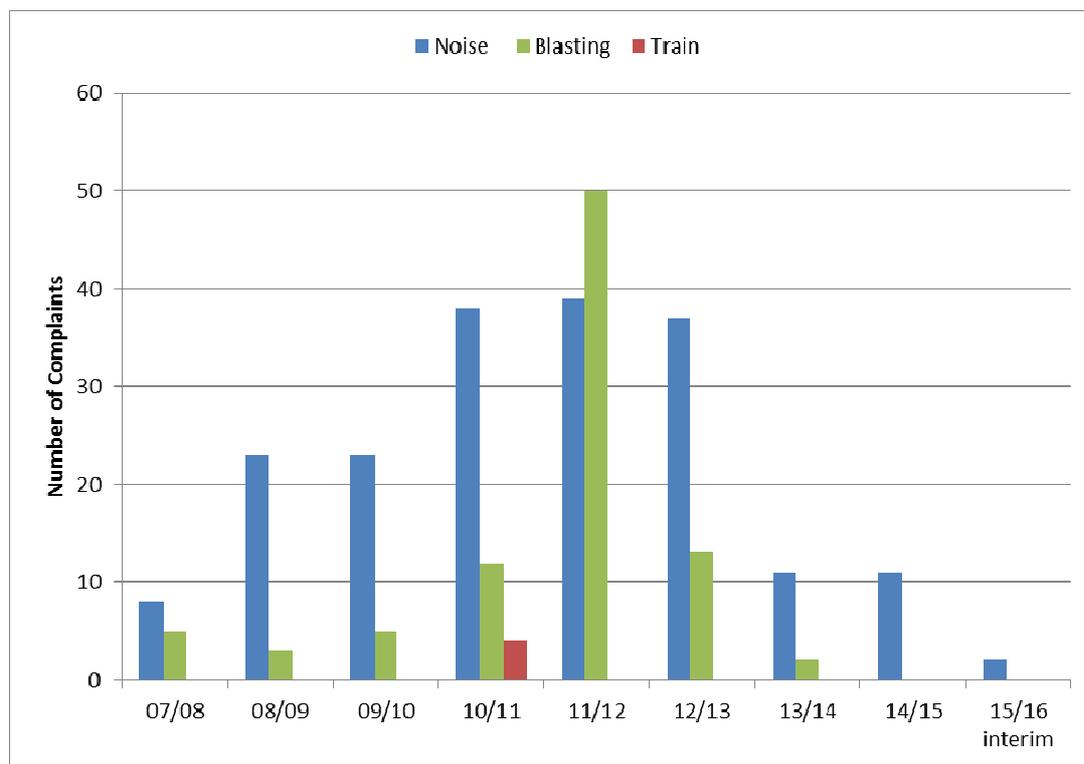
As described in the *Stratford Coal Interim Annual Review 2015* (SCIAR 2015) (Carbon Based Environmental, 2015b), operator-attended noise monitoring was undertaken on a quarterly basis (i.e. September 2015 and December 2015) for the six month reporting period to December 2015. The Sentinex real-time noise monitor remained in place to assist SCPL to take pre-emptive noise management actions to avoid potential non-compliances.

Based on the findings of the SCIAR 2015, there were no recorded non-compliances of the relevant daytime, evening and night-time intrusive $L_{Aeq}(15\text{minute})$ noise limits during the interim 2015 reporting period.

2.5 Noise and Blasting Complaints Summary

The numbers of complaints received relating to on-site operational noise, blasting and off-site rail are shown on **Figure 1**. As shown in **Figure 1**, whilst the overall number of noise and blasting complaints has fluctuated during this period, the number of complaints over the past two and half years have appreciably declined.

Figure 1 Noise, Blasting and Rail Complaints 2007 to 2015



3 MODIFICATION

3.1 Approved and Proposed Hours of Operation

There would be no change in the approved operating hours of the SMC due to the Modification as presented in **Table 4**.

Table 4 Approved SMC and Proposed Modification Hours of Operation

Operation	Description	Currently Approved ¹	Modification
On-Site Operation	Transport of sized ROM coal from the amended RHCP to the SMC	n/a	0700 hours to 1800 hours Monday to Friday and Saturday ² .
	Construction works; and Recovery and transportation of CHPP rejects	0700 hours to 1800 hours 7 days per week	Unchanged
	Bowens Road North and Roseville West Extension open-cut operations	0700 hours to 1800 hours 7 days per week	Unchanged
	Avon North and Stratford East open-cut operations; Coal processing, loading and dispatch of product coal trains; and Maintenance activities	24 hours 7 days per week	Unchanged
	Blasting Operations	0900 hours to 1700 hours Monday to Saturday	Unchanged
Off-Site Operation	Rail Traffic (Main Northern Railway)	24 hrs 7 days per week	Unchanged
	Road Traffic (Stratford main access road off The Bucketts Way)	24 hrs 7 days per week	Unchanged

Note 1: As per Development Consent SSD-4966 dated 29 May 2015 (relevant sections attached as **Appendix C**).

Note 2: In exceptional circumstances only (ie in the event protracted operational time is lost during weekdays).

3.2 Approved and Proposed SMC Development Schedule

There would be changes to the approved and proposed SMC development schedule due to the Modification as presented in **Table 5**.

Table 5 Approved and Proposed SMC ROM Coal Processing Schedule

Project Year	Approved Stratford Extension Project ROM Coal (Mtpa)	Western Co-Disposal Area Coal Recovery (Mtpa)	Total SMC ROM Coal (Mtpa)	RHCP Sized ROM Coal (Mtpa)	Total ROM Coal Processed ² (Mtpa)
1 ¹	1.8	0.2	2.0	-	2.0
2	1.7	0.2	1.9	0.2	2.1
3	1.7	0.2	1.9	0.5	2.4
4	1.7	-	1.7	0.5	2.2
5	2.0	-	2.0	1.0	3.0
6	1.8	-	1.8	1.3	3.1
7	2.1	-	2.1	1.3	3.4
8	2.2	-	2.2	1.3	3.5
9	2.4	-	2.4	1.4	3.8
10	2.6	-	2.6	1.4	4.0
11	1.5	-	1.5	1.5	3.0
12	-	-	-	1.6	1.6
13	-	-	-	1.6	1.6
14	-	-	-	1.6	1.6
15	-	-	-	1.6	1.6
16	-	-	-	0.9	0.9
17	-	-	-	1.3	1.3
Total	21.5	0.6	22.1	19.0	41.1

Note 1: The approved Stratford Extension Project is assumed to commence in 2018 (i.e. Year 1 is 2018) and RHCP commencement is in 2019 (i.e. Year 2). No further Durallie Coal Mine coal is currently planned for processing at the SMC beyond 2018.

Note 2: Combined ROM coal mined by the approved Stratford Extension Project, western co-disposal area coal recovery and RHCP.

3.3 Overview

As discussed in **Section 1.4**, the proposed interactions between the amended RHCP and the Modification relate to the transportation and processing of amended RHCP ROM coal using SMC infrastructure. This integration would require the development of a dedicated private haul road between the SMC and the amended RHCP (**Appendix A**). The portion of the private haul road relevant to the SMC would be located within the north-eastern portion of Stratford's mining tenements, from which point haul trucks would use existing SMC haul roads to allow transport of coal to the SMC ROM pad.

The main changes to the operations of the SMC associated with the Modification include:

- An at-grade level crossing (and associated controls) constructed at the intersection of Wenham Cox Road and the private haul road;
- Extension of on-site haul roads to accommodate the amended RHCP haul trucks;
- Transport of sized ROM coal from the amended RHCP to the SMC during daytime hours only (0700 hours to 1800 hours Monday to Saturday);
- Extension of the SMC ROM pad to accommodate the amended RHCP sized ROM coal;

- Extension of SMC heavy vehicle parking areas; and
- Processing of the amended RHCP coal at the SMC and transportation of the product coal via rail from the SMC to the Port of Newcastle.

Note, that the transport of amended RHCP ROM coal to the SMC (and return trips of empty haul trucks) within the Stratford mining tenements would be considered to be part of the Modification, with the remaining portion being part of the amended RHCP.

The amended RHCP haul trucks would be a multi-combination unit comprising a road registered Euro 5 standard compliant prime mover, two 10 metre (m) triaxle trailers and a dolly, having a nominal carrying capacity of 60 tonnes (t) of coal. The number of haul trucks would vary over the life of the amended RHCP commensurate with the rate of ROM coal production. The required and projected maximum number of haul trucks based on the scheduled annual amended RHCP ROM coal production rate is presented in **Table 6**.

Table 6 Amended RHCP Proposed ROM Coal Truck Movements to the SMC

Year	RHCP ROM Coal (Mtpa)	RHCP Sized ROM Coal (Mtpa)	Number of Trucks Required	Maximum Number of Trucks
1 ¹	-	-	-	-
2	0.2	0.2	1	2
3	0.5	0.5	3	4
4	0.5	0.5	3	4
5	1.1	1.0	6	7
6	1.4	1.3	7	9
7	1.4	1.3	7	9
8	1.4	1.3	7	9
9	1.6	1.4	8	9
10	1.6	1.4	8	9
11	1.7	1.5	9	10
12	1.8	1.6	9	10
13	1.8	1.6	9	10
14	1.8	1.6	9	10
15	1.8	1.6	9	10
16	1.0	0.9	6	7
17	1.4	1.3	7	8

Note 1: The approved Stratford Extension Project is assumed to commence in 2018 (i.e. Year 1 is 2018) and RHCP commencement is in 2019 (i.e. Year 2). No further Duralie Coal Mine coal is currently planned for processing at the SMC beyond 2018.

3.4 Off-site Rail Transport

Product coal produced by the CHPP at the SMC would continue to be stockpiled prior to being reclaimed and loaded to trains for transport on the North Coast Railway to the Port of Newcastle.

With the existing/approved train lengths of approximately 1,300 m, there would be no change to the average and peak rail movements. The Modification would continue to require an average of 2.5 product coal trains (total) per day and a peak of six per day.

There would be no change to the approved SMC daily rail traffic generation or hours of operation due to the Modification and off-site rail transport is not further considered in this report.

3.5 Off-site Road Transport

There would be no material change in the approved SMC daily road traffic generation due to the Modification and off-site road transport noise is not further considered in this report.

4 EXISTING METEOROLOGICAL AND NOISE ENVIRONMENT

4.1 Meteorological Environment

The noise and meteorological monitoring program comprises eight quarterly operator-attended noise monitoring sites, one real-time continuous real-time noise monitoring site and an on-site AWS as shown on the Noise Monitoring Location Plan (**Appendix D**). In accordance with the NMP, operator-attended noise monitoring is used for demonstrating compliance with the SMC approved noise limits (**Appendix C**). Continuous real-time noise monitoring is used as a noise management tool to assist SCPL to take pre-emptive noise management actions.

As discussed in **Section 2.4.1**, SCPL maintains an on-site AWS as shown on the Noise Monitoring Location Plan (**Appendix D**). Relevant assessment meteorological conditions for SMC were established in accordance with the INP for the SEP Noise and Blasting Assessment (SEP NIA) (SLR, 2012).

An assessment of site specific wind velocities derived from the SMC AWS for the period 2012 to 2015 did not identify any additional dominant seasonal daytime wind velocities. It was therefore considered appropriate that the meteorological environment assessments (previously established in the SEP NIA in accordance with the INP) would be adopted for the Modification.

Section 5.3 of the INP (EPA, 2000) provides the following regarding wind effects:

Wind effects need to be assessed where wind is a feature of the area. Wind is considered to be a feature where source to receiver wind speeds (at 10 m height) of 3 m/s or below occur for 30 percent of the time or more in any assessment period in any season.

The prevailing winds less than (or equal to) 3 m/s with a frequency of occurrence greater than (or equal to) 30% and considered to be relevant to the SMC in accordance with the INP, are presented in Table 7.

Table 7 Prevailing Wind Conditions in Accordance with the INP

Season	Winds ± 45 degrees 3 m/s with Frequency of Occurrence 30%		
	Daytime	Evening	Night-Time
Annual	Nil	Not applicable - the transport of sized ROM coal from the amended RHCP to the SMC is confined to daytime operations only (i.e. 0700 hours to 1800 hours Monday to Saturday) (refer Table 4).	
Summer	Nil		
Autumn	Nil		
Winter	Nil		
Spring	Nil		

Section 5.2 of the INP (EPA, 2000) provides the following regarding temperature inversions:

Where inversion conditions are predicted for at least 30% (or approximately two nights per week) of total night-time in winter, then inversion effects are considered to be significant and should be taken into account in the noise assessment.

Assessment of impacts is confined to the night noise assessment period (10 pm to 7 am), as this is the time likely to have the greatest impact—that is, when temperature inversions usually occur and disturbance to sleep is possible.

As the transport of sized ROM coal from the amended RHCP to the SMC is confined to daytime operations only (i.e. 0700 hours to 1800 hours), then consistent with the INP, no assessment of noise impacts associated with temperature inversions is required. The daytime noise modelling meteorological parameters are presented in **Table 8**.

Table 8 Daytime Calm (Neutral) Meteorological Modelling Parameters

Period	Meteorological Parameter	Air Temperature	Relative Humidity	Wind Velocity	Temperature Gradient
Daytime	Calm	18°C	60%	0 m/s	0°C/100 m

Note: °C = degrees Celsius, m/s = metres per second, °C/100 m = degrees Celsius per 100 metres.

4.2 Noise Environment

Given the existing SMC operations, the SEP NIA (Section 4.2) included a detailed review the pre-mining background noise data (from the SMC in 1994 and the BRNOC in 2000) to determine the relevant Rating Background Levels (RBLs) and noise amenity levels (LAeq(period)) in accordance with the INP procedures. In addition, supplementary ambient noise monitoring was conducted in November 2007 coinciding with SMC operations.

Background Noise and Amenity Levels for the Modification Assessment Purposes

Consistent with the background noise outcomes presented in the SEP NIA and for the purposes of assessing the potential noise impacts from the Modification, the ambient noise level data have been previously distilled into two general localities namely:

- Stratford/Craven - including all privately owned residential dwellings within Stratford and Craven as shown on the Land Ownership Plan attached as **Appendices B1** and **B2**.
- Other Rural - including all privately owned residential dwellings beyond Stratford and Craven (as defined above).

On the basis of the two localities and the measured noise levels presented in the SEP NIA (Section 4.2), the representative background noise levels are presented in **Table 9**. These Rating Background Levels (RBL) are also consistent with those established in the BRNOC EIS (Richard Heggie Associates Pty Ltd, 2001).

Table 9 Background Noise Environment for Assessment Purposes (dBA re 20 micropascals [µPa])

Locality	RBL			LAeq(period) ¹ All Noise Sources			LAeq(period) ¹ Industrial Noise Only		
	Daytime	Evening	Night	Daytime	Evening	Night	Daytime	Evening	Night
Stratford/Craven Residential	32	31	30	50	48	45	<44	<39	<34
Other Rural	30	30	30	49	48	44	<44	<39	<34

Note 1: Daytime 0700 hrs to 1800 hrs, Evening 1800 hrs to 2200 hrs and Night-time 2200 hrs to 0700 hrs.

The background noise levels adopted for assessment purposes are generally representative of the pre-mine noise environment, with RBLs ranging from 32 dBA during the daytime to 30 dBA during the night with negligible industrial noise contributions.

The established background noise levels presented in **Table 9** are also generally consistent with the two localities of Stratford Village and All Other Privately-owned Residences as presented in the SMC Development Consent SSD-4966 (**Appendix C**) Schedule 3, Table 4 Noise Criteria.

5 MODIFICATION NOISE ASSESSMENT CRITERIA

5.1 Construction Assessment Criteria

As discussed in **Section 3.3**, the Modification will include the construction of an at-grade level crossing (and associated controls) at the intersection of Wenham Cox Road and the private haul road.

The SEP NIA anticipated similar works associated with the public road realignments (i.e. Wheatleys Lane and Bowens Road and Wenham Cox/Bowens Roads) involving bulk earthworks and other activities. The SEP construction noise levels were assessed (and subsequently approved) in accordance the EPA's ICNG where the ICNG is considered appropriate as the public road works are a discrete, short-term activity located beyond the open-cut perimeters.

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

Table 10 Intrusive LAeq(15minute) Construction Noise Management Levels (dBA re 20 µPa)

Locality	Daytime CNML (noise affected) RBL ¹ plus 10 dBA	Daytime CNML (highly noise affected)
Stratford/Craven	42	75
Other Rural	40	75

Note 1: Refer to **Table 9**.

The Modification construction work would be undertaken by a construction contractor and in consultation with the Mid-Coast Council. It would involve a relatively modest fleet and is anticipated to take up to approximately six weeks. The works are therefore consistent with the SEP NIA (and subsequent approval) and not further considered in this report.

5.2 Operating Assessment Criteria

As discussed in **Section 1.2**, this Modification noise assessment focuses on any incremental noise impacts by comparison with the approved SMC and associated noise limits (**Appendix C**). In addition, a generalised methodology for assessing noise impacts from the Modification against the relevant intrusive and amenity PSNLs is presented in **Appendix E** based on the requirements of the INP and VLAMP, and as further discussed below.

The EPA has regulatory responsibility for the control of noise from "scheduled premises" under the *Protection of the Environment Operations Act, 1997*. In implementing the INP, the EPA has two broad objectives:

- Controlling intrusive noise levels in the short-term; and
- Maintaining noise amenity levels for particular land uses over the medium to long-term.

The INP prescribes detailed calculation routines for establishing PSNLs (i.e. LAeq(15minute) intrusive criteria and LAeq(period) amenity criteria) at potentially affected receivers for an industrial development. Ideally, the intrusive noise level should not exceed the background level by more than 5 dBA. Similarly, the noise amenity level should not exceed the specified INP "acceptable" or "maximum" noise level appropriate for the particular land use. The applicable acceptable and maximum noise amenity levels for receivers in the vicinity of the SMC are shown in **Table 11**.

Table 11 INP Acceptable and Maximum Noise Amenity Levels (dBA re 20 µPa)

Locality	Gloucester LEP Zone ³	INP Noise Amenity Zone	Amenity LAeq(period) ¹ Acceptable			Amenity LAeq(period) ¹ Maximum			
			Day	Evening	Night	Day	Evening	Night	
Stratford	Village	Rural Residential	50	Modification confined to daytime operations only (i.e. 0700 hours to 1800 hours)			55	Modification confined to daytime operations only (i.e. 0700 hours to 1800 hours)	
Craven	Primary Production								
Other Rural									
Parkers Road	Heavy Industry	Industrial	70			75			
Any	-	School ²	External 45 when in use			External 50 when in use			
Any	Special Activities (Cemetery)	Church ² , Cemetery ²	External 50 when in use			External 55 when in use			
Any	Public Recreation	Active Recreation	External 55 when in use			External 60 when in use			

Note 1: Daytime 0700 hrs to 1800 hrs, Evening 1800 hrs to 2200 hrs, Night-time 2200 hrs to 0700 hrs.

Note 2: External criteria equivalent to internal criteria plus 10 dBA.

Note 3: Gloucester Shire now Mid-Coast Council.

As the INP acceptable noise amenity level sets the preferred total noise level from all industrial noise sources, cumulative impacts from the Modification are assessed against the amenity LAeq(period) acceptable noise levels specified in **Table 11**. In addition, DP&E's VLAMP (**Section 1.3**) and the amenity criteria are also used to determine any need for acquisition rights over land as further discussed in **Section 5.3**

5.3 Voluntary Land Acquisition and Mitigation Policy

The VLAMP (**Section 1.3**) describes the NSW Government's policy for voluntary mitigation and land acquisition to address noise (and dust) impacts from State Significant Mining, Petroleum and Extractive Industry Developments. The NSW Government has had long-standing processes in place for land acquisition and mitigation associated with mining developments and these procedures have now been formalised in the VLAMP, including:

- That industry needs to apply all reasonable and feasible measures to minimise noise (and dust) impacts;
- When noise and dust impacts are considered to be significant enough to warrant mitigation at the receiver or acquisition upon request;
- Requirements for negotiated agreements between proponents and landowners; and
- The measures that need to be offered to affected landholders when impacts are marginal or moderate (but within approval limits).

An extract from the VLAMP is attached as **Appendix F** that details how the policy applies to noise impacts and the key sections are reproduced as follows:

Table 1 Characterisation of Noise Impacts and Potential Treatments

Residual Noise Exceeds INP Criteria By	Characterisation of Impacts	Potential Treatment
<i>0-2 dBA above the project specific noise level (PSNL)</i>	<i>Impacts are considered to be negligible</i>	<i>The exceedances would not be discernible by the average listener and therefore would not warrant receiver based treatments or controls</i>
<i>3-5 dBA above the PSNL in the INP <u>but</u> the development would contribute less than 1 dB to the total industrial noise level</i>	<i>Impacts are considered to be marginal</i>	<i>Provide mechanical ventilation/comfort condition systems to enable windows to be closed without compromising internal air quality/amenity</i>
<i>3-5 dBA above the PSNL in the INP <u>and</u> the development would contribute more than 1 dB to the total industrial noise level</i>	<i>Impacts are considered to be moderate</i>	<i>As for marginal impacts but also upgraded facade elements like windows, doors, roof insulation etc. to further increase the ability of the building façade to reduce noise levels</i>
<i>>5 dBA above the PSNL in the INP</i>	<i>Impacts are considered to be significant</i>	<i>Provide mitigation as for moderate impacts and see voluntary land acquisition provisions below</i>

Voluntary mitigation rights

A consent authority should only apply voluntary mitigation rights where, even with the implementation of best practice management:

- The noise generated by the development would be equal to or greater than 3dB(A) above the INP project-specific noise level at any residence on privately owned land; or*
- The development would increase the total industrial noise level at any residence on privately owned land by more than 1dB(A), and noise levels at the residence are already above the recommended amenity criteria in Table 2.1 of the INP; or*
- The development includes a private rail line and the use of that private rail line would cause exceedances of the recommended acceptable levels in Table 6 of Appendix 3 of the RING (see Appendix B) by greater than or equal to 3dB(A) at any residence on privately owned land.*

All noise levels must be calculated in accordance with the INP or RING (as applicable).

The selection of mitigation measures should be guided by the potential treatments identified in Table 1 above.

Voluntary land acquisition rights

A consent authority should only apply voluntary land acquisition rights where, even with the implementation of best practice management:

- The noise generated by the development would be more than 5dB(A) above the project specific noise level at any residence on privately owned land; or*
- The noise generated by the development would contribute to exceedances of the recommended maximum noise levels in Table 2.1 of the INP on more than 25% of any privately owned land where there is an existing dwelling or where a dwelling could be built under existing planning controls⁷; or*

- *The development includes a private rail line and the use of that private rail line would cause exceedances of the recommended maximum criteria in Table 6 of Appendix 3 of the RING at any residence on privately owned land.*

All noise levels must be calculated in accordance with the INP or RING (as applicable).

⁷ *Voluntary land acquisition rights should not be applied to address noise levels on vacant land other than to vacant land specifically meeting these criteria.*

It is also noteworthy that:

A consent authority can apply voluntary mitigation and voluntary land acquisition rights to reduce:

- *Operational noise impacts of a development on privately owned land; and*
- *Rail noise impacts of a development on privately owned land near non-network rail lines (private rail lines) on or exclusively servicing industrial sites (see Appendix 3 of the RING);*

But not:

- *Construction noise impacts, as these impacts are shorter term and can be controlled;*
- *Noise impacts on the public road or rail network; or*
- *Modifications of existing developments with legacy noise issues, where the modification would have beneficial or negligible noise impacts. In such cases, these legacy noise issues should be addressed through site-specific pollution reduction programs under the Protection of the Environment Operations Act 1997.*

5.4 Sleep Disturbance Assessment Criteria

As presented in **Table 4**, the proposed hours of operation for the Modification is confined to daytime from 0700 hours to 1800 hours Monday to Saturday (i.e. with no evening or night-time operations). Night-time sleep disturbance is therefore not considered further in this assessment.

6 NOISE MODELLING METHODOLOGY

6.1 Existing/Approved SMC Noise Mitigation and Management Measures

SCPL is obligated to manage noise levels in accordance with the SMC approved noise limits specified in SMC Development Consent SSD-4966 (**Appendix C**) using reasonable and feasible mitigation measures (**Appendix G**).

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. The SEP NIA (Section 6) includes a detailed discussion of the existing, approved and proposed noise mitigation and management measures associated with the SEP. The Modification does not alter the implementation and maintenance of these commitments.

6.1.1 Mobile Equipment and Fixed Plant Sound Power Levels

The potential for machinery to emit noise is quantified as the sound power level (SWL) expressed in dBA re 1 picowatt (pw). At the receiver, 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 parameter 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 would produce a similar variation in the $L_{eq}(15\text{minute})$ SPL at the receiver.

Plant and equipment SWLs at the SMC have been the subject of ongoing measurements in accordance with the NMP (refer **Section 2.3**) and SCPL have refined the SWLs for individual fleet items. Comparative plant and equipment fleets are presented in **Table 12** together with the overall mine site Leq SWLs from the SEP NIA and the Modification.

Table 12 Approved SMC and Modification Plant and Equipment SWLs (dBA re 1 pW)¹

Equipment Description ²	Approved SMC Plant and Equipment						Modification Plant and Equipment					
	Year 2		Year 7		Year 10		Year 2		Year 7		Year 10	
	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL	No Items	SWL
Drills	4	122	3	121	3	121	4	122	3	121	3	121
Excavators	11	125	11	125	11	125	11	125	11	125	11	125
789 Haul Trucks	9	127	8	126	8	126	9	127	8	126	8	126
785 Haul Trucks	9	125	8	124	8	124	9	125	8	124	8	124
775 Haul Trucks	12	132	12	132	10	131	12	132	12	132	10	131
A40D Haul Trucks	4	119	4	119	4	119	4	119	4	119	4	119
Dozers	10	130	9	130	9	130	10	130	9	130	9	130
Water Cart	3	123	3	123	3	123	3	123	3	123	3	123
Loaders (ROM)	1	112	1	112	1	112	1	112	1	112	1	112
Graders	3	117	3	117	3	117	3	117	3	117	3	117
Haul Trucks (60t)	-	-	-	-	-	-	2	111	9	118	10 ⁴	118
Mobile Fleet	66	136	62	136	60	136	68	136	71	136	70	136
Primary Crusher		108		108		108		108		108		108
Rotary Breaker		112		112		112		112		112		112
Secondary Crusher		109		109		109		109		109		109
CHPP		116		116		116		116		116		116
Stockpile Dozer	1	112	1	112	1	112	1	112	1	112	1	112
Coal Stockyard		115		115		115		115		115		115
Trains/Rail Loadout		115		115		115		115		115		115
Rail Loading		109		109		109		109		109		109
Coal Handling ³		122		122		122		122		122		122
Overall Total	1	136	1	136	1	136	1	136	1	136	1	136

Note 1: pW = picowatt.

Note 2: Exclusive of construction mobile equipment associated with public road realignments.

Note 3: Coal Handling Infrastructure includes relevant conveyor SWLs.

Note 4: The maximum number of haul trucks at any point during the life of the Modification is 10 haul trucks (Years 11-15). This number has been used in the Year 10 scenario (as opposed to nine haul trucks set out in **Table 6**) in order to model the potential impacts of the maximum number of haul trucks.

6.1.2 SMC Noise Model Validation

The SMC noise model was prepared using Renzo Tonin Associates' Software Environmental Noise Model (ENM for Windows, Version 3.06), a commercial software system developed in conjunction with the NSW 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. ENM has been used for all major noise assessments at the SMC.

As described in the SEP NIA, the SEP was reviewed to determine representative scenarios to assess potential SEP noise impacts. The same assessment scenarios have been adopted for the purposes of assessing noise impacts from the Modification, as follows:

Modification Year 2 - SEP Year 2 plus amended RHCP sized ROM coal haulage and processing

Representative of approximately 1.7 Mtpa ROM coal production rate arising from the first full year of the Roseville West Pit Extension operation (daytime only), the initial Avon North Open Cut operation (24 hours) and Stratford East Open Cut (waste operations daytime only and coal 24 hours) and 0.2 Mtpa from the Western Co-Disposal Area Coal Recovery. This scenario also coincides with placement of waste on the elevated portions of the Northern Waste Emplacement Extension.

This is the first year RHCP sized ROM coal (approximately 0.2 Mtpa) would be transported to the SMC for processing at the CHPP.

Modification Year 7 - SEP Year 7 plus amended RHCP sized ROM coal haulage and processing

Representative of approximately 2.1 Mtpa ROM coal production rate arising from the continuation of the Roseville West Pit Extension operation (daytime only), and the full operation of the Stratford East Open Cut 24 hours a day.

There would be approximately 1.3 Mtpa of RHCP sized ROM coal transported to the SMC for processing at the CHPP.

Modification Year 10 - SEP Year 10 plus amended RHCP sized ROM coal haulage and processing

Representative of approximately 2.6 Mtpa ROM coal production rate arising from the continuation of the Roseville West Pit Extension operation (daytime only), the cessation of operations in the Avon North Open Cut and including operation of the southern extent of Stratford East Open Cut (operating 24 hours a day when at the maximum waste and coal production rate).

There would be approximately 1.4 Mtpa of RHCP sized ROM coal transported to the SMC for processing at the CHPP.

The three operational noise modelling scenarios include all existing and proposed plant items operating concurrently to simulate the overall maximum energy equivalent (i.e. LAeq[15minute]) intrusive noise level. 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.

7 OPERATING NOISE IMPACT ASSESSMENT

7.1 Daytime Operating Intrusive Noise Levels

The predicted daytime operating LAeq(15minute) intrusive levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for privately-owned receivers are presented in **Table 13**, together with the SMC approved noise limits (**Appendix C**).

Table 13 Daytime Year 2, Year 7 and Year 10 Intrusive LAeq(15minute) Noise (dBA re 20 µPa)

ID No and Landowner	Modification Year 2 Calm	Modification Year 7 Calm	Modification Year 10 Calm	SMC Approved Noise Limit
Stratford/Craven Rural Receivers				
1 Fraser	28	24	24	35
5(1) Bignell	29	25	25	35
5(2) Bignell	28	24	24	35
9(1) Williams	32	28	28	35
9(2) Williams	32	29	29	35
10 Whatmore & Whatmore	32	29	28	35
11 Walker, Walker, Walker & Walker	32	29	29	35
16 Pickett	32	30	30	35
17 Fisher & Smith	32	31	30	35
23 Bagnall	33	27	25	35
24 Harris	17	17	17	35
25 Thompson	32	29	30	35
26 Lowrey & Lowrey	31	29	29	35
27 Gloucester Shire Council	33	32	31	35
34 Hall & Hall	27	26	26	35
36 Wallace & Wallace	29	29	28	39
36a(1) Berecry	10	9	9	35
36a(2) Berecry	13	11	11	35
38 Johnson & Johnson	31	28	28	35
43 Moseley	30	27	27	35
44 Cross & Jane	29	28	27	39
47 Digges, Digges, Hart & Hart	14	15	18	35
48 Rounsley	14	15	16	35
50 Porter	11	12	13	35
53 Barnes & Barnes	13	15	19	35
54 Hughes & Carrysong Pty Ltd	13	14	17	35
55 Hancock & Hancock	12	13	15	35
56 McCalden & McCalden	11	11	13	35
58(1) Blanch & Blanch	17	18	19	35
58(2) Blanch & Blanch	16	17	19	35
59 Blanch	17	20	22	35
60 Healy & Greenwood	17	17	23	39
65 Weismantle	16	16	16	35
69 Hooper & Bartholmew	18	19	19	35
70 Knight	17	17	20	35
71 Burnet & Burnet	19	19	18	35
202 Wenham	32	31	30	35
265 Hawkins	20	18	18	35
274 Wilson & Wilson	23	21	21	35
275 (1) Pace Farm Pty Ltd	24	23	23	35
276 Luscombe & Luscombe	21	19	19	35
279 Tomb	26	24	24	35
281 Lewis & Lewis	33	32	31	35
282 Ross	27	24	24	35
283 Nolan	30	26	26	35

ID No and Landowner	Modification Year 2 Calm	Modification Year 7 Calm	Modification Year 10 Calm	SMC Approved Noise Limit
284 Perrin & Perrin	28	28	27	35
285 Carter & Carter	26	24	24	35
287 Sinderberry & Rinkin	24	24	24	35
288 Perrin	25	24	23	35
289 McIntosh	29	29	28	35
290 Pickett	25	24	23	35
291 Crawley & Crawley	27	26	26	35
292(1) Fisher & Fisher	20	20	20	35
293 Braunton	23	22	22	35
294 Morcom & Morcom	24	23	22	35
295 Bush & Bush	24	23	22	35
296 Watson & Watson	27	26	25	37
303 JSTC Newcastle Pty Ltd	21	21	20	35
304 Abeysekera & Abeysekera	19	19	18	35
307 Wolfenden & Wolfenden	18	18	17	35
316 Country Rail Infrastructure Authority	32	31	31	35
Craven				
Cr.7 Pryce-Jones	30	31	29	43
Stratford				
S1 Rees	33	32	31	37
S3 Yeatman	34	33	32	37
S4 Grady & Grady	32	31	30	37
S5 Britnell	33	32	31	37
S6 Threadgate & Threadgate	32	31	31	37
S8 Forbes	33	32	32	37
S9 Greenham & Greenham	33	32	31	37
S10 Germon	33	32	32	37
S11 Glew	33	32	31	37
S12 Mitchell & Mitchell	33	32	31	37
S13 Wells & Wells	34	32	32	37
S14 Bignell	33	31	31	37
S15 Minister for Education	34	33	32	37
S19 Carroll	35	34	33	37
S20 Rastall	33	32	32	37
S21 Booral Service Centre Pty Ltd	33	32	32	37
S23 Bartlett	33	32	32	37
S24 Hughes	33	32	32	37
S26 Young	33	32	32	37
S27 Tilley	34	32	32	37
S28 Morris & Morris	34	32	32	37
S29 Bagnall & Bagnall	34	33	32	37
S30 Baker	34	33	32	37
S31 Richards	34	33	33	37
S33 Langtry, Gilbert & Gilbert	34	33	33	37
S34 Ashby	34	33	33	37
S35 Rodgers & Bekker	34	33	33	37
S36 Poots	34	33	33	37

ID No and Landowner	Modification Year 2 Calm	Modification Year 7 Calm	Modification Year 10 Calm	SMC Approved Noise Limit
S37 Pryor & Pryor	35	33	33	37
S38 Kirkman	35	34	33	37
S39(1) Nicholls & Husband	35	34	33	37
S39(2) Nicholls & Husband	35	34	33	37
S40 Curtis	33	32	32	37
S41 (1) McCure & Aplin	33	32	32	37
S43 Squire	33	32	32	37
S47 Potts	34	33	33	37
S48 Farley & Farley	34	33	33	37
S49 Blanch	34	33	33	37
S50 Van der Drift & Blanch	34	33	33	37
S51 Trenholme	34	33	33	37
S52 Farley & Barry	34	33	33	37
S53 Arthur	34	33	33	37
S54 Adams	34	33	33	37
S56 Collins & Collins	33	32	32	37
S57 Gam	33	32	32	37
S58 Harrigan	33	32	32	37
S59 Grady & Grady	33	32	32	37
Receivers subject to Landholder Agreement				
14 Wenham & Wenham	34	32	32	35
15(1) Falla	34	32	32	35
15(2) Falla	36	34	34	36
15(3) Falla	39	37	37	39
29 Ward	35	34	35	38
31(1) Isaac	35	34	34	40
31(2) Isaac	34	33	33	37
37 Worth	29	28	27	38
40 (1) Leslie Allenby Blanch	34	34	33	43
42 Blanch	32	32	32	42
297 Bosma	27	26	26	37
298 Yates	26	26	25	36
Cr.2 Boorer	33	33	32	41

Note 1: Predicted LAeq(15minute) noise level complies with the SMC approved noise limit.

Note 2: **Bold text** indicates the approved noise limit is greater than 35 dBA.

7.2 Privately-owned Receivers - Intrusive Noise Impact Assessment Summary

In summary, the predicted daytime operating intrusive LAeq(15minute) noise levels (**Table 13**) at privately-owned receivers show:

- No exceedances of the daytime SMC approved noise limits at any privately-owned receivers (i.e. predicted daytime noise levels remain lower than, or equal to, those approved for the SEP); and
- General conformance with the relevant intrusive and amenity PSNLs when assessed in accordance with the generalised methodology for assessing noise impacts from the Modification (**Appendix E**) as presented in **Appendix H1**.

7.3 Privately-owned Land - Impact Assessment

The daytime intrusive LAeq(15minute) intrusive noise contours for Year 2, Year 7 and Year 10 are presented in **Appendices I1, I2 and I3**, respectively. 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 presented in **Appendices I1 to I3** will differ slightly from the values in **Table 13**, which are calculated at the individual receptor locations and are therefore more accurate predictions.

Noise impacts on land have been assessed in accordance with the VLAMP on the basis that any land is permitted to have a dwelling. In Year 2, Year 7 and Year 10 the daytime 50 dBA intrusive LAeq(15minute) noise contour is predicted to fall well short of the nearest privately-owned land and therefore remain well below the maximum recommended rural residential daytime (LAeq(11 hour)) noise amenity level of 55 dBA in accordance with the INP.

7.4 Resource Company-owned Receivers - Impact Assessment Summary

The predicted daytime operating LAeq(15minute) intrusive levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for resource company-owned receivers are presented in **Appendix H2**, together with a summary of noise impacts.

7.5 Review of Existing SMC Noise Management Plan

It is recommended that the current NMP (**Section 2.4.1**) be revised for the Modification to include updated operator-attended noise monitoring network to reflect current land ownership.

8 CUMULATIVE NOISE AMENITY ASSESSMENT

8.1 Other Approved or Proposed Industrial Developments

The INP Chapter 2, Industrial Noise Criteria, provides cumulative noise assessment guidelines that address existing and successive industrial development by setting acceptable (and maximum) cumulative LAeq(period) noise amenity levels for all industrial noise sources only (i.e. non-transport related) for a particular land use. It is noted that the INP does not set acceptable cumulative LAeq(15minute) intrusive criteria for all industrial noise sources, but rather seeks to control cumulative noise via the LAeq(period) noise amenity criterion (**Table 11**).

As discussed in **Section 1.4**, other existing, approved or proposed resource developments in the vicinity of the Modification are presented in **Table 14**, together with the source of the SMC noise amenity levels. These project noise amenity levels are then used to conservatively determine the cumulative sum daytime and evening noise amenity levels.

Table 14 Approved or Proposed Resource Developments in the Vicinity of the Modification

Proponent	Project	Status	Source of Project Noise Amenity Levels
Gloucester Resources Ltd (GRL)	Amended Rocky Hill Coal Project	Proposed Project Application SSD-5156	As presented in this assessment report
AGL Upstream Infrastructure Investments Pty Ltd (AGL)	AGL Gloucester Gas Project	Approved Project Approval dated 22 February 2011.	AGL Gloucester Gas Project (GGP) Environmental Assessment (EA) AECOM Volume 3 Appendix H dated October 2009. SEP NIA details assumptions used to determine relevant noise amenity levels.

It should be noted that for each of the projects identified above, the likelihood of the existing, approved and proposed developments emitting maximum noise emissions simultaneously is remote, due to the range of development locations and directional and other differences in the noise enhancing (and diminishing) weather effects.

8.2 Cumulative Daytime Noise Amenity Assessment

The predicted daytime cumulative LAeq(11hour) noise amenity levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for privately-owned receivers are presented in **Table 15**, together with the relevant INP acceptable daytime LAeq(11hour) noise amenity criteria (**Table 11**).

Table 15 Cumulative Daytime (LAeq(11 hour)) Noise Amenity Levels (dBA re 20 µPa)

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
Stratford/Craven Rural Receivers						
1 Fraser	28	30	30	29	35	50
5(1) Bignell	29	29	16	29	34	50
5(2) Bignell	28	29	30	33	36	50
9(1) Williams	32	28	21	29	35	50
9(2) Williams	32	28	18	29	35	50
10 Whatmore & Whatmore	32	17	4	26	33	50
11 Walker, Walker, Walker & Walker	32	26	7	26	34	50
16 Pickett	32	16	17	25	33	50
17 Fisher & Smith	32	16	21	26	33	50
23 Bagnall	33	17	19	21	34	50
24 Harris	17	9	0	22	23	50
25 Thompson	32	14	14	27	33	50
26 Lowrey & Lowrey	31	14	14	27	33	50
27 Gloucester Shire Council	33	15	20	27	34	50
34 Hall & Hall	27	11	0	28	31	50
36 Wallace & Wallace	29	11	5	28	32	50
36a(1) Berecry	10	19	0	21	23	50
36a(2) Berecry	13	16	0	22	23	50
38 Johnson & Johnson	31	14	4	26	32	50
43 Moseley	30	13	0	26	31	50
44 Cross & Jane	29	11	17	28	32	50
47 Digges, Digges, Hart & Hart	18	11	0	21	23	50
48 Rounsley	16	12	0	21	23	50
50 Porter	13	11	0	20	21	50
53 Barnes & Barnes	19	11	0	22	24	50
54 Hughes & Carrysong Pty Ltd	17	11	0	21	23	50
55 Hancock & Hancock	15	11	0	20	22	50
56 McCalden & McCalden	13	11	0	19	21	50
58(1) Blanch & Blanch	19	9	0	23	25	50
58(2) Blanch & Blanch	19	10	3	24	25	50
59 Blanch	22	10	1	23	26	50
60 Healy & Greenwood	23	10	0	21	25	50
65 Weismantle	16	8	0	20	22	50
69 Hooper & Bartholmew	19	9	0	21	23	50

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
70 Knight	20	9	0	19	23	50
71 Burnet & Burnet	19	9	0	22	24	50
202 Wenham	32	16	21	25	33	50
265 Hawkins	20	15	0	20	24	50
274 Wilson & Wilson	23	17	0	22	26	50
275 (1) Pace Farm Pty Ltd	24	24	0	24	29	50
276 Luscombe & Luscombe	21	15	0	21	24	50
279 Tomb	26	18	0	24	29	50
281 Lewis & Lewis	33	15	21	28	34	50
282 Ross	27	12	0	24	29	50
283 Nolan	30	13	0	23	31	50
284 Perrin & Perrin	28	13	0	27	31	50
285 Carter & Carter	26	12	0	24	28	50
287 Sinderberry & Rinkin	24	11	0	25	28	50
288 Perrin	25	12	0	25	28	50
289 McIntosh	29	12	9	31	33	50
290 Pickett	25	10	0	25	28	50
291 Crawley & Crawley	27	11	0	28	30	50
292(1) Fisher & Fisher	20	10	0	23	25	50
293 Braunton	23	10	0	23	26	50
294 Morcom & Morcom	24	10	0	23	27	50
295 Bush & Bush	24	10	0	24	27	50
296 Watson & Watson	27	10	0	27	30	50
303 JSTC Newcastle Pty Ltd	21	9	0	22	25	50
304 Abeysekera & Abeysekera	19	9	0	21	23	50
307 Wolfenden & Wolfenden	18	8	0	20	22	50
316 Country Rail Infrastructure Authority	32	15	22	28	34	50
Craven						
Cr.7 Pryce-Jones	31	11	30	29	35	50
Stratford						
S1 Rees	33	16	22	26	34	50
S3 Yeatman	34	16	26	26	35	50
S4 Grady & Grady	32	15	20	26	33	50
S5 Britnell	33	15	20	27	34	50
S6 Threadgate & Threadgate	32	15	20	27	34	50
S8 Forbes	33	15	21	27	34	50
S9 Greenham & Greenham	33	15	22	26	34	50
S10 Germon	33	15	21	27	34	50
S11 Glew	33	15	22	27	34	50
S12 Mitchell & Mitchell	33	15	22	27	34	50
S13 Wells & Wells	34	15	23	27	35	50
S14 Bignell	33	15	19	27	34	50
S15 Minister for Education	34	15	22	27	35	50
S19 Carroll	35	15	30	27	36	50
S20 Rastall	33	15	18	27	34	50

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
S21 Booral Service Centre Pty Ltd	33	15	18	27	34	50
S23 Bartlett	33	15	18	27	34	50
S24 Hughes	33	15	19	27	34	50
S26 Young	33	15	20	27	35	50
S27 Tilley	34	15	21	27	35	50
S28 Morris & Morris	34	15	21	27	35	50
S29 Bagnall & Bagnall	34	15	22	27	35	50
S30 Baker	34	15	23	27	35	50
S31 Richards	34	15	23	27	35	50
S33 Langtry, Gilbert & Gilbert	34	15	24	27	35	50
S34 Ashby	34	15	24	28	36	50
S35 Rodgers & Bekker	34	15	25	28	36	50
S36 Poots	34	15	26	28	36	50
S37 Pryor & Pryor	35	15	26	28	36	50
S38 Kirkman	35	15	27	28	36	50
S39(1) Nicholls & Husband	35	15	30	28	37	50
S39(2) Nicholls & Husband	35	15	30	28	37	50
S40 Curtis	33	15	20	28	34	50
S41 (1) McClure & Aplin	33	15	21	28	34	50
S43 Squire	33	15	21	28	35	50
S47 Potts	34	15	22	28	35	50
S48 Farley & Farley	34	15	23	28	35	50
S49 Blanch	34	15	23	28	35	50
S50 Van der Drift & Blanch	34	15	24	28	35	50
S51 Trenholme	34	15	24	28	35	50
S52 Farley & Barry	34	15	25	28	36	50
S53 Arthur	34	15	25	28	36	50
S54 Adams	34	15	26	28	36	50
S56 Collins & Collins	33	15	25	28	35	50
S57 Gam	33	15	27	29	35	50
S58 Harrigan	33	15	30	29	36	50
S59 Grady & Grady	33	15	30	29	36	50
Receivers subject to Landholder Agreement						
14 Wenham & Wenham	34	17	21	26	35	50
15(1) Falla	34	18	24	26	35	50
15(2) Falla	36	18	30	27	37	50
15(3) Falla	39	18	30	26	39	50
29 Ward	35	15	30	30	37	50
31(1) Isaac	35	14	30	26	36	50
31(2) Isaac	34	14	30	31	37	50
37 Worth	29	11	17	30	32	50
40 (1) Leslie Allenby Blanch	34	11	30	35	38	50
42 Blanch	32	11	30	30	36	50
297 Bosma	27	10	2	27	30	50
298 Yates	26	10	11	28	30	50

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
Cr.2 Boorer	33	11	30	30	36	50
Stratford/Craven Non-Residential Receivers						
30 Stratford Cemetery	34	15	26	28	36	50
S15 Stratford Public School	33	15	18	27	34	45
S25 St John's Anglican Church	34	15	20	27	35	50

Note 1: Predicted cumulative LAeq(period) amenity noise level complies with 50 dBA (daytime) amenity noise level.

8.3 Privately Owned Receivers - Cumulative Impact Assessment Summary

In summary, predicted daytime cumulative LAeq(11 hour) noise amenity levels (**Table 15**) at privately-owned receivers show that:

- No privately-owned receiver exceeds the INP acceptable amenity noise level of 50 dBA; and
- No non-residential receiver exceeds the relevant INP acceptable amenity noise level.

8.4 Resource Company-owned Receivers - Cumulative Impact Assessment Summary

The predicted daytime cumulative LAeq(11hour) noise amenity levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for resource company-owned receivers are presented in **Appendix J**, together with a summary of noise impacts.

9 SUMMARY OF FINDINGS

9.1 Construction Assessment Criteria

As discussed in **Section 3.3**, the Modification will include the construction of an at-grade level crossing (and associated controls) at the intersection of Wenham Cox Road and the private haul road.

The SEP NIA anticipated similar works associated with the public road realignments (i.e. Wheatleys Lane and Bowens Road and Wenham Cox/Bowens Roads) involving bulk earthworks and other activities. The SEP construction noise levels were assessed (and subsequently approved) in accordance the EPA's ICNG where the ICNG is considered appropriate as the public road works are a discrete, short-term activity located beyond the open-cut perimeters.

The Modification construction work would be undertaken by a construction contractor and in consultation with the Mid-Coast Council. It would involve a relatively modest fleet and is anticipated to take up to approximately six weeks. The works are therefore consistent with the SEP NIA (and subsequent approval).

9.2 Operating Assessment Criteria

As discussed in **Section 1.2**, this Modification noise assessment focuses on any incremental noise impacts by comparison with the approved SMC and associated noise limits. Development Consent SSD-4966 dated 19 May 2015 (**Appendix C**) includes conditions relating to acquisition upon request, additional mitigation upon request, noise criteria (i.e. the SMC approved noise limits) which are reproduced below:

Noise Criteria

4. *The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land.*

Table 4: Noise criteria dB(A)

Land	Day	Evening	Night	Night
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{A1}(1 \text{ min})$
40/51/Cr1 – L. Blanch	43	43	43	50
Cr7 – Pryce-Jones	43	43	43	49
42 – D. Blanch	42	42	42	50
Cr 2 – Boorer	41	41	41	49
31(1) – Isaac	40	40	40	48
36 – Wallace	39	39	39	47
44 – Cross / Jane				
60 – Healy / Greenwood	39	39	39	45
37 – Worth	38	38	38	46
29 – Ward	38	38	37	45
23 – Bagnall	37	37	37	45
31(2) – Isaac				
296 – Watson				
297 – Bosma				
298 – Yates	36	36	36	45
15(3) – Falla	39	35	35	45
15(2) – Falla	36	35	35	45
Stratford Village	37	36	35	45
All other privately- owned residences	35	35	35	45

- To interpret the locations referred to in Table 4 see the applicable figure(s) in Appendix 5.
- Stratford village is shown on the figure(s) in Appendix 5.

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

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

In addition, a generalised methodology for assessing noise impacts from the Modification against the relevant intrusive and amenity PSNLs is presented in **Appendix E** based on the requirements of the INP and VLAMP.

9.3 Modification and Cumulative Operating Noise Impact Assessment

A summary of the exceedances at privately-owned receivers and land of the SMC approved noise limits, PSNLs and INP's acceptable noise amenity levels is presented in **Table 16**.

Table 16 Summary of Criteria Exceedances at Privately Owned Receivers¹ and Vacant Land

Exceedance Range	1 to 2 dBA above PSNL	3 to 5 dBA above PSNL	> 5 dBA above PSNL
SMC Approved Noise Limits LAeq(15minute)	-	-	-
Exceedance Range	1 to 2 dBA above PSNL	3 to 5 dBA above PSNL	> 5 dBA above PSNL
Intrusive PSNL LAeq(15minute)	15(2) ²	15(3) ²	-
Exceedance Range	1 to 2 dBA above PSNL	3 to 5 dBA above PSNL	> 5 dBA above PSNL
Amenity PSNL LAeq(11 hour)	-	-	-
Exceedance Range	1 to 2 dBA above INP Acceptable	3 dBA above INP Acceptable	> 3 dBA above INP Acceptable
Cumulative Amenity LAeq(11 hour)	-	-	-
Exceedance Range	1 to 5 dBA above acceptable		> 5 dBA above acceptable
Land acceptable amenity level LAeq(11 hour)	-	-	-

Note 1: Refer to **Appendix B** for land ownership details.

Note 2: Properties subject to an existing landholder agreement.

In summary, the predicted daytime operating intrusive LAeq(15minute) noise levels (**Table 13**) at privately-owned receivers show that:

- No exceedance of the daytime approved noise limits at any privately-owned receivers (i.e. predicted daytime noise levels remain lower than, or equal to, those approved for the SEP);
- Negligible exceedance of up to 1 dBA above the intrusive PSNL 35 dBA at receiver 15(2) Falla (receiver subject to landholder agreement);
- Moderate exceedance of up to 4 dBA above the intrusive PSNL 35 dBA at receiver 15(3) Falla (receiver subject to landholder agreement); and
- No exceedance of the intrusive PSNLs (i.e. 35 dBA to 37 dBA) at all other privately-owned receivers.

As a result of the Modification, there are no additional privately-owned receivers predicted to be within the noise management zone (which would attract mitigation rights) or noise affectation zones (which would attract acquisition rights) in accordance with the VLAMP.

10 REFERENCES

- Bowens Road North Project: Operating and Transportation Noise and Blasting Impact Assessment (Richard Heggie Associates Pty Ltd, 2001)
- Duralie Modification Noise and Blasting Assessment (SLR, 2014)
- Interim Construction Noise Guideline (EPA, 2009)
- Noise Management Plan (Stratford Coal Pty Ltd, 2012)
- NSW Industrial Noise Policy (EPA, 2000)
- NSW Road Noise Policy (DECCW, 2011)
- Protection of the Environment Operations Act 1997
- Rail Infrastructure Noise Guideline (EPA, 2013)
- Renzo Tonin Associates Environmental Noise Model (RTA, Version 3.06)
- Stratford Coal Annual Review 2012 (Carbon Based Environmental Pty Ltd, 2012)
- Stratford Coal Annual Review 2013 (Carbon Based Environmental Pty Ltd, 2013)
- Stratford Coal Annual Review 2014 (Carbon Based Environmental Pty Ltd, 2014)
- Stratford Coal Annual Review 2015 (Carbon Based Environmental Pty Ltd, 2015a)
- Stratford Coal Interim Annual Review 2015 (Carbon Based Environmental Pty Ltd, 2015b)
- Stratford Extension Project Noise and Blasting Assessment (SLR, 2012)
- Voluntary Land Acquisition and Mitigation Policy: For State Significant Mining, Petroleum and Extractive Industry Developments (NSW Government, 2014)

AMENDED ROCKY HILL COAL PROJECT PRIVATE HAUL ROAD



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Approximate Extent of Existing/Approved Surface Development
 - Conceptual Up-Catchment Diversion
 - Private Haul Road - Rocky Hill Coal Project
 - Private Haul Road - Stratford Coal Mine
 - Existing/Approved Private Haul Road - Stratford Coal Mine
 - Electricity Transmission Line

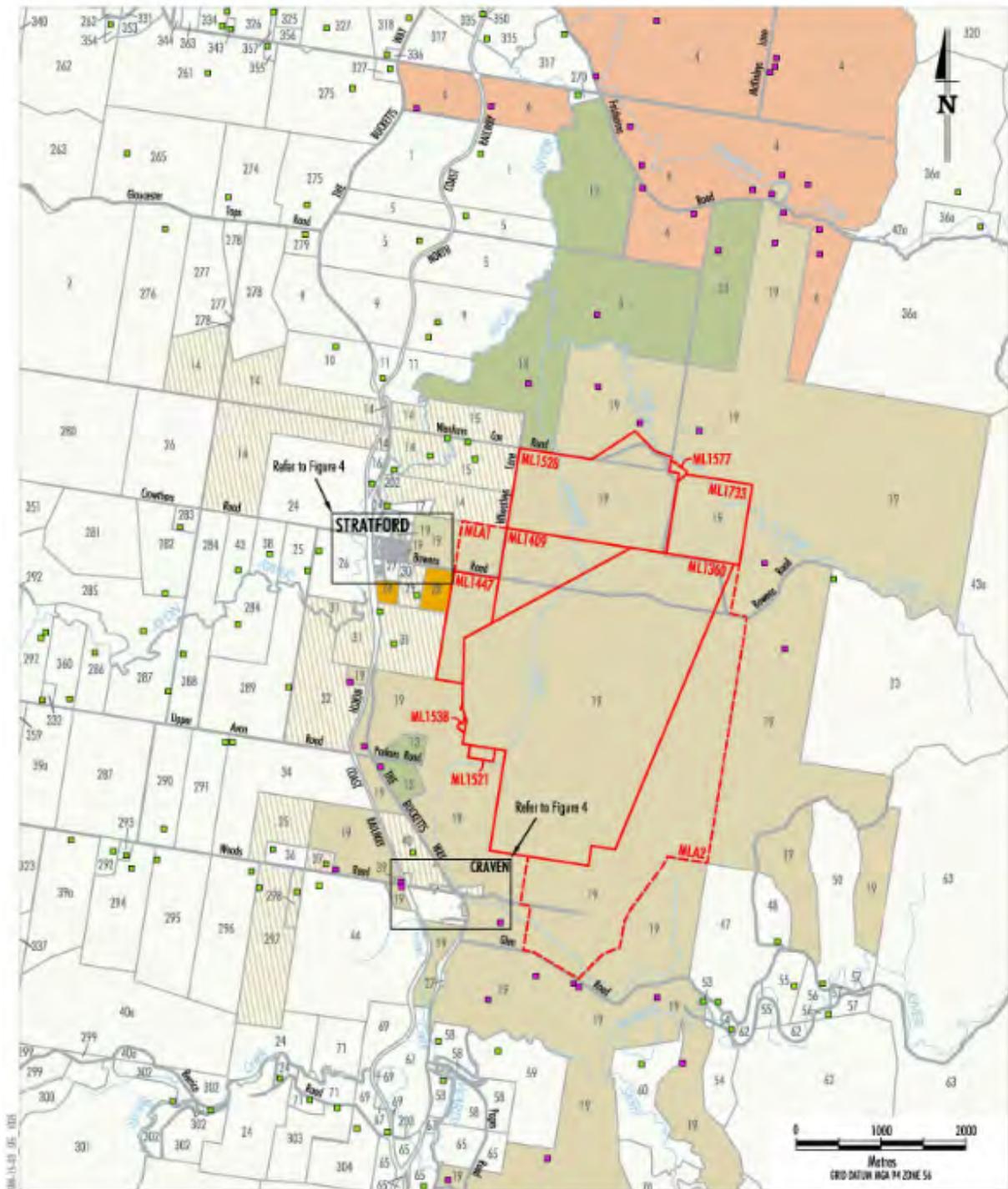
STRATFORDCOAL
AN AUSTRALIAN COAL COMPANY

STRATFORD MODIFICATION 1
 General Arrangement
 and Private Haul Road

Source: LP (2016); Geoscience Australia (2006); NSW Department of Industry (2016); SCL (2016)

Figure 2

LAND OWNERSHIP PLAN



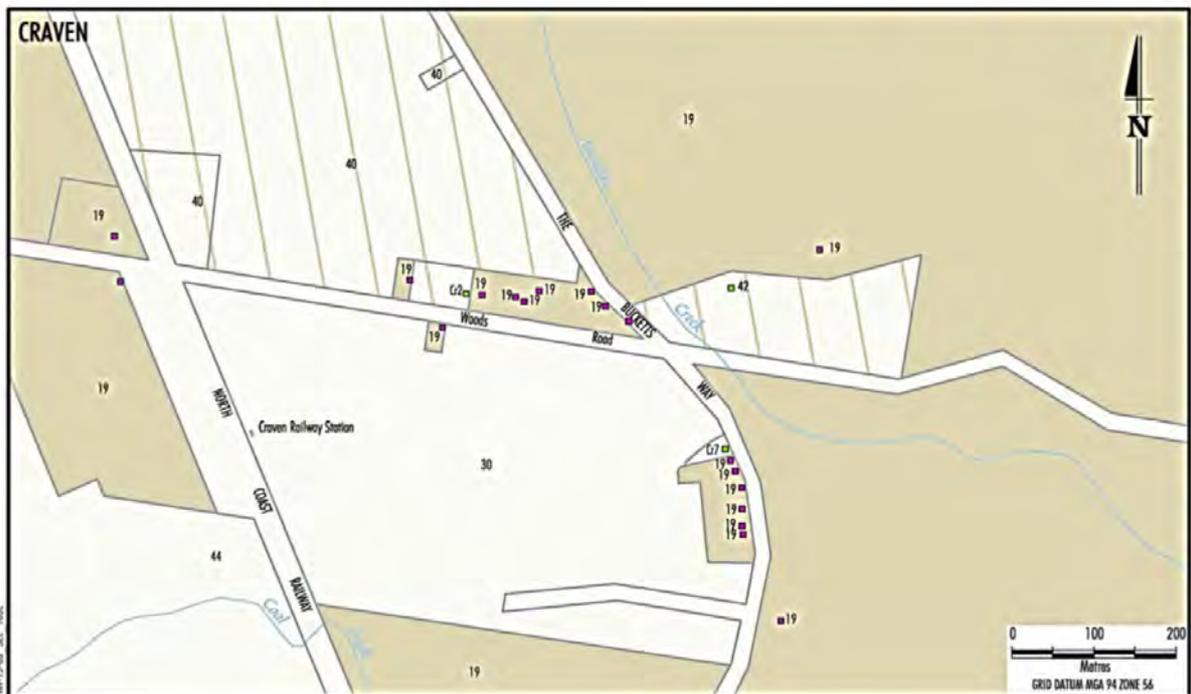
- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Yancoal Owned Land
 - GRI Owned Land or Under Option
 - AGI Owned Land
 - Private Landholders
 - Private Landholders - Yancoal Agreement
 - Crown Land
 - 19 Landholder Number
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling



Source: SCP (2016); IWS-EP (2014) and IPI-CGL (2012)

Figure 3

LAND OWNERSHIP PLAN



- LEGEND**
- Private Landholders
 - Private Landholders - Yancoal Agreement
 - Crown Land
 - Yancoal Owned Land
 - Landholder Number
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling

STRATFORDCOAL
 Part of the Yancoal Australia Group
STRATFORD MODIFICATION 1
 Relevant Land Ownership Plans
 Stratford and Craven

Source: SCP1(2016), DFS-LPI (2016) and DPI-C&L (2012)

Figure 4

LAND OWNERSHIP PLAN

1	Wendy Jane Fisser	263	Patrick Michael Ryan	357	Christopher John Rose & Sarah Jane Rose
2	Forsley (Gloucester) Pty. Limited	265	Jeffrey Charles Hawkins	359	William Kilpatrick Hunter/ Kay Edith Hunter
4	Gloucester Resources Limited	270	Jason David Collins & Michelle Isabel Barnett	360	Tar Geoffrey Mason/ Sandra Joy Mason/ Velda Doreen
5	Norman Edward Bignell	274	Warren Neil Wilson & Colleen Therese Wilson	361	Helen Teresa Whelan
6	AGL Gloucester Le Pty Ltd in 70/100 Share & AGL Gloucester NG Pty Ltd in 30/100 Share as Tenants in Common	275	Paco Farm Pty Limited	363	Linda Trudgeon
9	Norman John Williams	276	Alan Luscombe & Carol Luscombe	364	Horizons Pty Limited
10	Kenneth James Whatmore & Anne Grace Whatmore	277	Jaha William Farley	Cr.2	Rodger Malcolm Bower
11	Brian Keith Walkes, Lesley Jane Walkes, Tyson Brian Walker & Lucy Marie Walker	278	Mark Anthony Campbell & Roseleen Linette Campbell	Cr.7	David Robert Fryca-Jones
12	AGL Upstream Investments Pty Limited	279	William Alexander Tomb & Gillian Margaret Tomb	51	Gary Owen Rees
13	AGL Energy Limited	280	Kenneth Bruce Bagnall/ Clifford John Bromley & Terri Louise Bromley	53	Irene Myrtle Yeatman
14	Allan James Wenham & Pamela Diane Wenham	281	Colin William Lewis & Lesley Ann Lewis	54	Belinda Haree Goady & Terry Raymond Goady
15	GS & CL Follo Superannuation Pty Limited	282	Peter Stephen Ross	55	Christopher James Britnell
16	Judith Helen Pickett	283	Janet Nolan	56	Gary Wayne Throodgate & Julie Frances Throodgate
17	Doreen James Fisher & Claire Louise Smith	284	Alec Gregory Perrin & Noreen Nita Jean Perrin	57	Raymond James Crawley & Lucinda Crawley
19	Yanzuel Australia Limited	285	Marshall Luan Carter & Theresa Kathleen Carter	58	Neville Charles Forbes
23	Ross Lewis Bagnall	286	Gerard Roland Burley	59	Peter John Greenham & Beverley May Greenham
24	Geoffrey Lawrence Harris	287	Dorothy Kay Siederberg & Conle Martha Kinkin	510	Louise Frances Gannon
25	Marisa Thompson	288	Alec Gregory Perrin	511	Adam John Glow
26	Kevin John Lowrey & Robyn Lowrey	289	Eliza Ann Ruth McIntosh	512	Grant James Mitchell & Cecily Haree Mitchell
27	The Council of the Shire of Gloucester	290	Kelly Pickett	513	Ian Mark Wells & Jody Ann Wells
28	Crown Land	291	Trevor Allan Crawley & Colleen Dawn Crawley	514	Kathleen Edith Bignall
29	Edwin Dennis Ward & Rhonda Fay Ward	292	James Reginald Fisher & Rhonda Patricia Fisher	515	Minister for Education
30	The State of New South Wales	293	Kerry Elizabeth Bruntson	519	Rodney Lawrence Carroll
31	Allen Stanley Isaac	294	Gregory Vincent Morcom & Karen Morcom	520	Sue Ann Restall & Peter John Restall
32	Eliza Ann Ruth McIntosh & Ronald Keith McIntosh	295	William John Bush & Danielle Elizabeth Bush	521	Boanal Service Centre Pty Limited
34	Graham Wesley Hall & Kim Lorraine Hall	296	Peter Geoffrey Watson & Heather Irene Watson	522	Telstra Corporation Limited
35	Leo John Dillon & Isabel Robyn Dillon	297	William Martin Bosano	523	Mario Fay Bartlett
36	Graham Lindsay Wallace & Marion Frances Wallace	298	Eric Allan Yates	524	Michael John Hughes & Brenda Alison Hughes
36a	Anthony Stamford Betacy	299	Malcolm Ronald Lee	525	The Trustees of Church Property for the Diocese of Newcastle
37	Timothy James Worth	300	Bevan Douglas Hokin & Di Hokin	526	Margaret Elaine Young
38	Paul Michael Johnson & Judith Anne Johnson	301	Folio Identifier Pty Limited	527	Robert William Tilley
39a	Woods Road Pty Ltd	302	Edwin John Walton & Wendy Walton	528	David Charles Morris & Yvette Marie Morris
40	Leslie Allanby Blanch	303	ISTC Newcastle Pty Limited	529	Robert Charles Bagnall & Lyndell Joy Bagnall
40a	Howard Kerr Williams & Margaret Russell Williams	304	Ernie Donald Abyeokem & Sharon Ann Abyeokem	530	Kim Daryl Baker
42	Douglas John Blanch	306	Gregory Hunt & Catherine Hunt	531	Tancy Louise Richards
42a	William Rainford Ribbons	307	Graham John Wallenda & Rosalind Mary Wallenda	532	Peter Kelly
43	Vicki Colleen Massey	311	Paul Berthold & Carolyn Berthold	533	Genta Alexandra Langtry, Jennifer Gilbert & Neville Bertram Gilbert
43a	Lymann Holdings Pty Limited	312	Allan James Harrison & Darlene Marie Harrison	534	Edward George Ashby
44	Peter Michael Cross & Kylie Jane	316	Country Rail Infrastructure Authority	535	Mark Rodges & Kerin Yvette Bekker
47	David Charles Digges, Carolyn Denise Digges, Timothy Charles Hart & Elizabeth Mary Hart	317	Adrian Kenneth Bower/ Beverley Ruth Bower	536	David Thomas Poos
48	Marisa Iris Rounsley	318	Albert Malcolm Timothy Sopher/ Gloria Jane Sopher	537	Makalyn Neville Pryor & Helen Leone Pryor
50	Neil James Porter	320	Andrew Charles Vintner/ Kevin Thomas Vintner	538	Stephen Russell Kirkman
53	William Charles Barnes & Cheryl Freda Barnes	323	Burnah Pastoral Co Pty Limited	539	Lizabeth Jane Nicholls & Raymond John Husband
54	Kenneth John Hughes & Crysung Pty Limited	325	Charles Robert Norman	540	Peter John Curtis
55	Allan James Hancock & Lynda Margaret Hancock	326	Charnick Pty Limited	541	Desmond Bruce McClure & Carol Ann Aplin
56	Gerold McCalden & Patricia Broadley McCalden	327	Debbie Louise Wilson	543	Deanne Donna Squires
57	Pamela Broadley Harrison	328	Daphne May Chapman	544	Ann Elizabeth Flack
58	Douglas William Blanch & Evelyn Fay Blanch	331	Delese Ellen May Buckton	545	Daniel John Keywood, Dale Martin Keywood, Kelly Hazel Keywood & Annada Margaret Hawkins
59	Guy William Cassar & Cecile Elizabeth Cassar	332	Erol William Hastings/ Lorraine Hastings	546	Stephen Thomas Parker & Jean Marie Parker
60	Groome Hooley & Philip Weston Greenwood	333	Gary Bruce Grant	547	John Victor Potts
62	Dorothy May Beeson	334	Gary Douglas Randall/ Gai Lorraine Randall	548	James Bryson Farley & Glenda Laurel Farley
63	National Parks and Wildlife Service	335	Groome Harold Hoare	549	Lindy Jayne Blanch
65	Neville Elizabeth Weismanle	336	Gregory James Chinnon/ Tonin Alice Edmunds	550	Sheryl Fay Vonderdrift & Lindy Jane Blanch
67	Ian Robert Bowen	337	Gregory Thomas Price/ Dianne Elizabeth Price	551	Gregory John Tamakalua
68	Julie Dawn Lyford	338	Jason Bruce Stewart/ Maria Elenna Stewart	552	Ronald John Farley & Theresa Jane Bony
69	Ralph Hooper & Rowyn Ann Bartholomew	339	John Andersen	553	Trevor Arthur
70	Robert George Knight	340	John Robert Higgins	554	Scott Anthony Adams
71	Anthony Douglas Barnett & Robyn Annette Barnett	343	Kerrie Banks	555	Beryl Veronica Mastyn & Tony James Mastyn
73	Rodney John Pease & Anne Jannette Pease	344	Kerry Anne Hartigan/ Antonino Virzi	556	Graham John Collins & Elizabeth Collins
75	Godfrey Ashton Wilson	345	Linn Woolfrey	557	Mavis Jean Gam
87	Pacific Property Investments Ltd	346	Lorraine Bruce	558	Marilyn Dorothy Harrigan
202	Paul Phillip Wenham	350	Raymond Keith Saunders/ Barbara Jayne Saunders	559	Terry Raymond Goady & Belinda Haree Goady
203	Suzanne Taylor	351	Roger Spotlight/ Elisabeth Aili Maria Spotlight	560	Deanne Donna Squires
261	Frank Murray Hooke & Susan Elizabeth Hooke	352	Ross Sidney Edwards		
262	Mark Penneison Johnson & Ruth Edna Johnson	353	Ryan Garth Harris		
		354	Scott Ernest Hoy/ Leanne Margaret Bennett		
		355	Sue Ellen Margaret Kingston/ Anthony Gerard Kingston		
		356	Thelma Elaine Hart		

Source: SCP (2016), DFS-LP (2016) and DPI-C/L (C/L) (2012)

Figure 5

LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		Elevation (m)
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	
Stratford/Craven Rural Properties						
1 Wendy Jane Fraser	1 Fraser	401091	6450637	5091	14637	121
5(1) Norman Edward Bignell	5(1) Bignell	400375	6449598	4375	13598	125
5(2) Norman Edward Bignell	5(2) Bignell	400913	6449897	4913	13897	112
9(1) Norman John Williams	9(1) Williams	400585	6448630	4585	12630	122
9(2) Norman John Williams	9(2) Williams	400476	6448456	4476	12456	126
10 Kenneth James Whatmore & Anne Grace Whatmore	10 Whatmore & Whatmore	399785	6448103	3785	12103	135
11 Brian Keith Walker, Lesley Jane Walker, Tyson Brian Walker & Lacey Maree Walker	11 Walker, Walker, Walker & Walker	399938	6447966	3938	11966	126
16 Judith Helen Pickett	16 Pickett	399809	6446707	3809	10707	120
17 Darren James Fisher & Claire Louise Smith	17 Fisher & Smith	399989	6446442	3989	10442	116
23 Ross Lewis Bagnall	23 Bagnall	405264	6445571	9264	9571	164
24 Geoffrey Lawrence Harris	24 Harris	398719	6439632	2719	3632	120
25 Marisa Thompson	25 Thompson	399051	6445673	3051	9673	136
26 Kevin John Lowrey & Robyn Lowrey	26 Lowrey & Lowrey	399182	6445907	3182	9908	126
27 Gloucester Shire Council	27 Gloucester Shire Council	399924	6446165	3924	10165	122
34 Graham Wesley Hall & Kim Lorraine Hall	34 Hall & Hall	398163	6443633	2163	7633	136
36 Graham Lindsay Wallace & Marion Frances Wallace	36 Wallace & Wallace	398636	6442359	2637	6359	156
36a(1) Anthony Stanford Berecny	36a(1) Berecny	406999	6449768	10999	13768	144
36a(2) Anthony Stanford Berecny	36a(2) Berecny	406734	6450180	10734	14180	158
38 Paul Michael Johnson & Judith Anne Johnson	38 Johnson & Johnson	398602	6445871	2602	9871	144
43 Vicki Collen Moseley	43 Moseley	398229	6445679	2229	9679	146
44 Peter Michael Cross & Kylie Jane	44 Cross & Jane	399186	6441925	3186	5925	156
47 David Charles Digges, Carolyn Denise Digges, Timothy Charles Hart & Elizabeth Mary Hart	47 Digges, Digges, Hart & Hart	403899	6440541	7899	4541	175
48 Marion Iris Rounsley	48 Rounsley	404600	6441264	8600	5264	250
50 Neil James Porter	50 Porter	405132	6440758	9132	4758	200
53 William Charles Barnes & Cheryl Freda Barnes	53 Barnes & Barnes	403724	6440543	7724	4543	167
54 Kenneth John Hughes & Carryson Pty Limited	54 Hughes & Carryson Pty Ltd	404051	6440211	8051	4211	160
55 Allan James Hancock & Lynda Margret Hancock	55 Hancock & Hancock	404795	6440729	8795	4729	233
56 Gerald McCalden & Patricia Brawley McCalden	56 McCalden & McCalden	405199	6440389	9199	4389	208
58(1) Douglas William Blanch & Evelyn Fay Blanch	58(1) Blanch & Blanch	400651	6439599	4651	3599	93
58(2) Douglas William Blanch & Evelyn Fay Blanch	58(2) Blanch & Blanch	400595	6440074	4595	4074	98
59 Leslie Allenby Blanch	59 Blanch	401301	6439953	5301	3953	100
60 Graeme Healy & Philip Weston Greenwood	60 Healy & Greenwood	402995	6439798	6995	3798	158
65 Noeline Elizabeth Weismantle	65 Weismantle	400419	6438342	4419	2342	86
69 Ralph Hooper & Bronwyn Ann Bartholmew	69 Hooper & Bartholmew	399996	6438993	3996	2993	100
70 Robert George Knight	70 Knight	403112	6438451	7112	2451	184
71 Anthony Douglas Burnet & Robyn Annette Burnet	71 Burnet & Burnet	399079	6439371	3079	3371	118

LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	Elevation (m)
202 Paul Phillip Wenham	202 Wenham	400073	6446873	4074	10873	116
265 Jeffrey Charles Hawkins	265 Hawkins	396917	6450640	917	14640	152
274 Warren Neil Wilson & Colleen Therese Wilson	274 Wilson & Wilson	398111	6450114	2111	14114	160
275 (1) Pace Farm Pty Limited	275 (1) Pace Farm Pty Ltd	399045	6450024	3045	14024	152
276 Alan Luscombe & Carol Luscombe	276 Luscombe & Luscombe	397368	6449746	1368	13746	154
279 William Alexander Tomb & Gillian Margaret Tomb	279 Tomb	399024	6449675	3024	13675	154
281 Colin William Lewis & Lesley Ann Lewis	281 Lewis & Lewis	399829	6445897	3829	9897	123
282 Peter Stephen Ross	282 Ross	397369	6445406	1369	9406	146
283 Janet Nolan	283 Nolan	397543	6446191	1543	10191	200
284 Alec Gregory Perrin & Noreen Nita Jean Perrin	284 Perrin & Perrin	398225	6445031	2225	9031	132
285 Marshall Leon Carter & Theresa Kathleen Carter	285 Carter & Carter	397115	6444952	1115	8952	150
287 Dorothy Kay Sinderberry & Carole Martha Rinkin	287 Sinderberry & Rinkin	397408	6444238	1408	8239	142
288 Alec Gregory Perrin	288 Perrin	397578	6444676	1578	8676	136
289 Eliza Ann Ruth McIntosh	289 McIntosh	398823	6444282	2823	8282	132
290 Kelly Pickett	290 Pickett	397348	6442601	1348	6601	154
291 Trevor Allan Crawley & Coleen Dawn Crawley	291 Crawley & Crawley	398079	6443632	2079	7632	136
292(1) James Reginald Fisher & Rhonda Patricia Fisher	292(1) Fisher & Fisher	396751	6442336	751	6336	154
293 Kerry Elizabeth Braunton	293 Braunton	396904	6442283	904	6283	163
294 Gregory Vincent Morcom & Karen Morcom	294 Morcom & Morcom	396973	6442131	973	6131	166
295 William John Bush & Danielle Elizabeth Bush	295 Bush & Bush	397270	6442231	1270	6231	155
296 Peter Geoffrey Watson & Heather Irene Watson	296 Watson & Watson	398386	6442098	2386	6098	158
303 JSTC Newcastle Pty Limited	303 JSTC Newcastle Pty Ltd	399400	6439276	3400	3276	126
304 Ernie Danzil Abeysekera & Sharee Ann Abeysekera	304 Abeysekera & Abeysekera	399634	6439030	3634	3030	114
307 Graham John Wolfenden & Rosalind Mary Wolfenden	307 Wolfenden & Wolfenden	399631	6437981	3631	1981	109
316 Country Rail Infrastructure Authority	316 Country Rail Infrastructure Authority	399779	6445870	3779	9870	120
Craven						
Cr.7 David Robert Pryce-Jones	Cr.7 Pryce-Jones	400906	6441710	4906	5710	138
Stratford						
S1 Gary Owen Rees	S1 Rees	400026	6446310	4026	10311	118
S3 Irene Myrtle Yeatman	S3 Yeatman	400164	6446274	4164	10274	120
S4 Belinda Maree Grady & Terry Raymond Grady	S4 Grady & Grady	399925	6446294	3925	10294	116
S5 Christopher James Britnell	S5 Britnell	399943	6446233	3944	10233	120
S6 Gary Wayne Threadgate & Julie Frances Threadgate	S6 Threadgate & Threadgate	399927	6446209	3927	10209	120
S8 Neville Charles Forbes	S8 Forbes	399972	6446200	3972	10200	121
S9 Peter John Greenham & Beverley May Greenham	S9 Greenham & Greenham	400003	6446267	4003	10267	120
S10 Louise Frances Germon	S10 Germon	399990	6446196	3990	10196	121
S11 Adam John Glew	S11 Glew	400008	6446193	4008	10193	122

LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	Elevation (m)
S12 Grant James Mitchell & Cecily Maree Mitchell	S12 Mitchell & Mitchell	400030	6446189	4030	10189	122
S13 Ian Mark Wells & Jody Ann Wells	S13 Wells & Wells	400067	6446167	4067	10167	123
S14 Kathleen Edith Bignell	S14 Bignell	399896	6446166	3896	10166	121
S15 Minister for Education	S15 Minister for Education	400001	6446076	4001	10076	125
S19 Rodney Lawrence Carroll	S19 Carroll	400230	6446040	4230	10040	123
S20 Sue Ann Rastall & Peter John Rastall	S20 Rastall	399834	6446056	3834	10056	125
S21 Booral Service Centre Pty Ltd	S21 Booral Service Centre Pty Ltd	399817	6446016	3817	10016	125
S23 Marie Fay Bartlett	S23 Bartlett	399862	6446047	3862	10047	125
S24 Michael John Hughes & Brenda Alison Hughes	S24 Hughes	399895	6446037	3896	10037	125
S26 Margaret Elaine Young	S26 Young	399933	6445969	3933	9969	125
S27 Robert William Tilley	S27 Tilley	399961	6446030	3961	10030	125
S28 David Charles Morris & Yvette Marie Morris	S28 Morris & Morris	399983	6446032	3983	10032	125
S29 Robert Charles Bagnall & Lyndell Joy Bagnall	S29 Bagnall & Bagnall	400005	6446027	4005	10027	125
S30 Kam Daryl Baker	S30 Baker	400042	6446015	4042	10015	125
S31 Tracey Louise Richards	S31 Richards	400065	6446017	4065	10017	125
S33 Greta Alexandra Langtry, Jennifer Gilbert & Neville Bertram Gilbert	S33 Langtry, Gilbert & Gilbert	400083	6446020	4084	10020	125
S34 Edward George Ashby	S34 Ashby	400110	6445933	4110	9933	125
S35 Mark Rodgers & Korinna Yvette Bekker	S35 Rodgers & Bekker	400129	6445930	4129	9930	125
S36 David Thomas Poots	S36 Poots	400154	6445926	4155	9926	125
S37 Malcolm Neville Pryor & Helen Leone Pryor	S37 Pryor & Pryor	400169	6445928	4169	9928	125
S38 Stephen Russell Kirkman	S38 Kirkman	400192	6445922	4192	9922	125
S39(1) Lizabeth Joye Nicholls & Raymond John Husband	S39(1) Nicholls & Husband	400220	6445969	4220	9969	124
S39(2) Lizabeth Joye Nicholls & Raymond John Husband	S39(2) Nicholls & Husband	400216	6445921	4216	9921	124
S40 Peter John Curtis	S40 Curtis	399826	6445931	3826	9931	124
S41(1) Desmond Brice McClure & Coral Ann Aplin	S41(1) McClure & Aplin	399876	6445913	3876	9913	124
S43 Deanne Donne Squire	S43 Squire	399926	6445913	3926	9913	124
S47 John Victor Potts	S47 Potts	400026	6445907	4026	9907	125
S48 James Bryson Farley & Glenda Laurel Farley	S48 Farley & Farley	400043	6445904	4043	9904	125
S49 Lindy Jayne Blanch	S49 Blanch	400065	6445875	4065	9875	125
S50 Sheryl Fay Van der Drift & Lindy Jane Blanch	S50 Van der Drift & Blanch	400078	6445832	4078	9832	125
S51 Gregory John Trenholme	S51 Trenholme	400102	6445885	4102	9885	125
S52 Ronald John Farley & Theresa Jane Barry	S52 Farley & Barry	400125	6445879	4125	9879	125
S53 Trevor Arthur	S53 Arthur	400143	6445879	4143	9879	125
S54 Scott Anthony Adams	S54 Adams	400158	6445821	4158	9821	125
S56 Graham John Collins & Elizabeth Collins	S56 Collins & Collins	399874	6445730	3875	9730	123
S57 Mavis Jean Gam	S57 Gam	399933	6445687	3933	9687	124
S58 Marilyn Dorothy Harrigan	S58 Harrigan	399924	6445668	3924	9668	124
S59 Terry Raymond Grady & Belinda Maree Grady	S59 Grady & Grady	399901	6445620	3901	9620	124

LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		Elevation (m)
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	
Privately Owned Receivers subject to Landholder Agreement						
14 Allen James Wenham & Pamela Diane Wenham	14 Wenham & Wenham	400501	6447037	4501	11037	115
15(1) GS & GL Falla Superannuation Pty Limited	15(1) Falla	400704	6447249	4704	11249	116
15(2) GS & GL Falla Superannuation Pty Limited	15(2) Falla	400945	6447205	4945	11205	120
15(3) GS & GL Falla Superannuation Pty Limited	15(3) Falla	401025	6446996	5025	10996	126
29 Ward ¹	29 Ward	400338	6445378	4338	9378	128
31(1) Allan Stanley Isaac ¹	31(1) Isaac	400069	6444804	4069	8804	128
31(2) Allan Stanley Isaac	31(2) Isaac	399905	6445182	3905	9182	126
37 Timothy James Worth	37 Worth	399196	6442224	3196	6224	148
40 (1) Leslie Allenby Blanch ¹	40 (1) Leslie Allenby Blanch	400303	6442317	4303	6317	132
42 Douglas John Blanch	42 Blanch	400904	6441904	4904	5904	140
297 Bosma	297 Bosma	398468	6441900	2468	5900	160
298 Eric Allan Yates	298 Yates	398929	6441852	2929	5852	151
Cr.2 Boorer	Cr.2 Boorer	400586	6441898	4586	5898	136
Stratford/Craven Non-Residential Receivers						
30 Stratford Cemetery	30 Stratford Cemetery	400157	6445746	4157	9746	125
S15 Minister for Education - Stratford Public School	S15 Stratford Public School	399856	6446112	3856	10112	123
S25 St John's Anglican Church	S25 St John's Anglican Church	399924	6446040	3924	10040	125
Resource company-owned Receivers						
6 AGL Energy Limited	6 AGL	402468	6448722	6468	12722	120
13(1) AGL Energy Limited	13(1) AGL	401661	6447896	5661	11896	115
13(2) AGL Energy Limited	13(2) AGL	399911	6443332	3911	7332	140
13 (3) AGL Energy Limited	13 (3) AGL	403898	6449487	7898	13487	124
4(1) Gloucester Resources Limited	4(1) GRL	400334	6451184	4334	15184	147
4(2) Gloucester Resources Limited	4(2) GRL	403609	6449924	7609	13924	108
4(4) Gloucester Resources Limited	4(4) GRL	404308	6450210	8309	14210	108
4(5) Gloucester Resources Limited	4 (5) GRL	404654	6450379	8654	14380	116
4(6) Gloucester Resources Limited	4(6) GRL	404671	6449935	8671	13935	126
4(7) Gloucester Resources Limited	4(7) GRL	405093	6449734	9093	13734	132
4(8) Gloucester Resources Limited	4(8) GRL	405101	6449443	9101	13443	148
4(9) Gloucester Resources Limited	4(9) GRL	404957	6450271	8957	14271	136
4(12) Gloucester Resources Limited	4(12) GRL	401211	6451189	5211	15189	112
4(15) Gloucester Resources Limited	4(15) GRL	402856	6450955	6856	14955	106
4(16) Gloucester Resources Limited	4(16) GRL	402998	6450505	6998	14505	112
4(18) Gloucester Resources Limited	4(18) GRL	403009	6450229	7009	14229	115
19(1) Stratford Coal Pty Ltd	19(1) SCPL	399383	6442114	3383	6114	155
19(2) Stratford Coal Pty Ltd	19(2) SCPL	399716	6443576	3716	7576	132
19(4) Stratford Coal Pty Ltd	19(4) SCPL	400065	6446084	4065	10084	125
19(5) Stratford Coal Pty Ltd	19(5) SCPL	400117	6446058	4117	10059	125
19(6) Stratford Coal Pty Ltd	19(6) SCPL	400157	6441916	4157	5917	138
19(7) Stratford Coal Pty Ltd	19(7) SCPL	400176	6445817	4176	9817	125
19(8) Stratford Coal Pty Ltd	19(8) SCPL	400556	6441861	4556	5861	135

LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	Elevation (m)
19(9) Stratford Coal Pty Ltd	19(9) SCPL	400653	6441889	4653	5890	135
19(10) Stratford Coal Pty Ltd	19(10) SCPL	400670	6441902	4670	5902	135
19(11) Stratford Coal Pty Ltd	19(11) SCPL	400712	6438416	4713	2416	102
19(12) Stratford Coal Pty Ltd	19(12) SCPL	400741	6441910	4741	5910	136
19(13) Stratford Coal Pty Ltd	19(13) SCPL	400753	6441890	4753	5890	136
19(14) Stratford Coal Pty Ltd	19(14) SCPL	400780	6441865	4780	5865	137
19(15) Stratford Coal Pty Ltd	19(15) SCPL	400909	6441695	4909	5696	140
19(16) Stratford Coal Pty Ltd	19(16) SCPL	400910	6441680	4910	5680	140
19(17) Stratford Coal Pty Ltd	19(17) SCPL	400918	6441633	4918	5633	140
19(18) Stratford Coal Pty Ltd	19(18) SCPL	400918	6441612	4918	5612	141
19(19) Stratford Coal Pty Ltd	19(19) SCPL	400920	6441603	4920	5603	142
19(20) Stratford Coal Pty Ltd	19(20) SCPL	400920	6441660	4920	5660	142
19(21) Stratford Coal Pty Ltd	19(21) SCPL	400965	6441497	4965	5497	142
19(22) Stratford Coal Pty Ltd	19(22) SCPL	401183	6440571	5183	4571	136
19(23) Stratford Coal Pty Ltd	19(23) SCPL	401324	6441493	5324	5493	145
19(25) Stratford Coal Pty Ltd	19(25) SCPL	401747	6440848	5747	4848	147
19(26) Stratford Coal Pty Ltd	19(26) SCPL	401882	6438673	5882	2673	146
19(27) Stratford Coal Pty Ltd	19(27) SCPL	401887	6437822	5887	1822	148
19(28) Stratford Coal Pty Ltd	19(28) SCPL	402195	6440756	6195	4756	170
19(29) Stratford Coal Pty Ltd	19(29) SCPL	402478	6447861	6478	11861	115
19(30) Stratford Coal Pty Ltd	19(30) SCPL	402973	6447427	6973	11427	122
19(31) Stratford Coal Pty Ltd	19(31) SCPL	403177	6440591	7177	4591	205
19(32) Stratford Coal Pty Ltd	19(32) SCPL	403484	6439810	7484	3810	182
19(33) Stratford Coal Pty Ltd	19(33) SCPL	403679	6447341	7679	11341	130
19(34) Stratford Coal Pty Ltd	19(34) SCPL	404536	6450159	8537	14160	112
19(35) Stratford Coal Pty Ltd	19(35) SCPL	400048	6437153	4048	1153	86
19(36) Stratford Coal Pty Ltd	19(36) SCPL	400187	6436589	4187	589	96
19(37) Stratford Coal Pty Ltd	19(37) SCPL	400180	6437098	4180	1098	86
19(38) Stratford Coal Pty Ltd	19(38) SCPL	404569	6449579	8569	13579	136
19(39) Stratford Coal Pty Ltd	19(39) SCPL	400642	6441894	4642	5894	136
19(40) Stratford Coal Pty Ltd	19(40) SCPL	404449	6445763	8449	9763	167
19(41) Stratford Coal Pty Ltd	19(41) SCPL	399550	6444348	3550	8348	126
19(42) Stratford Coal Pty Ltd	19(42) SCPL	401013	6441953	5013	5953	145
19(43) Stratford Coal Pty Ltd	19(43) SCPL	402251	6440714	6251	4714	170
19(45) Stratford Coal Pty Ltd	19(45) SCPL	400513	6441915	4513	5915	136
19(46) Stratford Coal Pty Ltd	19(46) SCPL	400606	6441897	4606	5897	136
19(47) Stratford Coal Pty Ltd	19(47) SCPL	404687	6444736	8687	8736	248
19(48) Stratford Coal Pty Ltd	19(48) SCPL	400155	6441970	4155	5970	138
19(49) Stratford Coal Pty Ltd	19(49) SCPL	400154	6446054	4154	10054	125
Vacant Land						
32 Eliza Ann Ruth Mcintosh & Ronald Keith Mcintosh	32 Mcintosh & Mcintosh	-	-	-	-	-
35 Leo John Dillon & Isobel Robyn Dillon	35 Dillon & Dillon	-	-	-	-	-
51 Leslie Allenby Blanch	51 Blanch	-	-	-	-	-
40 (3) Leslie Allenby Blanch	40 (3) Blanch	-	-	-	-	-

Appendix B2

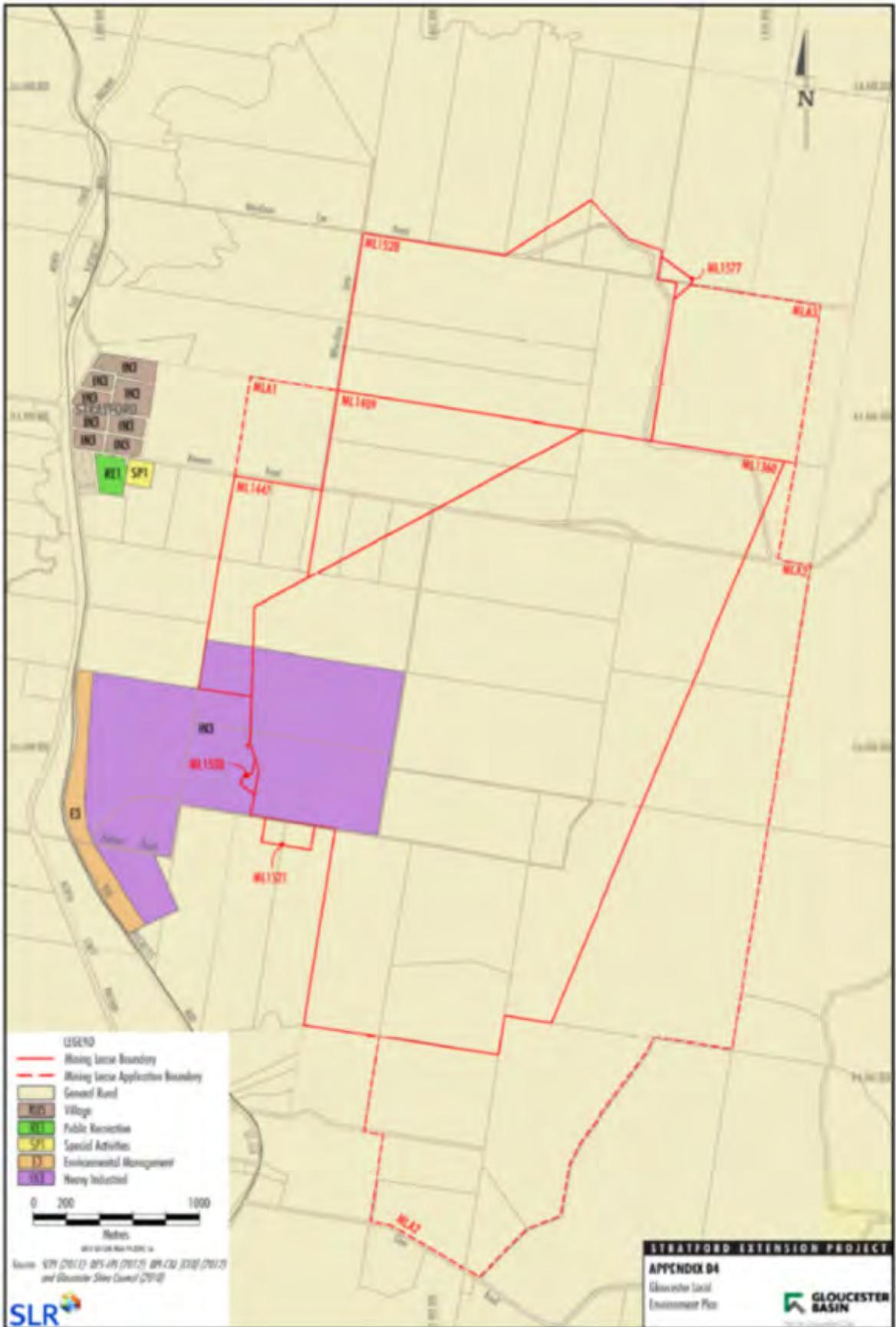
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LAND OWNERSHIP DETAILS

Property Number/ Landholder		MGA Dwelling Co-ordinates		ENM Dwelling Co-ordinates		
Full Name	Abbreviated Name	East (m)	North (m)	East (m)	North (m)	Elevation (m)
262 Mark Paroissien Johnson & Ruth Edna Johnson	262 Johnson & Johnson	-	-	-	-	-
275 (2) Pace Farm Pty Limited	275 (2) Pace Farm Pty Ltd	-	-	-	-	-
280 Kenneth Bruce Bagnall/Clifford John Bramley & Terri Louise Bramley	280 Subdivided (Bagnell/Bramley & Bramley)	-	-	-	-	-
292 (2) James Reginald Fisher & Rhonda Patricia Fisher	292 (2) Fisher & Fisherp	-	-	-	-	-
S41 (2) Desmond Brice McClure & Coral Ann Aplin	S41 (2) McClure & Aplin	-	-	-	-	-
327 Debbie Louise Wilson	327 Wilson	-	-	-	-	-
357 Christopher John Rose & Sarah Jane Rose	357 Rose & Rose	-	-	-	-	-

LOCAL ENVIRONMENTAL PLAN



SLR 19-12-15 April 2016, 10:00

**SCHEDULE 2
ADMINISTRATIVE CONDITIONS**

LIMITS ON CONSENT

Mining Operations

5. The Applicant may carry out mining operations on the site until 31 December 2025.

Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of both the Secretary and the Deputy Secretary, Resources and Energy. Consequently, this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

Coal Extraction

6. The Applicant shall not extract more than 2.6 million tonnes of ROM coal from the site in any calendar year.

Coal Processing

7. The Applicant shall not process on site more than 5.6 million tonnes of ROM coal in any calendar year.

Coal Transport

8. The Applicant shall ensure that:
- (a) all product coal is transported from the site by rail;
 - (b) no more than an average of 2.5 laden trains leave the site each day over any calendar year;
 - (c) no more than 6 laden trains leave the site in any 24-hour period; and
 - (d) no more than 2 laden trains leave the site during any night.

Note: This condition does not apply to movements of the Duralie shuttle train.

**SCHEDULE 3
ENVIRONMENTAL PERFORMANCE CONDITIONS**

ACQUISITION UPON REQUEST

1. Upon receiving a written request for acquisition from an owner of the land listed in Table 1, the Applicant shall acquire the land in accordance with the procedures in conditions 5-6 of Schedule 4.

Table 1: Land subject to acquisition upon request

Property ID	
40/51/Cr1 – L. Blanch	42 – D. Blanch
Cr7 – Pryce-Jones	Cr 2 – Boorer

Note: To interpret the location referred to in Table 1 see the applicable figure in Appendix 5.

However, the obligation to acquire a property does not apply if the Applicant has a negotiated agreement with the owner/s of the relevant land that sets aside acquisition under the terms of this consent, and the Applicant has advised the Department in writing of the terms of this agreement.

ADDITIONAL MITIGATION UPON REQUEST

2. Upon receiving a written request from the owner of any residence on the land listed in Tables 1 and 2, the Applicant shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible and directed towards reducing the noise impacts of the development on the residence. If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Table 2: Land subject to additional noise mitigation upon request

Property ID	Property ID
31(1) – Isaac	60 – Healy / Greenwood
44 – Cross / Jane	36 – Wallace
37 – Worth	29 – Ward
15(3) – Falla	

Note: To interpret the locations referred to in Table 2 see the applicable figure in Appendix 5.

However, the obligation to implement noise mitigation measures does not apply if the Applicant has a negotiated agreement with the owner/s of the relevant residence or land that sets aside noise mitigation measures under the terms of this consent, and the Applicant has advised the Department in writing of the terms of this agreement.

NOISE

Hours of Operation

3. The Applicant shall comply with the operating hours in Table 3.

Table 3: Operating hours

Activity	Operating Hours
<ul style="list-style-type: none"> • Open cut mining operations in the Bowens Road North and Roseville West Extension pits • Recovery and transport of CHPP rejects for re-processing • Construction of the noise mitigation bunds on the western side of the Avon North, Roseville West Extension and Stratford East pits 	7 am to 6 pm, 7 days per week
<ul style="list-style-type: none"> • Open cut mining operations in the Avon North and Stratford East pits • Coal processing, loading and dispatch of product coal trains • Maintenance activities 	24 hours a day, 7 days per week

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Noise Criteria

4. The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land.

Table 4: Noise criteria dB(A)

Land	Day	Evening	Night	Night
	<i>L_{Aeq}(15 min)</i>	<i>L_{Aeq}(15 min)</i>	<i>L_{Aeq}(15 min)</i>	<i>L_{A1}(1 min)</i>
40/51/Cr1 – L. Blanch	43	43	43	50
Cr7 – Pryce-Jones	43	43	43	49
42 – D. Blanch	42	42	42	50
Cr 2 – Boorer	41	41	41	49
31(1) – Isaac	40	40	40	48
36 – Wallace	39	39	39	47
44 – Cross / Jane				
60 – Healy / Greenwood	39	39	39	45
37 – Worth	38	38	38	46
29 – Ward	38	38	37	45
23 – Bagnall	37	37	36	45
31(2) – Isaac				
296 – Watson				
297 – Bosma				
298 – Yates	36	36	36	45
15(3) – Falla	39	35	35	45
15(2) – Falla	36	35	35	45
Stratford Village	37	36	35	45
All other privately- owned residences	35	35	35	45

- To interpret the locations referred to in Table 4 see the applicable figure(s) in Appendix 5.
- Stratford village is shown on the figure(s) in Appendix 5.

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

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

Operating Conditions

5. The Applicant shall:
- implement best management practice to minimise the construction, operational, road and rail noise of the development;
 - operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day-to-day planning of mining operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent;
 - minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 6);

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- (d) only use locomotives and rolling stock that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No. 3142);
- (e) co-ordinate noise management on site with the noise management of the Gloucester Gas Project to minimise cumulative noise impacts; and
- (f) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.

Noise Management Plan

6. The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
 - (a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to 31 December 2015, unless otherwise agreed by the Secretary;
 - (b) describe the measures that would be implemented to ensure:
 - compliance with the noise criteria and operating conditions of this consent; and
 - the noise impacts of the project are minimised during meteorological conditions when the noise limits of this consent do not apply;
 - (c) describe the proposed noise management system in detail;
 - (d) include a monitoring program that:
 - includes monitoring of inversion strength at an appropriate sampling rate to determine compliance with noise limits;
 - provides for the biennial validation of the noise model for the project.
 - evaluates and reports on:
 - the effectiveness of the on-site noise management system;
 - compliance against the noise criteria in this consent; and
 - compliance with the noise operating conditions;
 - includes a program to calibrate and validate real-time noise monitoring results with attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria and as a trigger for further attended monitoring); and
 - defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.

Night-time Noise

7. Within 2 years of the commencement of night-time mining operations, and every 2 years thereafter, the Applicant shall engage an independent acoustic expert to undertake a review of compliance with the relevant conditions of consent for night-time operations, to the satisfaction of the Secretary.

Should any review report show that night-time mining operations have been/are non-compliant, the Applicant must modify its operations and conduct another independent review with 30 days.

If this second review demonstrates compliance, the Applicant may continue its modified night-time mining operations. If not, the Applicant must immediately cease night-time mining operations.

Night-time mining operations may only restart if the Secretary is satisfied that the proposed operations would be compliant with the relevant conditions of consent.

Record of Noise Limit Exemptions

8. The Applicant shall record and make available on its website:
 - (a) when the real-time monitoring and management system detects any potential exceedance of the noise limits;
 - (b) when exemptions from noise limits due to meteorological conditions apply;
 - (c) the specific reasonable and feasible measures that were taken when either (a) or (b) apply; and
 - (d) facilitate the regular review of this information by the CCC, to the satisfaction of the Secretary.

DEVELOPMENT CONSENT SSD-4966 DATED 29 MAY 2015

METEOROLOGICAL MONITORING

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

**APPENDIX 6
NOISE COMPLIANCE ASSESSMENT****Applicable Meteorological Conditions**

1. The noise criteria in Table 4 in Schedule 3 are to apply to a receiver under all meteorological conditions except under:
 - (a) wind speeds greater than 3 m/s at 10 m above ground level; or
 - (b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level; or
 - (c) temperature inversion conditions greater than 3°C/100 m.

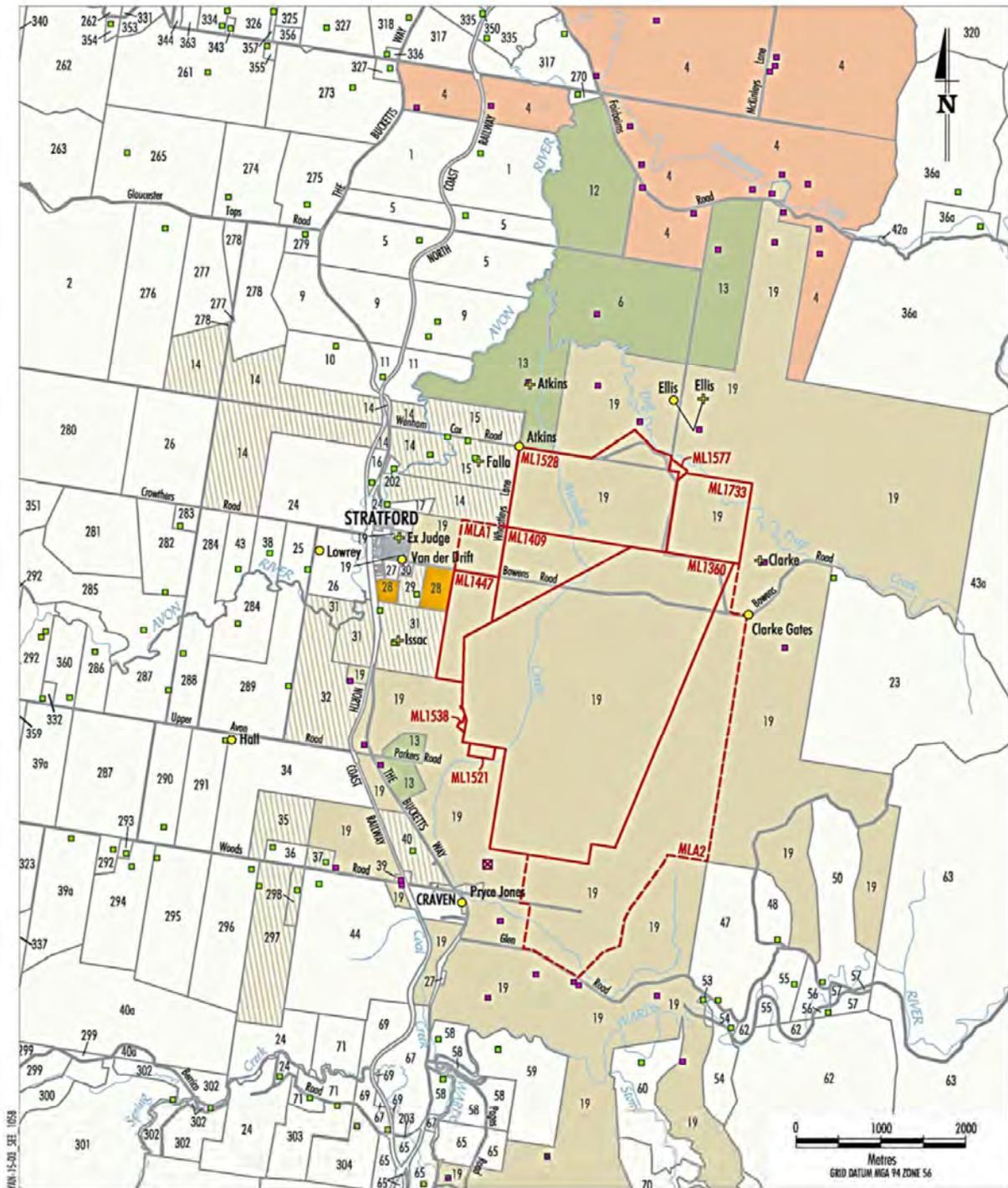
Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 25 of Schedule 3.

Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.
4. This monitoring must be carried out at least 12 times in each calendar year (i.e. at least once in every calendar month), unless the Secretary directs otherwise.
5. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;
 - (c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and
 - (d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the INP) and before comparison with the specified noise levels in the consent.

NOISE MONITORING LOCATION PLAN



LEGEND	
	Mining Lease Boundary
	Mining Lease Application Boundary
	Yancoal Owned Land
	GRL Owned Land or Under Option
	AGL Owned Land
	Private Landholders
	Private Landholders - Yancoal Agreement
	Crown Land
19	Landholder Number
	Resource Company Owned Dwelling
	Privately Owned Dwelling
Monitoring Sites	
	Real Time Noise Monitoring Site
	Noise Monitoring Site
	Blast Monitoring Location



STRATFORD COAL
 Part of the National Australian Bank

STRATFORD MODIFICATION 1
 Relevant Noise and Blasting
 Monitoring Sites

Source: SCPL (2013), SCPL (2016), DFS-LPI (2016) and DPI-C&L (2012)

Figure 8

GENERALISED NOISE IMPACT ASSESSMENT METHODOLOGY

In accordance with the INP's Chapter 2, Industrial Noise Criteria and associated Application Notes (12 June 2013), the PSNLs for the various localities in the vicinity of the SMC are presented in **Table E1** for both the intrusive noise level and noise amenity level. These criteria are nominated for the purposes of assessing potential noise impacts from the Modification.

Table E1 Project-specific Noise Levels and Assessment Criteria (dBA re 20 µPa)

Locality	Land Use	Intrusive LAeq(15minute) ¹			Amenity LAeq(period) ¹		
		Day	Evening	Night	Day	Evening	Night
Stratford/Craven	Village Residential ²	37	Modification confined to daytime operations only		50	Modification confined to daytime operations only	
Other Rural	Rural Residential ²	35	(i.e. 0700 hours to 1800 hours)		50	(i.e. 0700 hours to 1800 hours)	
Parkers Road	Industrial	Intrusive noise criteria not applicable			70		
Any	School ³	Intrusive noise criteria not applicable			External 45 when in use		
Any	Church ³ , Cemetery ³	Intrusive noise criteria not applicable			External 50 when in use		
Any	Active Recreation	Intrusive noise criteria not applicable			External 55 when in use		

Note 1: Daytime 0700 hrs to 1800 hrs, Evening 1800 hrs to 2200 hrs, Night-time 2200 hrs to 0700 hrs.

Note 2: At the most-affected point within 30 m of the residential area.

Note 3: External criteria equivalent to internal criteria plus 10 dBA.

The INP states that the PSNLs are based on preserving the amenity of at least 90% of the population living in the vicinity of industrial noise sources by limiting the adverse effects of noise for at least 90% of the time. Provided the PSNLs are achieved, then most people would consider the resultant noise levels acceptable. In those cases where the PSNLs are not achieved, it does not automatically follow that all people exposed to the noise would find the noise “unacceptable”. In subjective terms, the VLAMP characterises noise impacts resulting from residual noise exceedances of the PSNLs generally as follows:

- If the residual noise exceedance is 0-2 dBA above the PSNL, then noise impacts are considered to be negligible (i.e. not noticeable by all people).
- If the residual noise exceedance is 3-5 dBA above the PSNL, and the development would contribute less than 1 dB to the total industrial noise level, then noise impacts are considered to be marginal (i.e. not noticeable by most people).
- If the residual noise exceedance is 3-5 dBA above the PSNL, and the development would contribute more than 1 dB to the total industrial noise level, then noise impacts are considered to be moderate (i.e. not noticeable by some people but may be noticeable by others).
- If the residual noise exceedance is >5 dBA above the PSNL in the INP, then noise impacts are considered to be significant (i.e. noticeable by most people).

GENERALISED NOISE IMPACT ASSESSMENT METHODOLOGY

In view of the foregoing, **Table E2** presents the generalised methodology for assessing the Modification operational noise levels against the relevant intrusive and amenity PSNLs (**Table E1**) together with cumulative amenity noise levels (**Table 11**) for assessing noise amenity levels from existing, approved and proposed resource developments in the vicinity of the Modification.

Table E2 Generalised Noise Impact Assessment Methodology (dBA re 20µPa)

Mine Operations	Assessment Parameter	Assessment Criteria	Noise Management Zone ¹		Affectionation Zone ²
			Negligible	Marginal to Moderate	Significant
Affected residences	PSNL Intrusive	RBL plus 5 dBA	1 to 2 dBA above assessment criteria	3 to 5 dBA above assessment criteria	> 5 dBA above assessment criteria
	PSNL Amenity	INP acceptable			
Affected land	PSNL Amenity	INP acceptable	Not applicable	Not applicable	> 5 dBA above assessment criteria ³
All industrial noise affected residences	Cumulative Amenity Level	INP acceptable	1 to 2 dBA above assessment criteria	3 dBA above assessment criteria	> 3 dBA above assessment criteria

Note 1: Noise Management Zone - depending on the range of exceedance of the PSNL assessment parameters, potential project noise impacts range from negligible to moderate in accordance with the VLAMP.

Note 2: Noise Affectionation Zone - noise exceedances greater than 5 dBA above the PSNL assessment parameters may result in significant project noise impacts in accordance with the VLAMP.

Note 3: Noise Affectionation Zone - equivalent to a noise exceedance of the INP's maximum noise amenity level on more than 25% of any privately-owned land, and a residence could be built on that land under existing planning controls in accordance with the VLAMP.

NSW GOVERNMENT VOLUNTARY MITIGATION AND LAND ACQUISITION POLICY**NOISE**

This section details how the policy applies to noise impacts.

Assessment criteria

Applicants are required to assess the impacts of the development in accordance with the:

- NSW Industrial Noise Policy (EPA 2000) (INP);
- Rail Infrastructure Noise Guideline (EPA 2013) (RING);
- Road Noise Policy (DECCW 2011) (RNP); and the
- Interim Construction Noise Guideline (DECC 2009) (ICNG).

These policies and guidelines seek to strike an appropriate balance between supporting the economic development of NSW and protecting the amenity and wellbeing of the community. They recommend standards for regulating the construction, operational, road and rail noise impacts of a development, and require applicants to implement all reasonable and feasible avoidance and mitigation measures.

These standards are generally conservative, and it does not automatically follow that exceedances of the relevant criteria will result in unacceptable impacts.

Mitigation and acquisition criteria

A consent authority can apply voluntary mitigation and voluntary land acquisition rights to reduce:

- Operational noise impacts of a development on privately-owned land; and
- Rail noise impacts of a development on privately-owned land near non-network rail lines (private rail lines) on or exclusively servicing industrial sites (see Appendix 3 of the RING);

But not:

- Construction noise impacts, as these impacts are shorter term and can be controlled;
- Noise impacts on the public road or rail network; or
- Modifications of existing developments with legacy noise issues, where the modification would have beneficial or negligible noise impacts. In such cases, these legacy noise issues should be addressed through site-specific pollution reduction programs under the *Protection of the Environment Operations Act 1997*.

Process for decision-making on noise impacts

The decision-making process which should be applied by a consent authority under this policy is summarised in Figure 4 below.

NSW GOVERNMENT VOLUNTARY MITIGATION AND LAND ACQUISITION POLICY

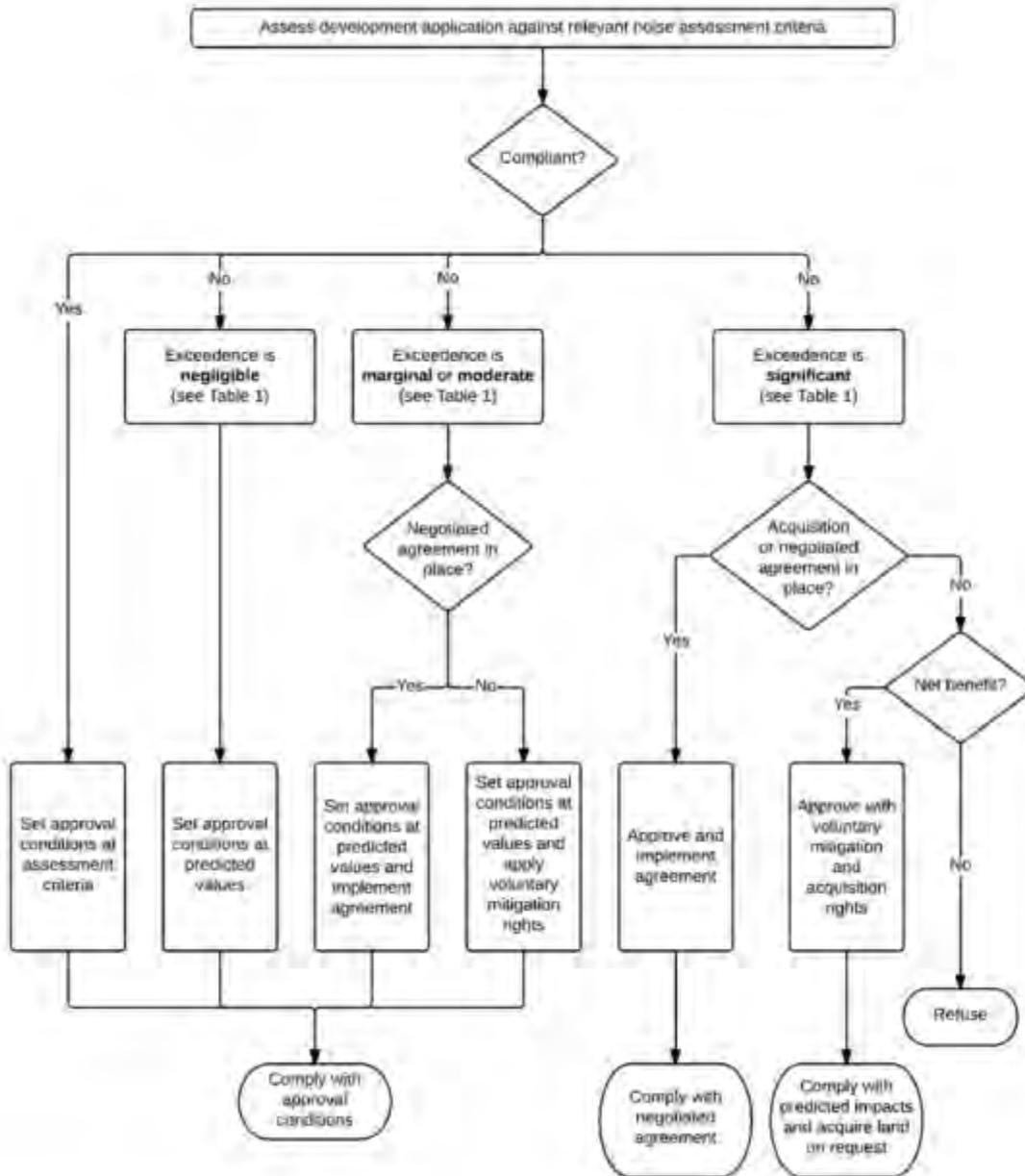


Figure 4 – Decision-making process for noise impacts.

Table 1 below summarises the NSW Government’s interpretation of the significance of any potential exceedances of the relevant noise assessment criteria, and identifies potential treatments for these exceedances.

NSW GOVERNMENT VOLUNTARY MITIGATION AND LAND ACQUISITION POLICY

Table 1 - Characterisation of noise impacts & potential treatments

Residual noise exceeds INP criteria by	Characterisation of impacts	Potential treatment
0-2dB(A) above the project specific noise level (PSNL)	Impacts are considered to be negligible	The exceedances would not be discernable by the average listener and therefore would not warrant receiver based treatments or controls
3-5dB(A) above the PSNL in the INP <u>but</u> the development would contribute less than 1dB to the total industrial noise level	Impacts are considered to be marginal	Provide mechanical ventilation / comfort condition systems to enable windows to be closed without compromising internal air quality / amenity.
3-5dB(A) above the PSNL in the INP <u>and</u> the development would contribute more than 1dB to the total industrial noise level	Impacts are considered to be moderate	As for marginal impacts but also upgraded façade elements like windows, doors, roof insulation etc. to further increase the ability of the building façade to reduce noise levels.
>5dB(A) above the PSNL in the INP	Impacts are considered to be significant	Provide mitigation as for moderate impacts and see voluntary land acquisition provisions below.

Voluntary mitigation rights

A consent authority should only apply voluntary mitigation rights where, even with the implementation of best practice management:

- The noise generated by the development would be equal to or greater than 3dB(A) above the INP project specific noise level at any residence on privately owned land; or
- The development would increase the total industrial noise level at any residence on privately owned land by more than 1dB(A) and noise levels at the residence are already above the recommended amenity criteria in Table 2.1 of the INP; or
- The development includes a private rail line and the use of that private rail line would cause exceedances of the recommended acceptable levels in Table 6 of Appendix 3 of the RING (see Appendix B) by greater than or equal to 3dB(A) at any residence on privately owned land.

All noise levels must be calculated in accordance with the INP or RING (as applicable).

The selection of mitigation measures should be guided by the potential treatments identified in Table 1 above.

Voluntary land acquisition rights

A consent authority should only apply voluntary land acquisition rights where, even with the implementation of best practice management:

- The noise generated by the development would be more than 5dB(A) above the project specific noise level at any residence on privately owned land; or
- The noise generated by the development would contribute to exceedances of the recommended maximum noise levels in Table 2.1 of the INP on more than 25% of any privately owned land where there is an existing dwelling or where a dwelling could be built under existing planning controls⁷; or
- The development includes a private rail line and the use of that private rail line would cause exceedances of the recommended maximum criteria in Table 6 of Appendix 3 of the RING at any residence on privately owned land.

All noise levels must be calculated in accordance with the INP or RING (as applicable).

⁷ Voluntary land acquisition rights should not be applied to address noise levels on vacant land other than to vacant land specifically meeting these criteria.

RING (APPENDIX 6) DEFINITION OF FEASIBLE AND REASONABLE MITIGATION

Feasible and Reasonable Mitigation

'Feasible' and 'reasonable' mitigation is defined as follows.

A **feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build, given project constraints such as safety, maintenance and reliability requirements. It may also include options such as amending operational practices (e.g. changing timetable schedules) to achieve noise reduction.

Selecting **reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make such a judgement, consider the following.

- Noise impacts:
 - existing and future levels, and projected changes in noise levels
 - level of amenity before the project, e.g. the number of people affected or annoyed
 - any noise performance criteria for the development, e.g. internal noise levels for certain rooms
 - the amount by which the triggers are exceeded.
- Noise mitigation benefits:
 - the amount of noise reduction expected, including the cumulative effectiveness of proposed mitigation measures - ideally, a noise wall/mound should be able to reduce noise levels by at least 5 decibels
 - the number of people protected.
- Cost effectiveness of noise mitigation:
 - the total cost of mitigation measures, taking into account the physical attributes of the site, e.g. topography, geology, and the cost variation to the project given the expected benefit
 - noise mitigation costs compared with total project costs, taking into account capital and maintenance costs
 - ongoing operational and maintenance cost borne by the community, e.g. running air conditioners or mechanical ventilation.
 - Community views:
 - engage with affected land users when deciding about aesthetic and other impacts of noise mitigation measures
 - determine the views of all affected land users, not just those making representations, through early community consultation
 - consider noise mitigation measures that have majority support from the affected community.

Take into account the above considerations when determining which locations should be mitigated first. In practice, the detail of the mitigation measures applied will largely depend on project-specific factors. The outcome this process aims to achieve is to balance the project's benefits for the wider community against the costs and benefits of mitigation measures. These are the measures that minimise, as far as practicable, the local impacts of the project. Project approval conditions that flow from this process should be achievable. They need to provide clarity and confidence for the proponent, local community, regulators and the ultimate operator that the proposed mitigation measures can achieve the predicted level of environmental protection.

PRIVATELY-OWNED RECEIVERS WITH INTRUSIVE PSNL EXCEEDANCES

In summary, the predicted daytime operating intrusive LAeq(15minute) noise levels (**Table 13**) at privately-owned receivers show that:

- Negligible exceedance of up to 1 dBA above the intrusive PSNL 35 dBA at receiver 15(2) Falla (receiver subject to landholder agreement);
- Moderate exceedance of up to 4 dBA above the intrusive PSNL 35 dBA at receiver 15(3) Falla (receiver subject to landholder agreement); and
- No exceedance of the intrusive PSNLs (i.e. 35 dBA to 37 dBA) at all other privately-owned receivers.

All of the privately-owned receivers with predicted exceedances of the PSNLs listed above were previously identified in the SEP NIA as being in either the noise management or noise affectation zone as presented in **Table H1**. As a result of the Modification, there are no additional privately-owned receivers predicted to be within the noise management or affectation zones.

Table H1 Privately-owned Receivers¹ with Intrusive PSNL Exceedances

Period	Noise Management Zone		Noise Affection Zone
	1 dBA to 2 dBA above PSNL	3 dBA to 5 dBA above PSNL	> 5 dBA above PSNL
Daytime	15(2) ²	15(3) ²	-

Note 1: Refer to **Appendix B** for land ownership details.

Note 2: Receivers subject to an existing landholder agreement.

RESOURCE COMPANY-OWNED RECEIVERS INTRUSIVE IMPACT ASSESSMENT

The predicted daytime operating LAeq(15minute) intrusive levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for resource company-owned receivers are presented in **Table H2**.

Table H2 Daytime Year 2, Year 7 and Year 10 Intrusive LAeq(15minute) Noise Level (dBA re 20 µPa)

ID No and Landowner	Modification Year 2 Calm	Modification Year 7 Calm	Modification Year 10 Calm	Intrusive PSNL
Resource company-owned Receivers				
6 AGL	35	31	31	35
13(1) AGL	38	34	34	35
13(2) AGL	38	38	38	35
13 (3) AGL	27	24	23	35
4(1) GRL	25	22	22	35
4(2) GRL	25	21	20	35
4(4) GRL	23	20	19	35
4 (5) GRL	24	21	19	35
4(6) GRL	25	22	20	35
4(7) GRL	24	22	21	35
4(8) GRL	24	21	20	35
4(9) GRL	25	21	21	35
4(12) GRL	25	22	22	35
4(15) GRL	24	21	21	35
4(16) GRL	26	23	22	35
4(18) GRL	27	23	23	35
19(1) SCPL	31	31	30	35
19(2) SCPL	35	35	35	35
19(4) SCPL	34	33	32	35
19(5) SCPL	34	33	33	35
19(6) SCPL	33	32	31	35
19(7) SCPL	34	34	33	35
19(8) SCPL	32	32	32	35
19(9) SCPL	33	32	32	35
19(10) SCPL	33	33	32	35
19(11) SCPL	18	19	18	35
19(12) SCPL	33	33	32	35
19(13) SCPL	33	33	32	35
19(14) SCPL	32	32	32	35
19(15) SCPL	31	32	30	35
19(16) SCPL	30	32	30	35
19(17) SCPL	30	31	30	35
19(18) SCPL	30	32	30	35
19(19) SCPL	31	32	30	35
19(20) SCPL	31	32	31	35
19(21) SCPL	30	31	29	35
19(22) SCPL	24	25	25	35
19(23) SCPL	30	33	31	35

RESOURCE COMPANY-OWNED RECEIVERS INTRUSIVE IMPACT ASSESSMENT

ID No and Landowner	Modification Year 2 Calm	Modification Year 7 Calm	Modification Year 10 Calm	Intrusive PSNL
19(25) SCPL	25	28	30	35
19(26) SCPL	21	22	23	35
19(27) SCPL	18	19	20	35
19(28) SCPL	28	30	41	35
19(29) SCPL	40	33	34	35
19(30) SCPL	46	34	34	35
19(31) SCPL	16	18	25	35
19(32) SCPL	14	15	20	35
19(33) SCPL	39	34	34	35
19(34) SCPL	24	20	19	35
19(35) SCPL	15	15	15	35
19(36) SCPL	15	16	15	35
19(37) SCPL	15	15	15	35
19(38) SCPL	28	23	22	35
19(39) SCPL	33	33	32	35
19(40) SCPL	41	33	31	35
19(41) SCPL	32	32	32	35
19(42) SCPL	32	33	32	35
19(43) SCPL	27	29	40	35
19(45) SCPL	33	33	32	35
19(46) SCPL	33	33	32	35
19(47) SCPL	40	34	30	35
19(48) SCPL	33	32	32	35
19(49) SCPL	35	33	33	35

Note 1: Predicted LAeq(15minute) noise level complies with the intrusive PSNL.

Note 2: Predicted negligible noise exceedance 1 to 2 dBA above intrusive PSNL.

Note 3: Predicted marginal to moderate noise exceedance 3 to 5 dBA above intrusive PSNL.

Note 4: Predicted significant noise exceedance > 5 dBA above intrusive PSNL.

The existing and historic property acquisition strategy has resulted in a 'buffer' of SCPL-owned lands surrounding parts of the SMC. Consequently, predicted noise levels are elevated at some resource company-owned properties. In addition, a number of properties in the vicinity of the Modification are owned by GRL and AGL.

In summary, the predicted operating intrusive LAeq(15minute) noise levels (**Table 13**) at resource company-owned receivers show that:

- Up to six resource company-owned receivers are within the Noise Management Zone and three receivers are in the Noise Affection Zone.

All of the resource company-owned receivers with predicted exceedances of the PSNLs listed above were previously identified in the SEP NIA as being in either the noise management or noise affection zone as presented in **Table H3**. As a result of the Modification, there are no additional resource company-owned receivers predicted to be within the noise management or affection zones.

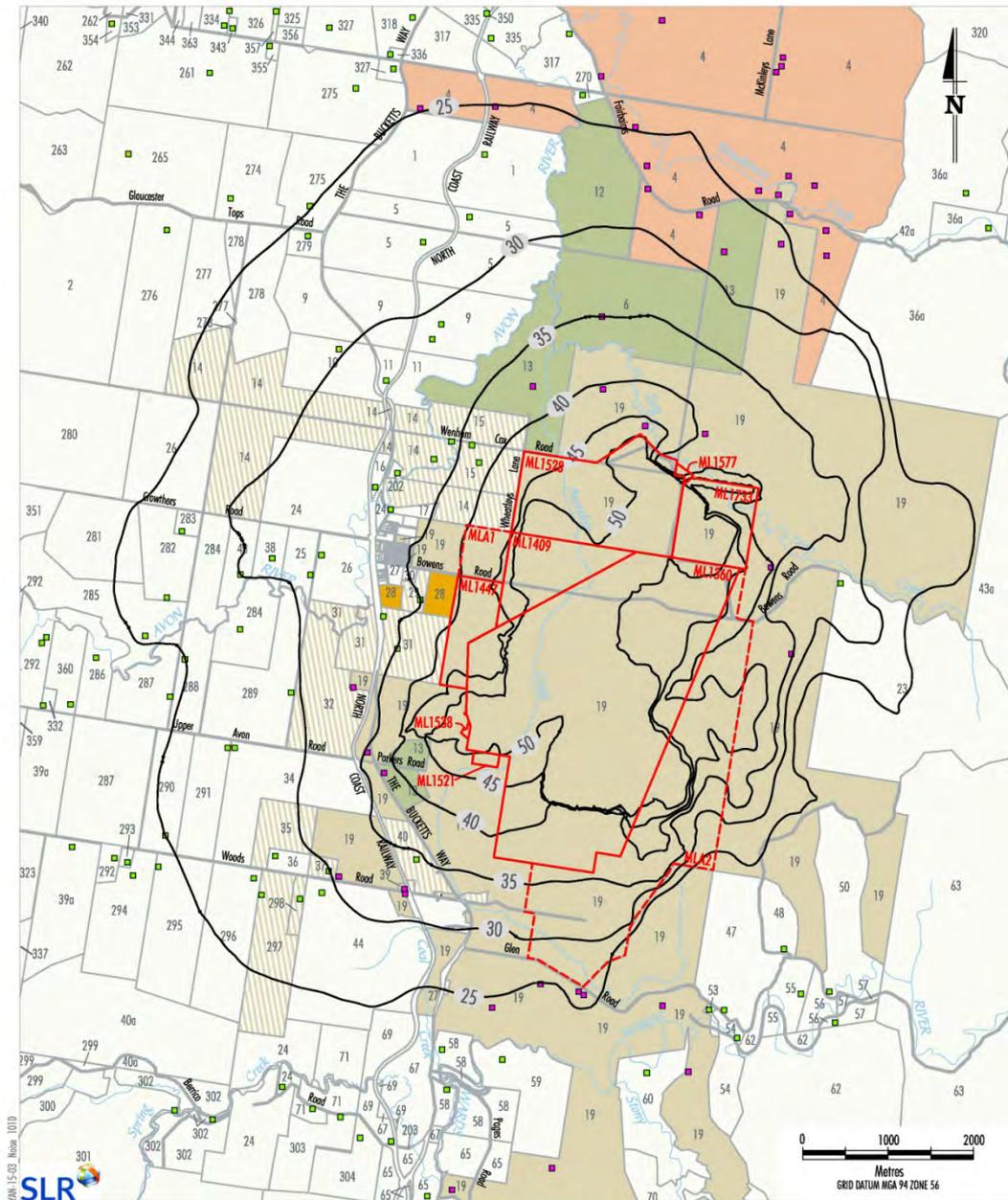
RESOURCE COMPANY-OWNED RECEIVERS INTRUSIVE IMPACT ASSESSMENT

Table H3 Resource Company-owned Receivers¹ with Intrusive PSNL Exceedances

Period	Noise Management Zone		Noise Affection Zone
	1 dBA to 2 dBA above PSNL	3 dBA to 5 dBA above PSNL	> 5 dBA above PSNL
Daytime	-	13(1), 13(2), 19(29), 19(33), 19(43), 19(47)	19(28), 19(30), 19(40)

Note 1: Refer to **Appendix B** for land ownership details.

MODIFICATION YEAR 2 DAYTIME INTRUSIVE LAEQ(15MINUTE) NOISE CONTOURS



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Yancoal Owned Land
 - GRL Owned Land or Under Option
 - AGL Owned Land
 - Private Landholders
 - Private Landholders - Yancoal Agreement
 - Crown Land
 - 19 Landholder Number
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - 25 - Daytime Intrusive Noise Contour

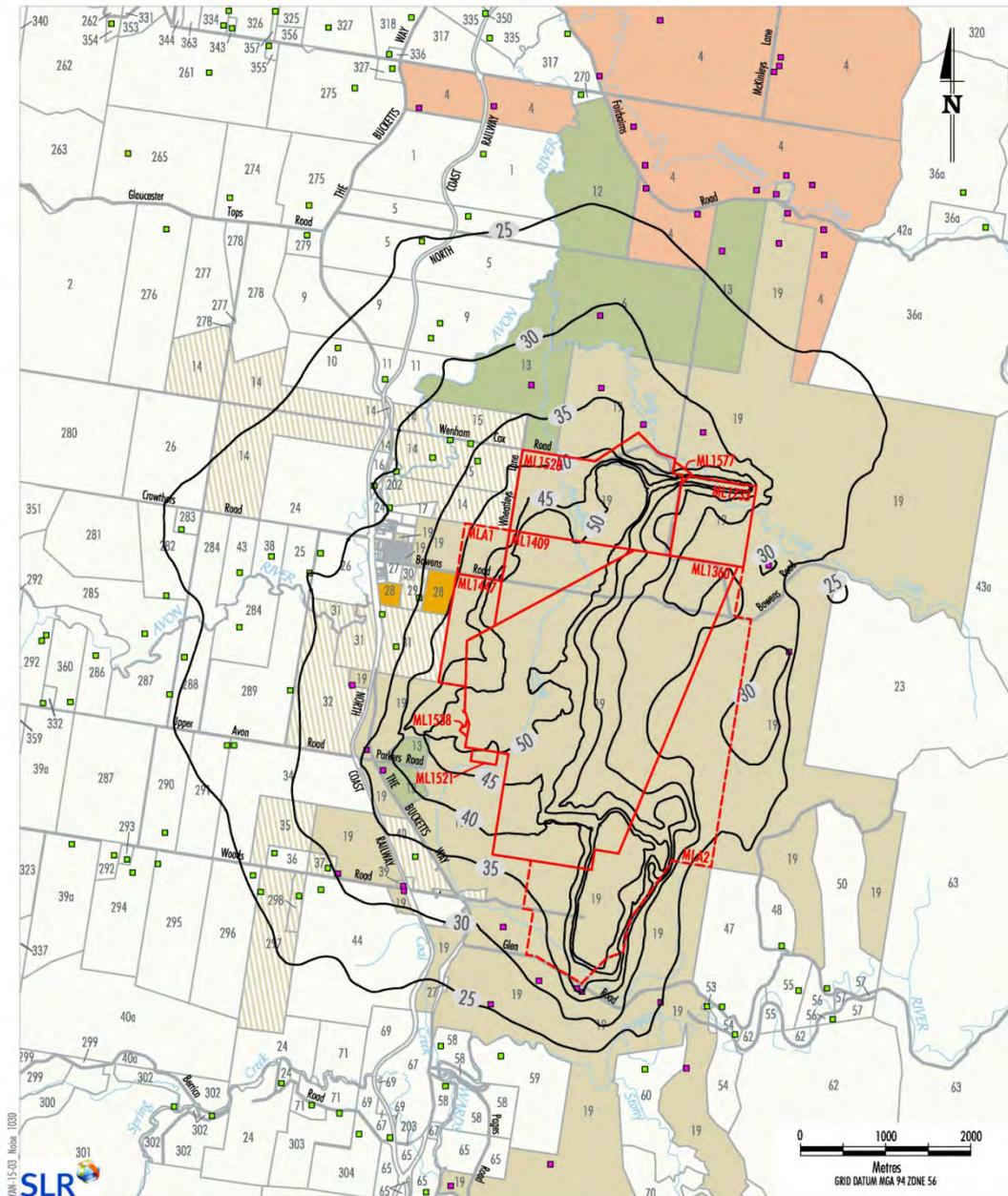
STRATFORD COAL
 Part of the Yancoal Australia Group

STRATFORD MODIFICATION 1
 Project Daytime Intrusive
 Noise Contours - Year 2

Source: SCPL (2016), DFS-LP1 (2016) and DPI-C&L (2012)

Figure I1

MODIFICATION YEAR 10 DAYTIME INTRUSIVE LAEQ(15MINUTE) NOISE CONTOURS



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Yancoal Owned Land
 - GRL Owned Land or Under Option
 - AGL Owned Land
 - Private Landholders
 - Private Landholders - Yancoal Agreement
 - Crown Land
 - 19 Landholder Number
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - 25 - Daytime Intrusive Noise Contour


STRATFORD COAL
 Part of the Yancoal Australia Group
STRATFORD MODIFICATION 1
 Project Daytime Intrusive
 Noise Contours - Year 10

Source: SCPL (2016), DFS-LP (2016) and DPI-C&L (2012)

Figure I3

RESOURCE COMPANY-OWNED RECEIVERS CUMULATIVE AMENITY IMPACT ASSESSMENT

The predicted daytime cumulative LAeq(11hour) noise amenity levels from the Modification Year 2, Year 7 and Year 10 operating scenarios for resource company-owned receivers are presented in **Table J1**, together with the relevant INP acceptable daytime LAeq(11hour) noise amenity criteria (**Table 11**).

Table J1 Cumulative Daytime (LAeq(11 hour)) Noise Amenity Levels (dBA re 20 µPa)

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
Resource company-owned Receivers						
6 AGL	35	24	30	26	37	50
13(1) AGL	38	20	30	45	46	50
13(2) AGL	38	12	30	43	44	50
13(3) AGL	27	43	30	34	44	50
4(1) GRL	25	23	15	26	30	50
4(2) GRL	25	34	30	32	37	50
4(4) GRL	23	55	30	28	55	50
4(5) GRL	24	55	30	27	55	50
4(6) GRL	25	60	30	27	60	50
4(7) GRL	24	40	30	26	41	50
4(8) GRL	24	49	30	26	49	50
4(9) GRL	25	51	30	26	51	50
4(12) GRL	25	26	30	28	34	50
4(15) GRL	24	41	30	30	41	50
4(16) GRL	26	37	30	32	39	50
4(18) GRL	27	34	30	29	37	50
19(1) SCPL	31	11	22	30	34	50
19(2) SCPL	35	12	30	39	41	50
19(4) SCPL	34	15	23	27	35	50
19(5) SCPL	34	15	25	27	36	50
19(6) SCPL	33	11	30	31	36	50
19(7) SCPL	34	15	26	28	36	50
19(8) SCPL	32	11	30	30	36	50
19(9) SCPL	33	11	30	30	36	50
19(10) SCPL	33	11	30	30	36	50
19(11) SCPL	19	9	0	20	23	50
19(12) SCPL	33	11	30	30	36	50
19(13) SCPL	33	11	30	30	36	50
19(14) SCPL	32	11	30	29	35	50
19(15) SCPL	32	11	30	29	35	50
19(16) SCPL	32	11	30	29	35	50
19(17) SCPL	31	11	30	28	35	50
19(18) SCPL	32	11	30	28	35	50
19(19) SCPL	32	11	30	28	35	50
19(20) SCPL	32	11	30	28	35	50
19(21) SCPL	31	11	30	28	35	50
19(22) SCPL	25	10	14	25	28	50
19(23) SCPL	33	11	30	27	35	50
19(25) SCPL	30	11	20	25	32	50

RESOURCE COMPANY-OWNED RECEIVERS CUMULATIVE AMENITY IMPACT ASSESSMENT

Property Number/Landowner	Modification	Amended RHCP	AGL (Gas Field)	AGL (Process Facility)	Cumulative Sum	INP Acceptable Amenity Criteria
19(26) SCPL	23	9	0	20	25	50
19(27) SCPL	20	8	0	19	23	50
19(28) SCPL	41	11	18	24	41	50
19(29) SCPL	40	32	30	32	41	50
19(30) SCPL	46	20	30	29	46	50
19(31) SCPL	25	11	9	22	27	50
19(32) SCPL	20	10	0	21	24	50
19(33) SCPL	39	21	30	27	40	50
19(34) SCPL	24	47	30	27	47	50
19(35) SCPL	15	8	0	19	21	50
19(36) SCPL	16	7	0	18	20	50
19(37) SCPL	15	8	0	18	20	50
19(38) SCPL	28	36	30	28	38	50
19(39) SCPL	33	11	30	30	36	50
19(40) SCPL	41	18	30	23	41	50
19(41) SCPL	32	13	26	34	37	50
19(42) SCPL	33	11	30	30	36	50
19(43) SCPL	40	11	17	24	40	50
19(45) SCPL	33	11	30	30	36	50
19(46) SCPL	33	11	30	30	36	50
19(47) SCPL	40	16	21	22	40	50
19(48) SCPL	33	11	30	31	36	50
19(49) SCPL	35	15	26	27	36	50

In summary, predicted daytime cumulative LAeq(11 hour) noise amenity levels (**Table J1**) at company-owned receivers show that:

- All but four resource company-owned receivers comply with the INP acceptable amenity noise level of 50 dBA; and
- During the daytime, one resource company-owned receiver is within the Noise Management Zone and up to three receivers are in the Noise Affection Zone.

All of the resource company-owned receivers with predicted exceedances of the INP acceptable amenity noise level of 50 dBA listed above were previously identified in the SEP NIA as being in either the noise management or noise affection zone as presented in **Table J2**. As a result of the Modification, there are no additional resource company-owned receivers predicted to be within the noise management or affection zones.

Table J2 Resource Company-owned Receivers¹ with INP Acceptable Amenity Level Exceedances

Period	Noise Management Zone		Noise Affection Zone
	1 dBA to 2 dBA above PSNL	3 dBA above PSNL	> 3 dBA above PSNL
Daytime	4(9)		4(4), 4(5), 4(6)

Note 1: Refer to **Appendix B** for land ownership details.

Cumulative noise exceedances are largely dominated by the amended RHCP.