Appendix 6

Noise Monitoring Reports

This appendices is presented on the CD included on the inside front cover of this report.

(No. of pages excluding this page = 111)

This page has intentionally been left blank

HEGGIES

REPORT Q31 30-1053-R1
Revision 0

Donaldson Mine
Quarterly Noise Monitoring
Quarter Ending September 2008

PREPARED FOR
Donaldson Coal Pty Ltd
PO Box 675
Green Hills NSW 2320

23 JANUARY 2009

HEGGIES PTY LTD
ABN 29 001 584 612
Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

Donaldson Mine
Quarterly Noise Monitoring
Quarter Ending September 2008

PREPARED BY:

Heggies Pty Ltd
Level 1, 14 Watt Street Newcastle NSW 2300 Australia
(PO Box 1768 Newcastle NSW 2300 Australia)
Telephone 61 2 4908 4500 Facsimile 61 2 4908 4501
Email newcastle@heggies.com Web www.heggies.com

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
Q31 30-1053-R1	Revision 0	23 January 2009	Ben Carlyle	Daniel Weston	Katie Teyhan

TABLE OF CONTENTS

1 INTRODUCTION

Development consent was obtained by Donaldson Coal Pty Ltd for the Donaldson Mine in October 1999 following a Commission of Inquiry. Development Consent number N97/00147 was issued by the Minister for Urban Affairs pursuant to Section 101 of the Environmental Planning and Assessment Act 1979.

Donaldson Coal Pty Ltd has commissioned Heggies Pty Ltd (Heggies) to conduct quarterly noise monitoring surveys for the Donaldson Coal Mine in accordance with the Donaldson Coal Mine Noise Management Plan for Construction, Transportation and Operations.

The objectives of the noise monitoring survey for this operating quarter were as follows:

- Measure the ambient noise levels at four focus receptor locations (potentially worst affected) surrounding the mine. Noise surveys comprise both continuous unattended monitoring and operator attended monitoring, in 15 minute intervals, coinciding with day, evening and night-time periods. Statistical indices recorded include L_{Amax}, L_{A1}, L_{A10}, L_{A90} and L_{Aeq}.
- Qualify all sources of noise within each of the attended surveys, including estimated contribution or maximum level of individual noise sources.
- Assess the noise emissions of Donaldson Coal Mine with respect to the limits contained in the Development Consent.

2 DONALDSON COAL MINE DEVELOPMENT CONSENT CONDITIONS

The Development Consent nominates hours of operation and mine noise emission goals in the Sections entitled "*Operation of Development, Condition No. 3(1) and 3(2)*", and *"Noise and Vibrational Noise Limits: Condition No. 15*" as follows:

"3.(1) Subject to (2) the approved hours of operation are as follows:

Works	*Period*	*Hours*
Construction, including construction of any bunds	*Monday to Friday* *Saturday*	*7 am to 6 pm* *8 am to 1 pm*
Mining operations, including mining, haulage of waste to dumps and coal processing	*Monday to Friday* *Saturday, Sunday*	*24 hours per day* *7 am to 6 pm*
Road Transportation and stockpiling of coal	*7 days per week*	*24 hours per day*
Rail loading of coal	*7 days per week*	*7 am to 10 pm*
Maintenance of mobile and fixed plant	*7 days per week*	*24 hours per day*
Blasting, not involving closure of John Renshaw Drive	*Monday to Saturday*	*7 am to 5 pm*
Blasting, involving closure of John Renshaw Drive	*Monday to Saturday*	*10 am to 2 pm*

Notes: Restrictions on Public Holidays are the same as Sundays

(2) The Applicant shall submit a report to the Director-General's satisfaction demonstrating the noise limits in Condition 15 can be met while rail loading of coal is occurring during the period from 6 pm to 10 pm. If that report does not demonstrate that the noise limits can be met to the Director-General's satisfaction, then the hours of operation for rail loading of coal shall be restricted to 7 am to 6 pm."

15. Unless subject to a negotiated agreement in accordance with Condition 23, the Applicant shall ensure that the noise emission from construction or mining operations, when measured or computed at the boundary of any dwelling not owned by the applicant (or within 30 metres of the dwelling, if the boundary is more that 30 metres from the dwelling), shall not exceed the following noise limits:

Location	***LA10(15minute) Noise Limits (dBA)***	
	Daytime	***Night-time***
Beresfield area (residential)	*45*	*35*
Steggles Poultry Farm	*50*	*40*
Ebenezer Park Area	*46*	*41*
Black Hill Area	*40*	*38*
Buchanan and Louth Park Area	*38*	*36*
Ashtonfield Area	*41*	*35*
Thornton Area	*48*	*40*

Note: Daytime is 7 am to 10 pm Monday-Saturday, and 8 am to 10 pm Sundays and Public Holidays. Night-time is 10 pm to 7 am Monday-Saturday, and 10 pm to 8 am Sundays and Public Holidays.

The noise limits apply for prevailing meteorological conditions (winds up to 3 m/s), except under conditions of temperature inversions."

Other Conditions of Consent relevant to noise are as follows:

"18. The applicant shall survey and investigate noise reduction measures from plant and equipment and set targets for noise reduction in each Annual Environmental Management Report (AEMR), taking into consideration valid noise complaints received in the previous year. The Report shall also include remedial measures.

19. The Applicant shall revise the Noise Management Plan as necessary and provide an updated Plan five years after commencement of mining to the Director-General, the independent noise expert (Condition 48), EPA, Councils and the Community Consultative Committee."

3 PROCEDURES AND METHODOLOGY

3.1 General Requirements

The operational noise monitoring programme was conducted with reference to Development Consent N97/00147, and in accordance with RHA Report 10-1149-R1 dated 19 December 2000 (*Noise Management Plan Construction, Transportation and Operations Donaldson Coal Mine)* and AS 1055-1997 "*Acoustics -Description and Measurement of Environmental Noise*".

3.2 Monitoring Locations

Baseline and preceding operational quarterly surveys have been conducted at 11 locations surrounding the Donaldson Mine site. With the experience of these previous surveys, it was decided to concentrate noise monitoring at four (4) focus locations that represent the potentially most affected areas from noise from Donaldson Mine during. The details of the monitoring locations are contained within **Table 1**.

Table 1 Monitoring Locations

Noise Monitoring Location	Description
A	98 Weakleys Drive, Beresfield
E	Browns Road, Black Hill
F	Lot 684 Black Hill Road, Black Hill
K	Bartter Enterprises (Steggles) Farm No. 6

A map giving the approximate location of the noise monitoring sites is contained within **Appendix A**.

3.3 Unattended Continuous Noise Monitoring

Environmental noise loggers were deployed on Wednesday 27 August 2008 at each of the four nominated locations given in **Table 1**, and retrieved on Tuesday 2 September 2008. All unattended monitoring equipment was programmed to continuously record statistical noise level indices in 15 minute intervals including the L_{Amax}, L_{A1}, L_{A10}, L_{A90}, L_{A99}, L_{Amin} and L_{Aeq}. The statistical noise exceedance levels (L_{AN}) are the levels exceeded for N% of the 15 minute interval. The L_{A90} represents the level exceeded for 90% of the interval period and is referred to as the average minimum or background noise level. The L_{A10} is the level exceeded for 10% of the time and is usually referred to as the average maximum noise level. The L_{Aeq} is the equivalent continuous sound pressure level and represents the steady sound level which is equal in energy to the fluctuating level over the interval period. The L_{Amax} is the maximum noise level recorded over the interval. Instrument calibration was conducted before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA.

3.4 Operator Attended Monitoring

Operator attended surveys were conducted at each of the four monitoring locations for day, evening and night-time periods, to verify the unattended logging results and to determine the character and contribution of ambient noise sources.

3.5 Equipment Operation

The mobile equipment operating on the Donaldson Mine site during the survey period are contained in **Appendix B**.

During the survey period the following operations were being undertaken:

- Coal mining operations were ongoing during the monitoring period, operating 24 hours a day.
- Overburden material and coal was being removed from strips EX 23, CP 9, 10, 11, 12, 13, 14, between 6.00 am and midnight Monday - Friday. The waste was generally being placed in strips Ex 23 and CP06 - 8. The grader and water cart were operating on both day and afternoon shift where needed.

4 OPERATOR ATTENDED NOISE MONITORING

4.1 Results of Operator Attended Monitoring

Operator attended noise measurements were conducted during the daytime on Wednesday 27 June 2008, the evening on Monday 8 September 2008 and the night-time on Tuesday 9 September 2008. The results of the operator attended noise measurements are given in **Table 2** to **Table 5**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations.

The tables provide the following information:

- Monitoring location.
- Date & start time.
- Wind velocity (m/s) and Temperature (°C) at the measurement location.
- Typical maximum (L_{Amax}) and contributed noise levels.

Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

Table 2 Location A Weakleys Drive, Beresfield

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
27/08/2008 12:45 pm W = 1-2m/s SE Temp = 19°C	Daytime Ambient	76	62	57	50	55	Traffic noise dominant (Weakleys Drive); cars ~ 50-54, trucks to 64. Birds ~ 51-60, Vegetation ~ 50-53, Resident noise ~ 52-58. Donaldson mine inaudible.
8/09/2008 7:45 pm W = <1 m/s SE Temp = 13°C	Evening Ambient	71	67	58	53	55	Traffic noise dominant (Weakleys Drive); cars ~ 53-58, trucks to 65. Crickets/insects < 52. Donaldson mine inaudible.
9/09/2008 6:43 am W = Calm W Temp = 8°C	Night-time Ambient	72	68	64	55	59	Traffic noise dominant (Weakleys Drive); cars to 53-55, passing trucks to 58. Insects/crickets ~ 53-55. Donaldson mine inaudible.

Table 3 Location E Browns Road, Black Hill

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
27/08/2008 1:33 pm W = 1-2m/s SE Temp = 18°C	Daytime Ambient	74	54	42	34	44	Vegetation ~ 36-44. Neighbour activities ~ 48. Birds ~ 37-45. Donaldson mine inaudible.
8/09/2008 6:56 pm W = 1 m/s SE Temp = 12°C	Evening Ambient	71	50	44	40	45	Distant traffic noise ~ 40-41. Insects/crickets ~ 40-45. Frog ~ 47-49. Donaldson mine inaudible.
9/09/2008 6:25 am W = Calm W Temp = 8°C	Night-time Ambient	61	54	48	34	44	Distant traffic ~ 35. Insects/crickets/frogs ~ 37-39. Donaldson mine inaudible.

Table 4 Location F Lot 684 Black Hill Road, Black Hill

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
27/08/2008 1:10 pm W = 1-2m/s SE Temp = 18°C	Daytime Ambient	73	62	53	42	52	Traffic (John Renshaw Dr); cars to 50-54, trucks to 60. Birds ~ 50-56, Cow ~ 51, Car pass-by 71. Donaldson mine inaudible.
8/09/2008 6:33 pm W = 1 m/s SE Temp = 12°C	Evening Ambient	81	74	51	46	59	Traffic (John Renshaw Dr); cars ~ 47-51, trucks ~ 52-54. Crickets/insects/frogs (dominant) ~ 46-48. Donaldson mine inaudible.
9/09/2008 6:03 am W = Calm W Temp = 8°C	Night-time Ambient	88	83	66	47	69	Traffic (John Renshaw Dr); cars ~ 51-53. Passing cars ~ 80-88. Crickets/insects/frogs (dominant) ~ 48. Donaldson mine inaudible.

Table 5 Location K Bartter Enterprises Farm No.6, Black Hill

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
27/08/2008 1:55 pm W = 1-2m/s SE Temp = 18°C	Daytime Ambient	77	56	50	44	50	Traffic (John Renshaw Dr); cars 44-51, trucks to 54. Vegetation ~ 44. Birds ~ 44-47. Donaldson mine inaudible.
8/08/2008 7:24 pm W = 1 m/s SE Temp = 12°C	Evening Ambient	94	84	74	49	73	Traffic (John Renshaw Dr); passing cars up to 84, passing truck 94. Donaldson Mine; truck engine noise 51-52. Approx. LA10 Contribution ~ 45
9/09/2008 5:42 am W = Calm W Temp = 8°C	Night-time Ambient	93	88	83	63	78	Traffic (John Renshaw Dr); passing cars to 87, passing trucks to 93. Birds ~ 63-65. Donaldson mine inaudible

4.2 Operator Attended Monitoring Summary

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were observed to be audible at Location K (Bartter) during the evening.

Condition 23 of schedule 2 of the Donaldson Mine consent is currently operable at the Bartter Farm site with an agreement in place for the receiver to accept higher noise levels. However, Heggies understand the dwelling on the Bartter Farm site is currently unoccupied and therefore determining whether consent is achieved at this location is unnecessary. Attended noise surveys conducted with relevance to Location K have therefore been used to assess noise levels at nearest occupied residential receivers to the Bartter Farm site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution was approximately 30 dBA at these residential locations which is in compliance with Donaldson Mine consent.

Based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine do not exceed noise emission goals for any period.

5 UNATTENDED CONTINUOUS NOISE MONITORING

5.1 Results of Unattended Continuous Monitoring

The unattended ambient noise logger data from each monitoring location are presented graphically on a daily basis and are attached as **Appendices C1** to **C3**. A summary of the results of the unattended continuous noise monitoring is given in **Table 6**. The ambient noise level data quantifies the overall noise level at a given location independent of its source or character.

Noise data for the entire monitoring period from the Weakleys Drive site was unobtainable due to an unknown noise logger fault, causing logging to cease on the first day of monitoring (i.e. Wednesday 27 August 2008).

The measured ambient noise levels were divided into three periods representing day, evening and night as designated in the NSW Industrial Noise Policy. The day, evening and night periods replace the day and night periods defined under the Environmental Noise Control Manual (ENCM). However, as the Donaldson conditions of consent are under the ENCM, these periods have also been reported.

Precautions can be taken to minimise influences from extraneous noise sources (eg optimum placement of the loggers away from creeks, trees, houses, etc), however not all these sources or their effects can be eliminated. This is particularly the case during the warmer times of year when noise from insects, frogs, birds and other animals can become quite prevalent.

Noise data during periods of any rainfall and/or wind speeds in excess of 5 m/s (approximately 9 knots) were discarded in accordance with INP weather affected data exclusion methodology.

Table 6 Unattended Continuous Monitoring Ambient Noise Levels (dBa Re 20 µPa)

Location	Period	LA1	LA10	LA90	LAeq
A	Daytime	No Data	No Data	No Data	No Data
Weakleys Drive Beresfield	Evening	No Data	No Data	No Data	No Data
	ENCM Daytime	No Data	No Data	No Data	No Data
	Night	No Data	No Data	No Data	No Data
E	Daytime	52	42	30	52
Browns Road, Black Hill	Evening	42	35	30	41
	ENCM Daytime	51	41	30	46
	Night	40	35	26	42
F	Daytime	65	55	42	56
Lot 684 Black Hill Road, Black Hill	Evening	59	52	44	52
	ENCM Daytime	65	55	40	55
	Night	56	50	42	51
K	Daytime	56	53	41	53
Bartter Farm No.6	Evening	56	52	42	52
	ENCM Daytime	57	53	41	52
	Night	57	52	42	54

Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm 10.00 pm; Night - 10.00 pm to 7.00 am pm Monday to Saturday, 10.00 pm to 8.00 am Sunday.
EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.

5.2 Unattended Continuous Monitoring Summary

Sections 5.2.1 and 5.2.2 make no reference to unattended noise logging data for Location A given the insufficient data set due to a noise logger fault as mentioned in **Section 5.1.** Based on observations made during operator attended noise surveys and previous monitoring periods, it is likely that Donaldson Mine activity did not contribute to noise levels at this location.

5.2.1 Ambient L_{A90} Noise Levels

The summary of results in **Table 6** show that ambient day, evening and night time L_{A90} noise levels recorded for the quarter ending September 2008 were significantly less than levels recorded during the baseline monitoring process at Location E. Significant increases of 9 dBA, 11 dBA and 7 dBA were respectively recorded in the evening and night-time periods at Location F and the night-time period at Location K. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by increase in traffic volumes and insect/cricket/frog activity and not from Donaldson Mine activity.

A comparison of the current monitoring period (September 2008) with the previous monitoring period (June 2008) shows that L_{A90} noise levels have significantly reduced at Location E but have remained generally similar at Location F. A significant increase of 5 dBA was recorded in the night-time period at Location K which is likely to have been caused by an increase in insect/cricket/frog activity and not from Donaldson Mine activity.

A comparison of the current monitoring period (September 2008) with the coinciding monitoring period last year (September 2007) indicates that L_{A90} noise levels recorded during all periods at locations F and K were generally similar, except during the night where respective increases of 5 dBA and 12 dBA occurred at Locations F and K. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine. Given that Location E was not monitored in the September 2007 monitoring period no comparison can be made to noise levels.

5.2.2 Ambient L_{A10} Noise Levels

The summary of results in **Table 6** show that ambient day, evening and night-time L_{A10} noise levels recorded for the quarter ending September 2008 were significantly less than levels recorded during the baseline monitoring process at Location E. Ambient day, evening and night-time L_{A10} noise levels at locations F and K were generally similar to levels recorded during the baseline monitoring process with the exception of a slight increase of 4 dBA during the daytime at Location F. Operator attended noise surveys at this location (Location F) noted that the L_{A10} noise levels were dominated by local traffic and not from Donaldson mine activity.

A comparison of the current monitoring period (September 2008) with the previous monitoring period (June 2008) shows that L_{A10} noise levels were generally similar to or less than levels recorded at Locations E, F and K. A slight increase (3 dBA) in noise level was recorded at Location K during the night.

A comparison of the current monitoring period (September 2008) with the coinciding monitoring period last year (September 2007) indicates that L_{A10} noise levels during all periods were within 2 dBA of those recorded at Locations F and K. Given that Location E was not monitored in the September 2007 monitoring period no comparison can be made to noise levels.

6 SUMMARY OF RESULTS AND FINDINGS

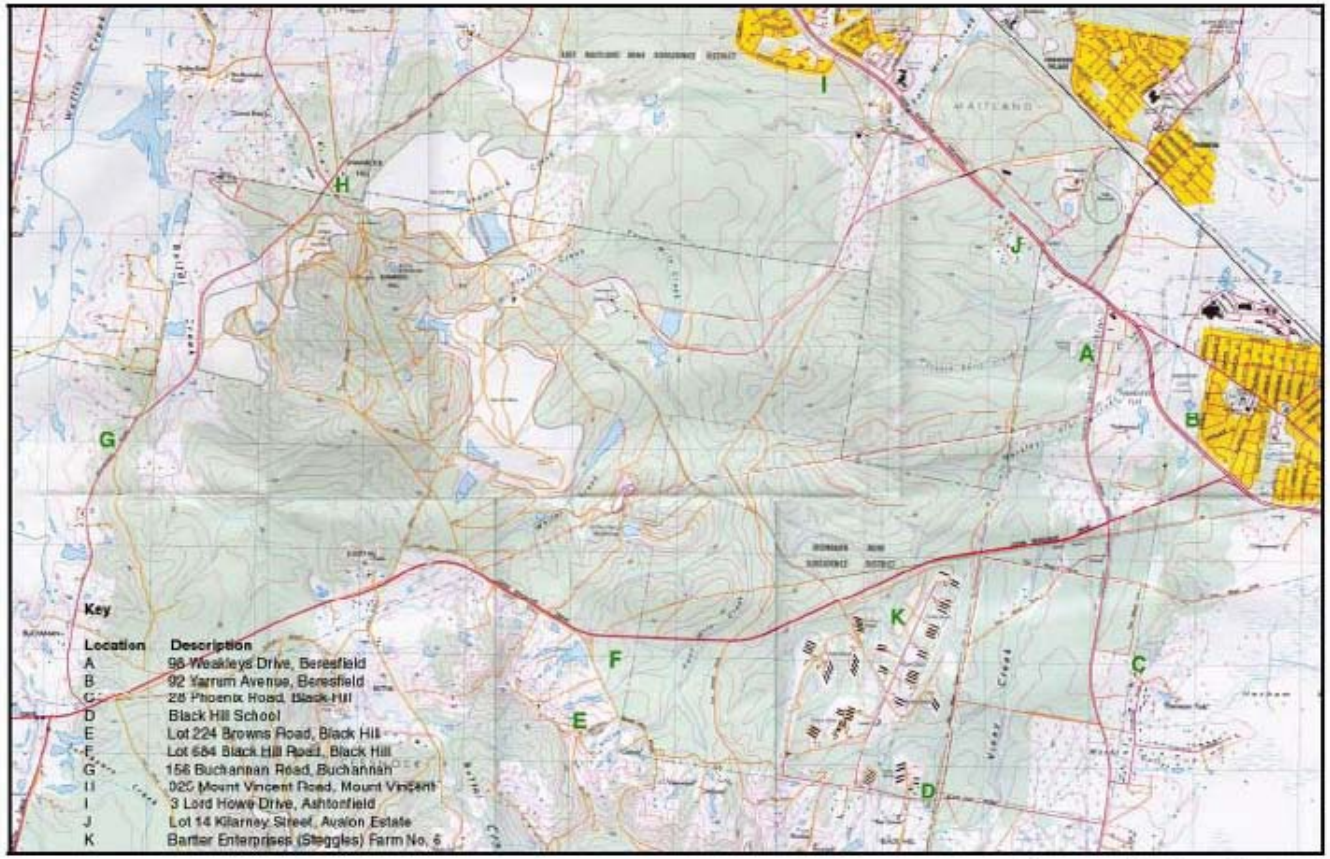
Heggies were engaged by Donaldson Coal Pty Ltd to conduct quarterly noise monitoring surveys for the Donaldson Coal Mine in accordance with the Donaldson Coal Mine Noise Management Plan for Construction, Transportation and Operations.

The results of the operator-attended noise measurements conducted at the four (4) focus locations surrounding the mine site on Wednesday 27 June 2008, Monday 8 September 2008 and Tuesday 9 September 2008 are included in **Table 2** to **Table 5**.

Mine operations were observed to be inaudible during all survey periods at all locations except at Location K (Bartter Farm 6) during the evening. However, Donaldson Mine contributions were found to be within the relevant consent conditions at all assessed locations.

A comparison of ambient L_{A10} and L_{A90} noise levels recorded during the current monitoring period (September 2008), the baseline monitoring period, the last monitoring period (June 2008), and the coinciding monitoring period from last year (September 2008) has been conducted.

In summary, where noise levels have risen, the ambient noise environment has been identified to generally contain traffic and natural noise sources and not noise from Donaldson Mine activity. This is most applicable to Location F and K. Generally noise levels at other monitoring locations (where valid data was obtained) were similar to or less than noise levels recorded during the baseline monitoring process and previous compliance monitoring periods.



Appendix A – Page 1
Noise Monitoring Locations
Report 30-1053

Appendix B

Report Q31 30-1053-R1
Equipment Register Page 1 of 1

APPENDIX B - EQUIPMENT REGISTER

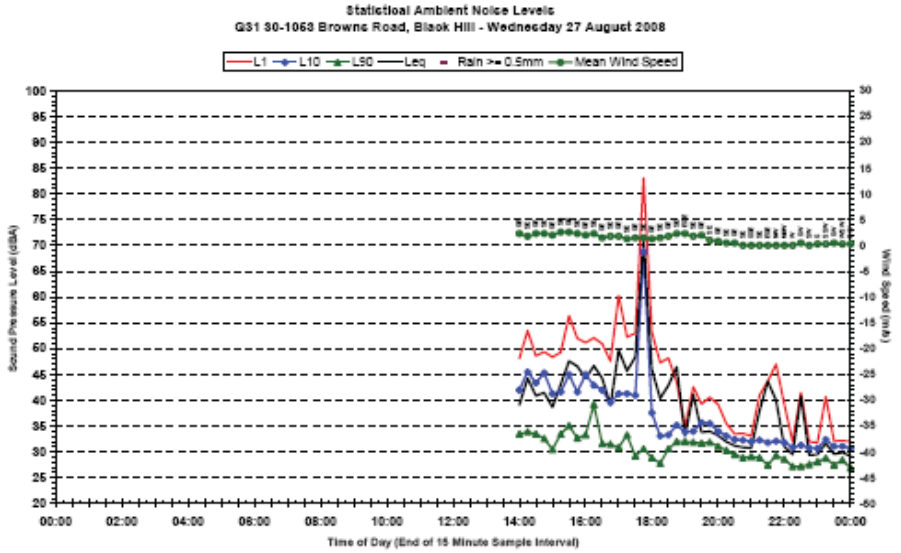
JOB NUMBER: 30-1053

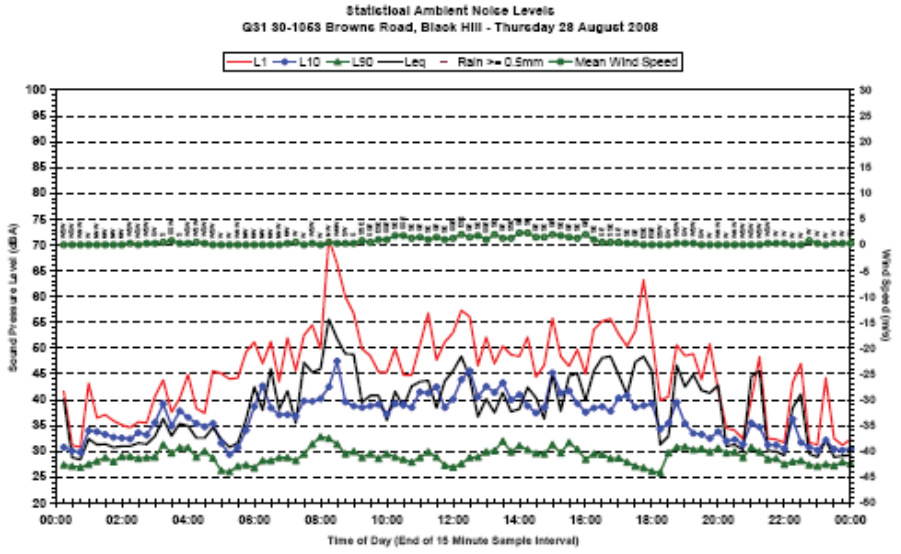
JOB DESCRIPTION: Donaldson Mine Quarterly Monitoring – September 2008

Unit ID	Serial No.	Type	Comments	Date on Site	Start Hrs
DOZ065	85X875	CAT 824C		14-Jan-02	22007
DOZ074	1JD01953	CAT D9N		15-May-02	26482
DOZ079	2YD1571	CAT D10N		22-May-03	16584
DOZ089	07TL001127	CAT D9R		10-Feb-03	13465
DOZ091	74Z00585	CAT D11N		4-Nov-04	38292
DOZ092	07TL00685	CATD9R		7-Jun-04	15284
DRI010	5163-0119	Schramm SC45M		21-Jun-04	8429
EXC034	10128	Komatsu PC1000/1		11-Oct-02	27718
EXC046	22724	Komatsu PC300/5		30-Aug-04	15211
EXC047	10127	Komatsu PC1000/1		14-May-02	28250
EXC072	184-00106	Hitachi EX2500		9-Jul-04	25211
EXC073	8TR272	CAT 330BL		18-Mar-02	7734
EXC082	7LL00032	CAT 5230		12-Oct-05	25317
EXC085	10025	Komatsu PC1600		30-Jul-01	20652
GRD036	93U3039	CAT 16G Grader		10-Feb-05	23204
GRD039	93U	CAT 16G Grader		11-Jan-06	7589
LOD005	10714	Komatsu WA600		10-Mar-03	23653
LOD019	10530	Komatsu WA800		3-Nov-01	29070
LOD042	5SD01059	CAT IT28B		14-Jun-01	247
LOD044	10106	WA700		2-Nov-04	17301
RDT014	2278	Komatsu HD465/3		14-May-01	11908
RDT026	84A01034	Caterpillar 777A		19-Apr-04	44008
RDT029	2124	Komatsu HD465-3		31-May-05	30580
RDT072	2022	Komatsu HD785/3 (on site 17/11/02)		4-Feb-03	18129
RDT073	2023	Komatsu HD785/3		17-Nov-02	41844
RDT100	8GB00596	CAT 785		21-May-05	43764
RDT107	8GB00320	CAT 785		25-Jul-01	32791
RDT140	8GB00333	CAT 785		30-Jul-01	44444
RDT143	8GB00374	CAT 785		30-Jul-01	42142
RDT155	8GB00152	CAT 785		17-Aug-01	37395
RDT162	8GB00258	CAT 785		14-Mar-02	1745
RDT174	84A00306	CAT 777A		5-May-04	7909
RDT175	84A00942	CAT 777A		10-May-04	5906
RDT182	8GB00494	CAT 785		1-Mar-04	45557
STR034		Volvo Service Truck		19-Apr-04	7000

Appendix C1

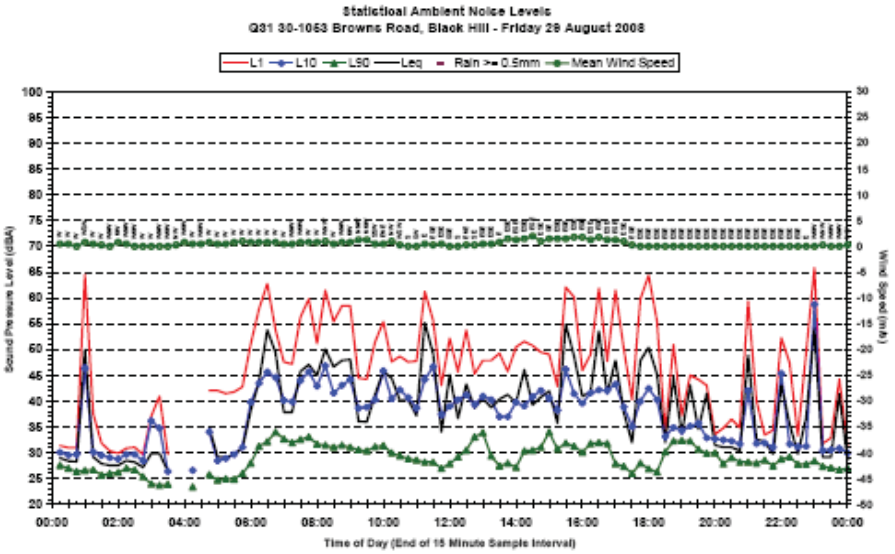
Report Q31 30-1053-R1
Statistical Ambient Noise Levels - Location E Page 1 of 4

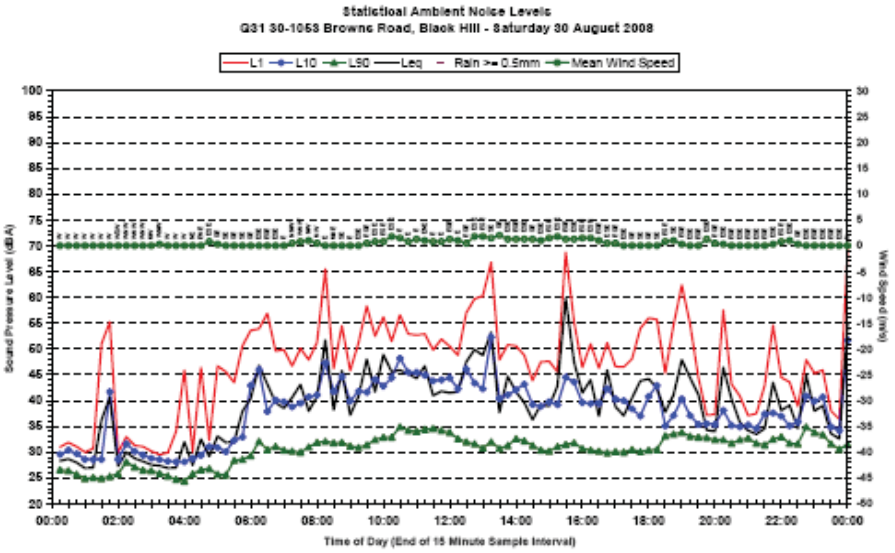




Appendix C1

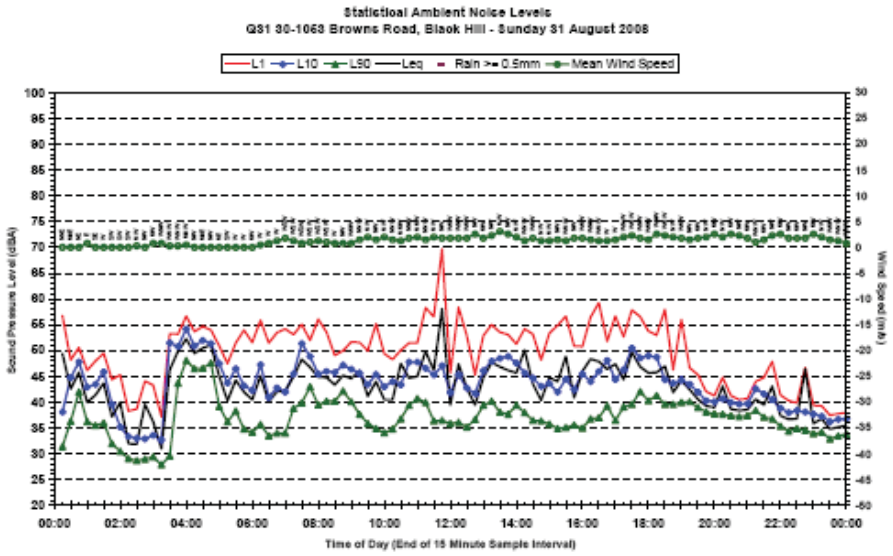
Report Q31 30-1053-R1
Statistical Ambient Noise Levels - Location E Page 2 of 4

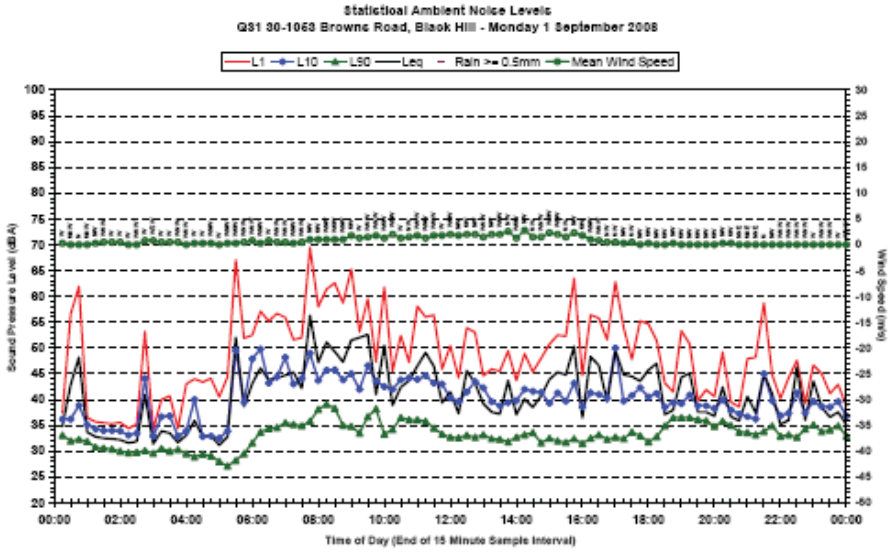




Appendix C1

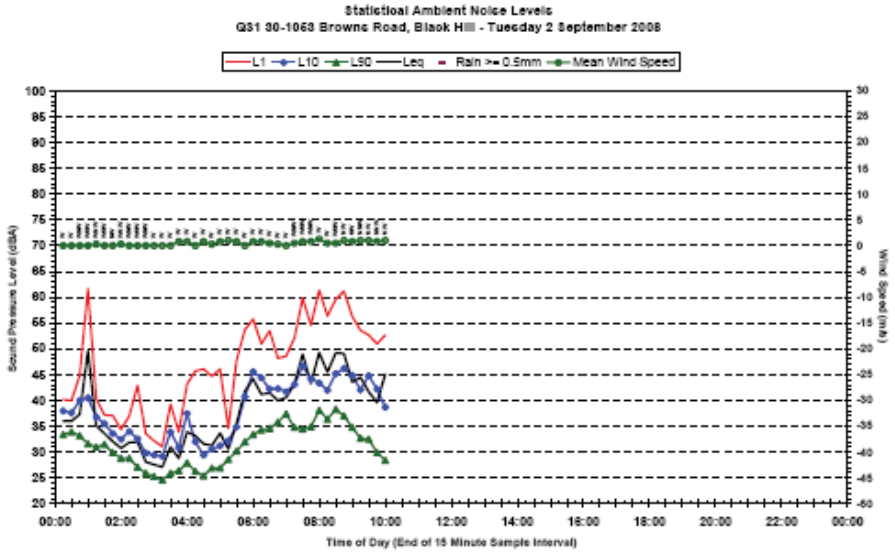
Report Q31 30-1053-R1
Statistical Ambient Noise Levels - Location E Page 3 of 4





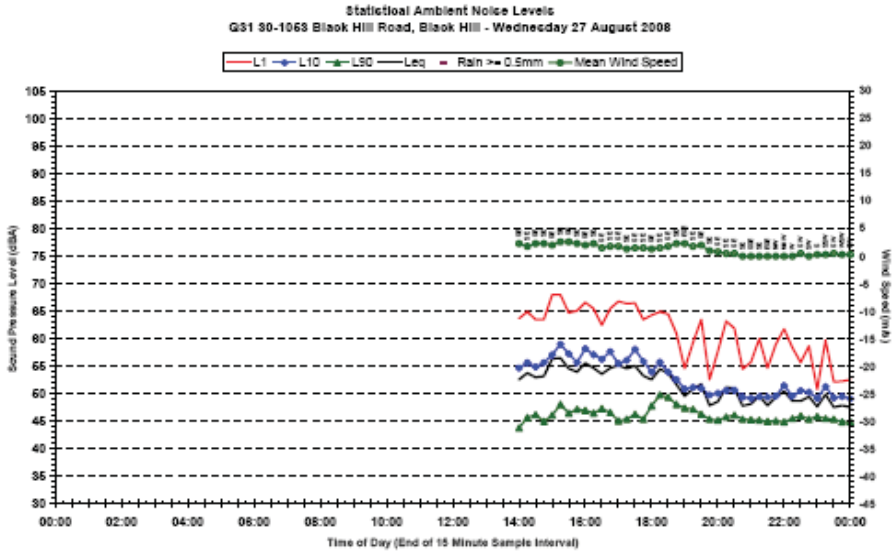
Appendix C1

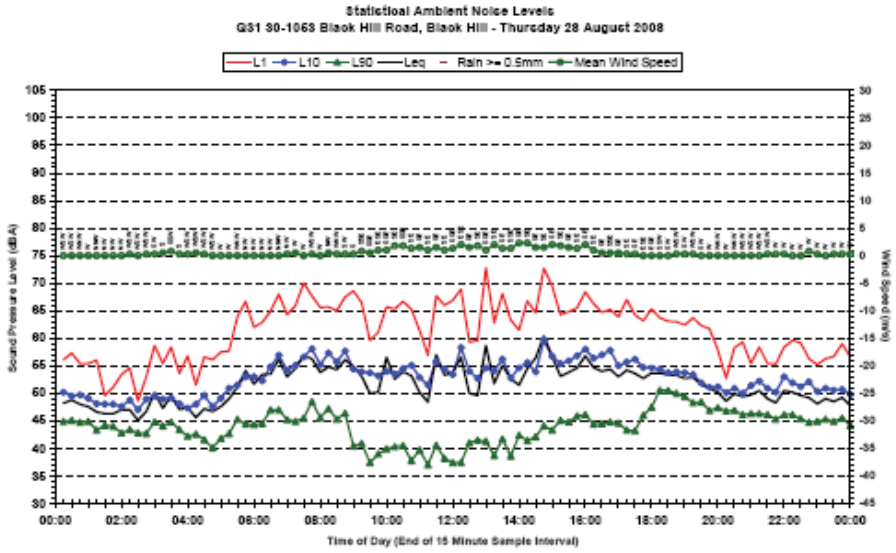
Report Q31 30-1053-R1
Statistical Ambient Noise Levels - Location E Page 4 of 4



Appendix C2

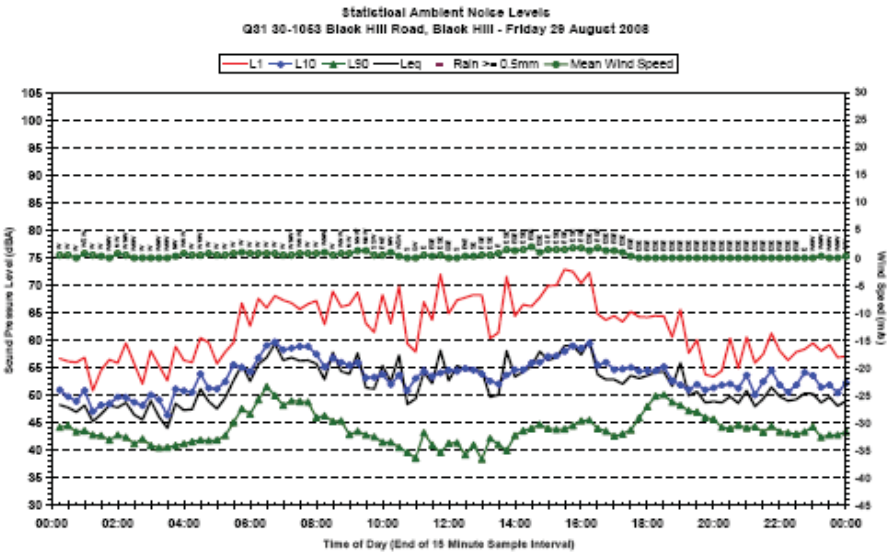
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 1 of 4

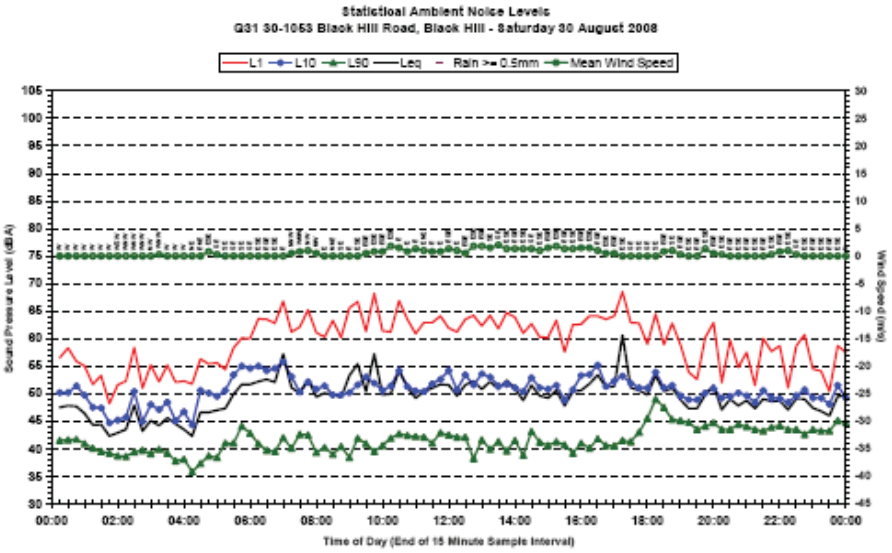




Appendix C2

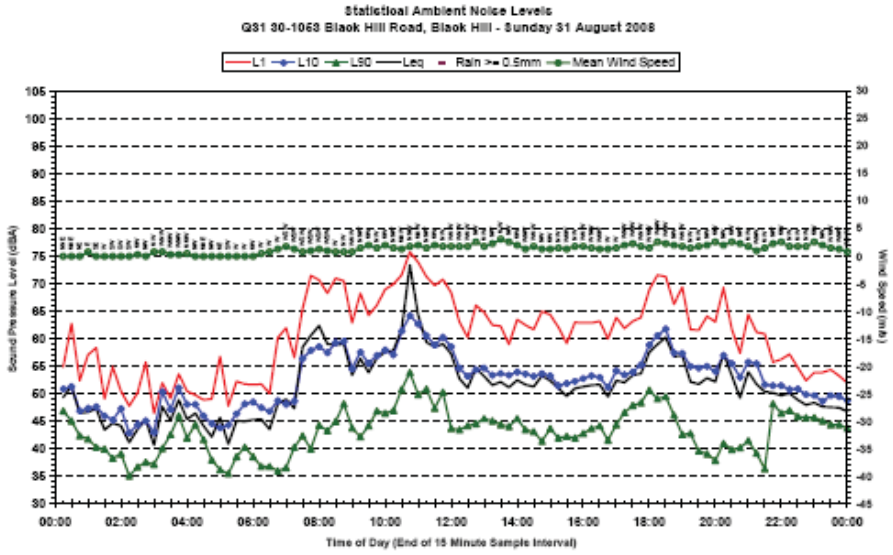
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 2 of 4

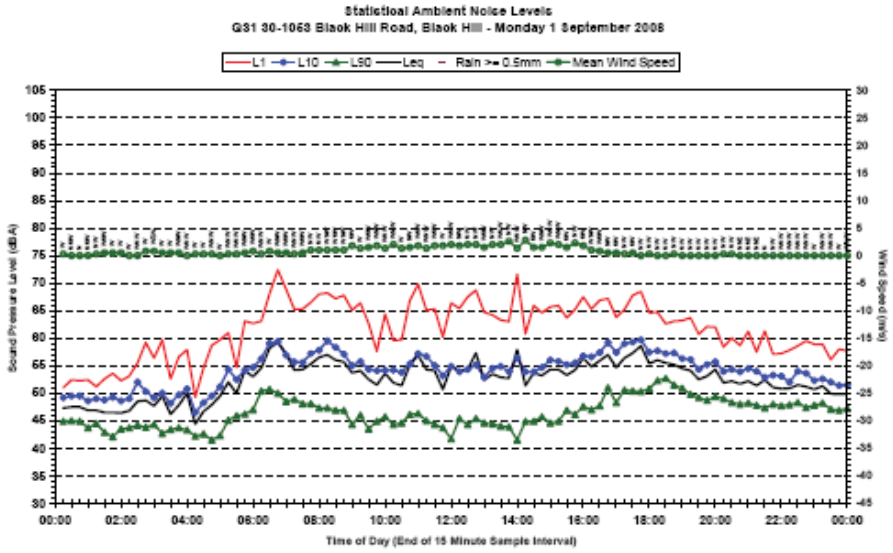




Appendix C2

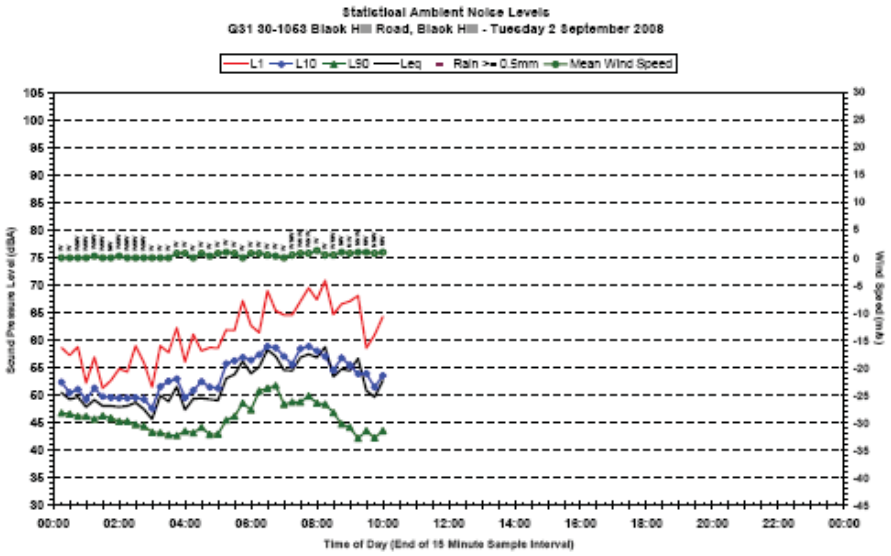
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 3 of 4





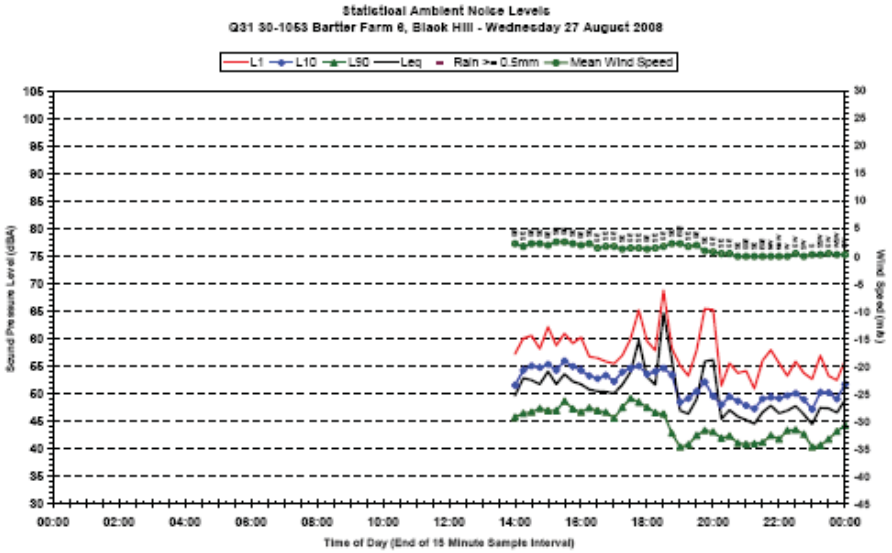
Appendix C2

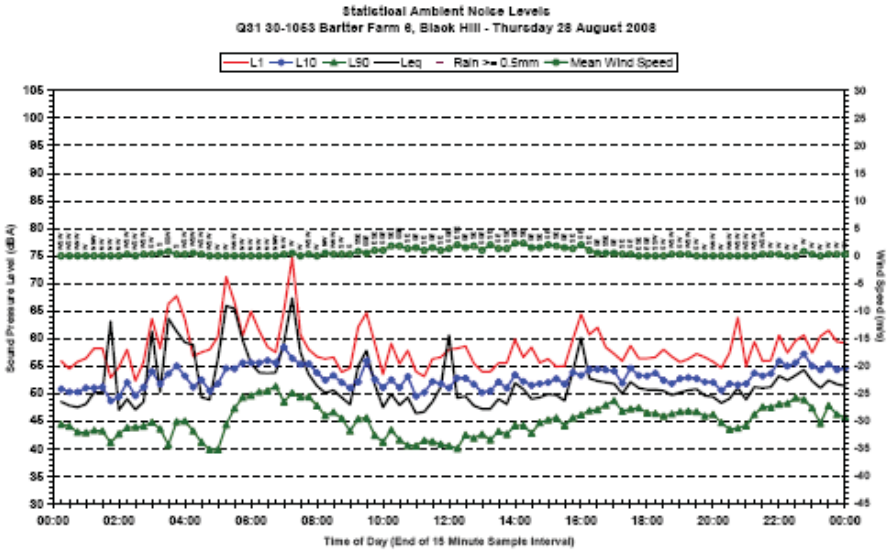
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 4 of 4



Appendix C3

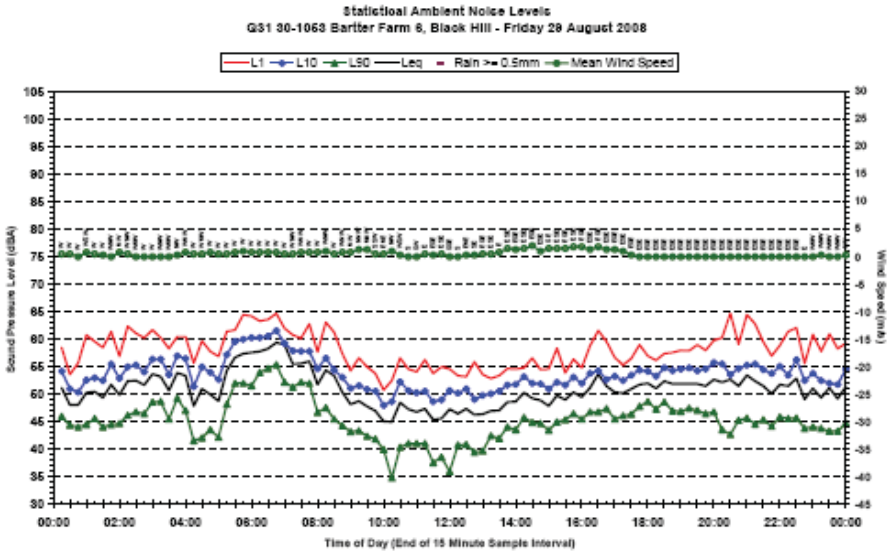
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 1 of 4

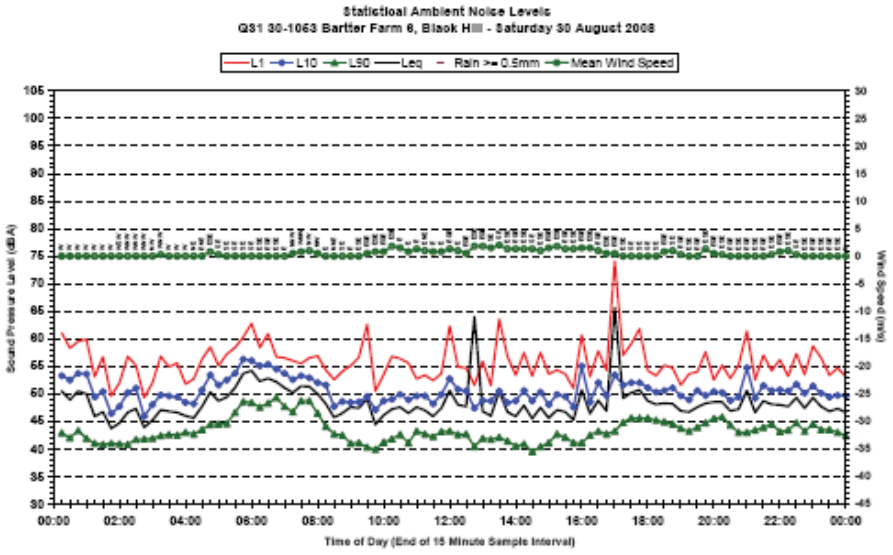




Appendix C3

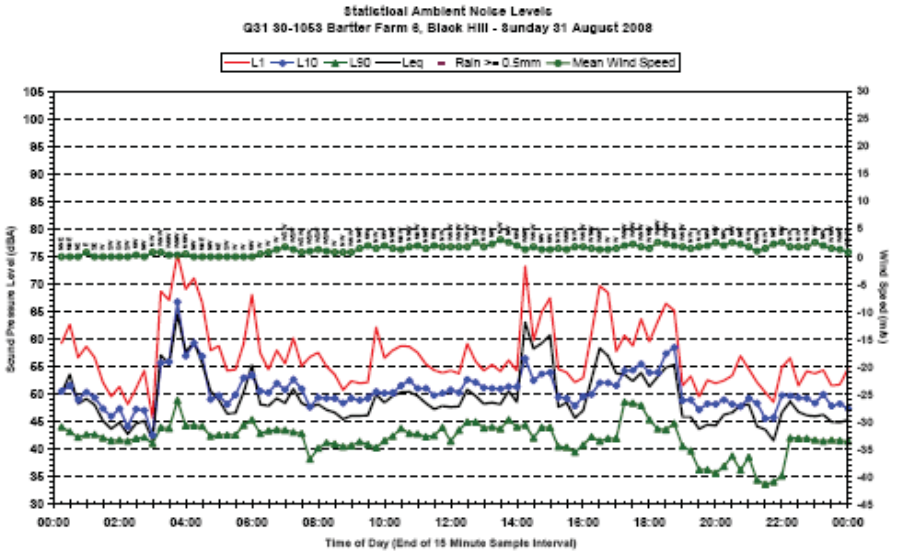
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 2 of 4

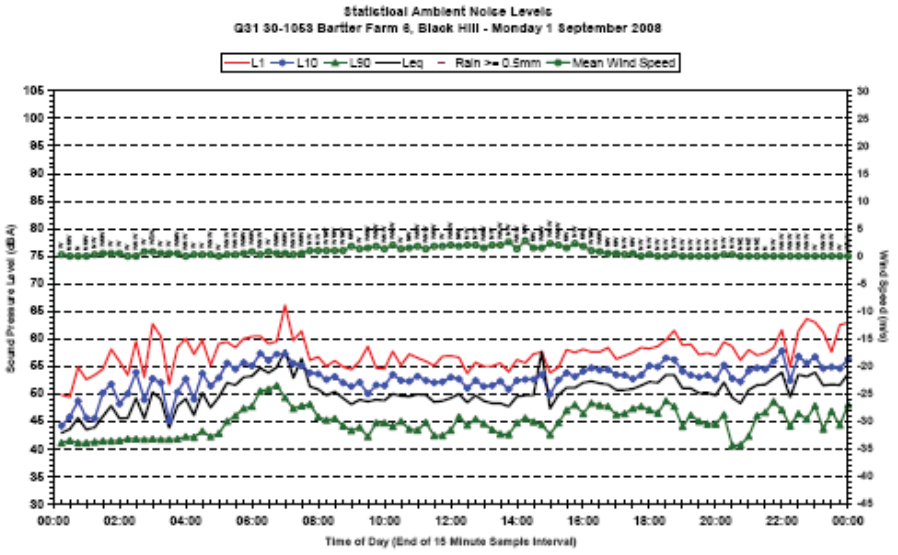




Appendix C3

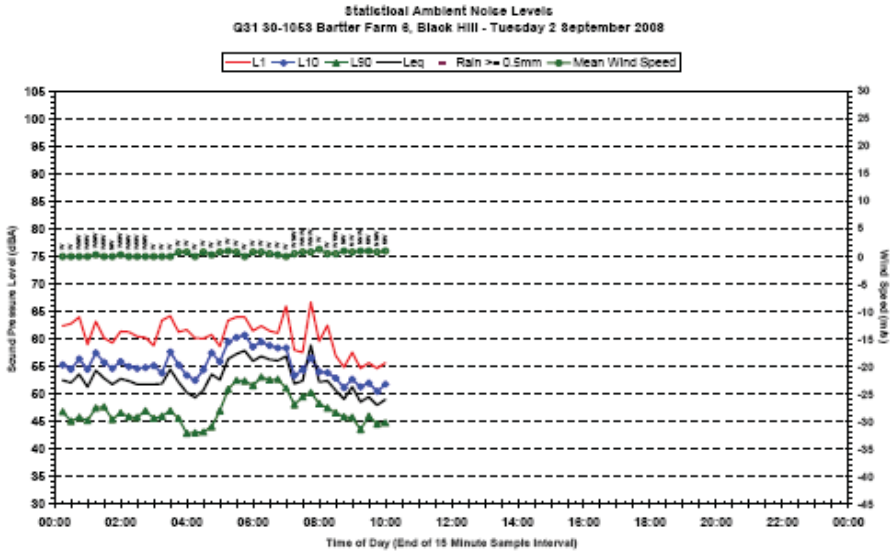
Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 3 of 4





Appendix C3

Report Q31 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 4 of 4



HEGGIES

REPORT Q32 30-1053-R1
Revision 0

Donaldson Coal Mine & Abel Coal Project
Quarterly Noise Monitoring
Quarter Ending December 2008

PREPARED FOR

Donaldson Coal Pty Ltd
PO Box 675
Green Hills NSW 2320

31 MARCH 2009

HEGGIES PTY LTD
ABN 29 001 584 612
Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

Donaldson Coal Mine & Abel Coal Project
Quarterly Noise Monitoring
Quarter Ending December 2008

PREPARED BY:

Heggies Pty Ltd
Level 1, 14 Watt Street Newcastle NSW 2300 Australia
(PO Box 1768 Newcastle NSW 2300 Australia)
Telephone 61 2 4908 4500 Facsimile 61 2 4908 4501
Email newcastle@heggies.com Web www.heggies.com

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
Q32 30-1053-R1	Revision 0	31 March 2009	Ben Carlyle	Daniel Weston	John Cotterill

TABLE OF CONTENTS

1 INTRODUCTION

Development consent was obtained by Donaldson Coal Pty Ltd for the Donaldson Mine in October 1999 following a Commission of Inquiry. Development Consent number N97/00147 was issued by the Minister for Urban Affairs pursuant to Section 101 of the Environmental Planning and Assessment Act 1979.

Project Approval (Application No. 05_0136) granted by the Minister of Planning was obtained by Donaldson Coal Pty Ltd for the Abel Coal Project in 2008.

Donaldson Coal Pty Ltd has commissioned Heggies Pty Ltd (Heggies) to conduct quarterly noise monitoring surveys for the Donaldson Coal Mine and Abel Coal Project in accordance with the Abel Mine Project Noise Monitoring Program, dated 27 May 2008.

The objectives of the noise monitoring survey for this operating quarter were as follows:

- Measure the ambient noise levels at five (5) focus receptor locations (potentially worst affected) surrounding Donaldson Coal Mine and Abel Coal Project. Noise surveys comprise both continuous unattended monitoring and operator attended monitoring, in 15 minute intervals, coinciding with day, evening and night-time periods. Statistical indices recorded include L_{Amax}, L_{A1}, L_{A10}, L_{A90} and L_{Aeq}.
- Qualify all sources of noise within each of the attended surveys, including estimated contribution or maximum level of individual noise sources.
- Assess the noise emissions of Donaldson Coal Mine and Abel coal Project with respect to the limits contained in the Development Consent.

2 DEVELOPMENT CONSENT AND PROJECT APPROVAL

2.1 Donaldson Coal Mine Development Consent Conditions

The Development Consent nominates hours of operation and mine noise emission goals in the Sections entitled "*Operation of Development, Condition No. 3(1) and 3(2)*", and *"Noise and Vibrational Noise Limits: Condition No. 15*" as follows:

"3.(1) Subject to (2) the approved hours of operation are as follows:

Works	*Period*	*Hours*
Construction, including construction of any bunds	*Monday to Friday* *Saturday*	*7 am to 6 pm* *8 am to 1 pm*
Mining operations, including mining, haulage of waste to dumps and coal processing	*Monday to Friday* *Saturday, Sunday*	*24 hours per day* *7 am to 6 pm*
Road Transportation and stockpiling of coal	*7 days per week*	*24 hours per day*
Rail loading of coal	*7 days per week*	*7 am to 10 pm*
Maintenance of mobile and fixed plant	*7 days per week*	*24 hours per day*
Blasting, not involving closure of John Renshaw Drive	*Monday to Saturday*	*7 am to 5 pm*
Blasting, involving closure of John Renshaw Drive	*Monday to Saturday*	*10 am to 2 pm*

Notes: Restrictions on Public Holidays are the same as Sundays

(2) The Applicant shall submit a report to the Director-General's satisfaction demonstrating the noise limits in Condition 15 can be met while rail loading of coal is occurring during the period from 6 pm to 10 pm. If that report does not demonstrate that the noise limits can be met to the Director-General's satisfaction, then the hours of operation for rail loading of coal shall be restricted to 7 am to 6 pm."

15. Unless subject to a negotiated agreement in accordance with Condition 23, the Applicant shall ensure that the noise emission from construction or mining operations, when measured or computed at the boundary of any dwelling not owned by the applicant (or within 30 metres of the dwelling, if the boundary is more that 30 metres from the dwelling), shall not exceed the following noise limits:

Location	***LA10(15minute) Noise Limits (dBA)***	
	Daytime	***Night-time***
Beresfield area (residential)	*45*	*35*
Steggles Poultry Farm	*50*	*40*
Ebenezer Park Area	*46*	*41*
Black Hill Area	*40*	*38*
Buchanan and Louth Park Area	*38*	*36*
Ashtonfield Area	*41*	*35*
Thornton Area	*48*	*40*

Note: Daytime is 7 am to 10 pm Monday-Saturday, and 8 am to 10 pm Sundays and Public Holidays. Night-time is 10 pm to 7 am Monday-Saturday, and 10 pm to 8 am Sundays and Public Holidays.

The noise limits apply for prevailing meteorological conditions (winds up to 3 m/s), except under conditions of temperature inversions."

Other Conditions of Consent relevant to noise are as follows:

"18. The applicant shall survey and investigate noise reduction measures from plant and equipment and set targets for noise reduction in each Annual Environmental Management Report (AEMR), taking into consideration valid noise complaints received in the previous year. The Report shall also include remedial measures.

19. The Applicant shall revise the Noise Management Plan as necessary and provide an updated Plan five years after commencement of mining to the Director-General, the independent noise expert (Condition 48), EPA, Councils and the Community Consultative Committee."

2.2 Abel Coal Project – Project Approval

The relevant conditions relating to noise from the Abel Coal Project approval are reproduced below.

Schedule 4

NOISE

Note: These conditions should be read in conjunction with section 3 of the Statement of Commitments.

Noise Limits

23 The Proponent shall ensure that the noise generated by the Project does not exceed at any privately-owned residence the levels set out in the following table for the monitoring location nearest that residence.

Table 1: Noise limits dB(A)

Day	Evening	Night		Location and Locality
LAeq(15 minutes)	LAeq(15 minutes)	LAeq(15 minutes)	LA1(1 minute)	
50	48	41	51	**A** Weakleys Dr, Beresfield
50	48	41	51	**B** Yarrum Rd, Beresfield
43	44	38	50	**C** Phoenix Rd, Black Hill
41	40	36	46	**D** Black Hill School
41	40	36	46	**E** Brown Rd, Black Hill
41	40	36	46	**F** Black Hill Rd, Black Hill
43	41	36	46	**G** Buchanan Rd, Buchanan
43	41	36	46	**H** Mt Vincent Rd, Louth Park
44	46	38	48	**I** Lord Howe Dr, Ashtonfield
49	47	40	50	**J** Kilarney St, Avalon Estate
41	40	37	46	**K** Catholic Diocese (Former Bartter) K1, K2, K3
46	46	40	53	**L** Kilshanny Ave, Ashtonfield

Notes:

- To determine compliance with the LAeq(15 minute) limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the L A1(1 minute) limit, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- These limits apply under the relevant meteorological conditions outlined in the assessment procedures in Chapter 5 of the NSW Industrial Noise Policy.
- These limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

* Revised to list alphabetically

Noise Monitoring

24. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:

(a) be submitted to the Director-General for approval within 6 months of this approval;

(b) be prepared in consultation with the DECC; and

(c) use a combination of attended and unattended monitoring measures to monitor the performance of the project.

2.2.1 Statement of Commitments

3.3 Monitoring

Within 6 months of this approval being granted a Noise Monitoring Program shall be prepared and implemented for the Abel Underground Mine and the Bloomfield CHPP, to the satisfaction of the Director-General. The Noise Monitoring Program shall include a combination of real-time and supplementary attended monitoring measures, and a noise monitoring protocol for evaluating compliance with the noise environmental assessment. This plan will be integrated with the monitoring plans for the Tasman, Donaldson and Bloomfield Mines to provide a single integrated Noise Monitoring Program for all 4 mines.

3 PROCEDURES AND METHODOLOGY

3.1 General Requirements

The operational noise monitoring programme was conducted with reference to Development Consent N97/00147 (Donaldson Coal Mine), Project Approval 05_0136 (Abel Coal Project), and in accordance with Heggies Report 30-1409-R2 dated 27 May 2008 (*Abel Mine Project Noise Monitoring Program)* and AS 1055-1997 "*Acoustics -Description and Measurement of Environmental Noise*".

3.2 Monitoring Locations

Baseline and preceding operational quarterly surveys have been conducted at 11 locations surrounding the Donaldson Mine and Abel Project sites. With the experience of these previous surveys, it was decided to concentrate noise monitoring at five (5) focus locations that represent the potentially most affected areas from noise from Donaldson Mine and Abel Project. The details of the monitoring locations are contained within **Table 1**.

Table 1 Monitoring Locations

Noise Monitoring Location	Description
A	98 Weakleys Drive, Beresfield
F	Lot 684 Black Hill Road, Black Hill
G	156 Buchannan Road, Buchannan
I	3 Lord Howe Drive, Ashtonfield
K	Catholic Diocese of Maitland (formerly Bartter Enterprises)

A map giving the approximate location of the noise monitoring sites is contained within **Appendix A**.

3.3 Unattended Continuous Noise Monitoring

Environmental noise loggers were deployed on Tuesday 16 December 2008 at each of the five (5) nominated locations given in **Table 1**, and retrieved on Tuesday 23 December 2008. All unattended monitoring equipment was programmed to continuously record statistical noise level indices in 15 minute intervals including the L_{Amax}, L_{A1}, L_{A10}, L_{A90}, L_{A99}, L_{Amin} and L_{Aeq}. The statistical noise exceedance levels (L_{AN}) are the levels exceeded for N% of the 15 minute interval. The L_{A90} represents the level exceeded for 90% of the interval period and is referred to as the average minimum or background noise level. The L_{A10} is the level exceeded for 10% of the time and is usually referred to as the average maximum noise level. The L_{Aeq} is the equivalent continuous sound pressure level and represents the steady sound level which is equal in energy to the fluctuating level over the interval period. The L_{Amax} is the maximum noise level recorded over the interval. Instrument calibration was conducted before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA.

3.4 Operator Attended Monitoring

Operator attended surveys were conducted at each of the five (5) monitoring locations for daytime, evening and night-time periods, to verify the unattended logging results and to determine the character and contribution of ambient noise sources.

3.5 Equipment Operation

The mobile equipment operating on the Donaldson Mine site during the survey period are contained in **Appendix B**.

During the survey period the following operations were being undertaken:

- Coal mining operations were ongoing during the monitoring period, operating 24 hours a day.
- Overburden material and coal was being removed from strips EX 23, CP 9, 10, 11, 12, 13, 14, between 6.00 am and midnight Monday - Friday. The waste was generally being placed in strips Ex 23 and CP06 - 8. The grader and water cart were operating on both day and afternoon shift where needed.

4 OPERATOR ATTENDED NOISE MONITORING

4.1 Results of Operator Attended Monitoring

Operator attended noise measurements were conducted during the daytime on Tuesday 16 December 2008 and Tuesday 23 December 2008, the evening on Monday 22 December 2008 and the night-time on Wednesday 17 December 2008. The results of the operator attended noise measurements are given in **Table 2** to **Table 6**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations.

The tables provide the following information:

- Monitoring location.
- Date & start time.
- Wind velocity (m/s) and Temperature (°C) at the measurement location.
- Typical maximum (L_{Amax}) and contributed noise levels.

Mine contributions listed in the tables are from Donaldson Mine and Abel Project and are stated only when a contribution could be quantified.

Table 2 Location A Weakleys Drive, Beresfield

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
16/12/2008 17:27 W = 1-2m/s S Temp = 27°C	Daytime Ambient	65	62	58	51	55	Traffic noise dominant (Weakleys Drive) ~ 50-64, Birds/Insects ~ 50-56, Resident noise ~ 48-53. Donaldson mine inaudible Abel mine inaudible
22/12/2008 21:03 W = 0.5m/s NE Temp = 23°C	Evening Ambient	86	79	74	57	71	Traffic noise dominant (Weakleys Drive) ~ 66-86, Crickets/insects < 55, Other Industry ~ 49-69. Donaldson mine inaudible Abel mine inaudible
17/12/2008 10:35 W = 1-3 SSE Temp = 20°C	Night-time Ambient	91	82	74	54	71	Traffic noise dominant (Weakleys Drive) ~ 68-84, Insects/crickets <55. Donaldson mine inaudible Abel mine inaudible

Table 3 Location F Lot 684 Black Hill Road, Black Hill

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
23/12/2008 9:33 pm W = 0.5m/s NW Temp = 24°C	Daytime Ambient	84	79	63	49	64	Traffic (John Renshaw Dr) ~ 51-55, Traffic (Black Hill Rd) ~ 80-84, Birds/Insects ~ 49-58, Bloomfields (engine noise) just audible during lulls of 49 dBA. Donaldson mine inaudible Abel mine inaudible
22/12/2008 20:40 W = 0.5 m/s NE Temp = 23°C	Evening Ambient	83	62	52	46	55	Traffic (John Renshaw Dr) ~ 51-55, Traffic (Black Hill Rd) ~ 83, Crickets/insects/frogs ~ 47, Roadside-Works Light Generator ~ 47. Donaldson mine inaudible Abel mine inaudible
17/12/2008 23:21 W = 1-3m/s SE Temp = 21°C	Night-time Ambient	83	70	53	48	58	Traffic (John Renshaw Dr) ~ 50-53, Traffic (Black Hill Rd) ~ 76-82, Wind in trees ~ 40-45, Crickets/insects/frogs ~ 45. Donaldson mine inaudible Abel mine inaudible

Table 4 Location G 156 Buchannan Road, Buchannan

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
23/12/2008 09:57 W = 1m/s NW Temp = 26°C	Daytime Ambient	88	82	75	46	71	Traffic (Buchannan Rd) ~ 74-82, Plane ~ 51-52, Birds/insects ~ 42-48. Donaldson mine inaudible Abel mine inaudible
22/12/2008 20:13 W = 1m/s NE Temp = 23°C	Evening Ambient	83	80	72	56	70	Traffic (Buchannan Rd) ~ 75-83, Insects (dominant) ~ 54-72, Bloomfields just audible during lulls of 54. Donaldson mine inaudible Abel mine inaudible
17/12/2008 23:44 W = Calm Temp = 21°C	Night-time Ambient	79	75	58	40	60	Traffic (Buchannan Rd) ~ 75-76, Insects ~ 36-37, Wind in trees ~ 40-43, Bloomfields engine noise <35. Donaldson mine inaudible Abel mine inaudible

Table 5 Location I 3 Lord Howe Drive, Ashtonfield

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
16/12/2008 16:50 W = 1-2m/s S Temp = 27°C	Daytime Ambient	76	61	46	35	49	Distant Traffic ~ 36-42, Bird ~ 38-43, Resident noise ~ 41-60, Operator noise ~ 76. Donaldson mine inaudible Abel mine inaudible
22/12/2008 21:30 W = 1m/s NE Temp = 21°C	Evening Ambient	71	59	49	41	48	Distant Traffic ~ 43-47, Local Traffic ~ 49-53, Insects ~ 41-45, Plane ~ 50-56. Donaldson mine inaudible Abel mine inaudible
17/12/2008 22:08 W = Calm Temp = 21°C	Night-time Ambient	70	61	55	51	54	Distant Traffic ~ 46-48, Local Traffic ~ 63-66, Dog Bark ~ <51, Crickets/insects (dominant)~ 50-55, Bloomfields: train ~ <51 engine noise ~ <51. Donaldson mine inaudible Abel mine inaudible

Table 6 Location K Catholic Diocese of Maitland (formerly Bartter Enterprises)

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
23/12/2008 09:00 W = <0.5m/s NE Temp = 24°C	Daytime Ambient	70	55	52	47	50	Traffic (John Renshaw Dr) ~ 48-58, Birds/insects ~ 50-53, Lawnmower ~ 48-53, Donaldson mine; dozer ~ 47-55. Donaldson L_{A10} Contribution ~ 45-46. Abel mine inaudible
22/12/2008 19:42 W = 1-2m/s NE Temp = 25°C	Evening Ambient	91	84	75	48	72	Traffic (John Renshaw Dr) ~ 78-91, Birds/insects ~ 48-58, Wind in trees ~ 48-55, Donaldson Mine; dozer ~ 48-53. Donaldson L_{A10} Contribution ~ 47-48. Abel mine inaudible
17/12/2008 22:58 W = 1-3m/s NW Temp = 21°C	Night-time Ambient	90	82	73	49	70	Traffic (John Renshaw Dr) ~ 79-89, Insects ~ 40-44, Donaldson Mine; truck engines ~ <50. Donaldson L_{A10} Contribution ~ 47-48. Abel mine inaudible

4.2 Operator Attended Monitoring Summary

4.2.1 Donaldson Mine

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were only observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time.

Condition 23 of schedule 2 of the Donaldson Mine consent is currently operable at the Catholic Diocese site with an agreement in place for the receiver to accept higher noise levels. However, Heggies understand the dwellings on the Catholic Diocese site are currently unoccupied and therefore determining whether consent is achieved at this location is unnecessary. Attended noise surveys conducted with relevance to Location K have therefore been used to assess noise levels at nearest occupied residential receivers to the Catholic Diocese site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 30 dBA during the evening and night-time and 33 dBA during the daytime which is in compliance with Donaldson Mine consent.

Based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine did not exceed noise emission goals for any period.

4.2.2 Abel Project

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements.

Abel Project operations were inaudible at all residential locations during all periods and as such contributed noise levels from Abel Project did not exceed noise emission goals (including night-time sleep arousal criteria) and were in compliance with the Abel Project *Project Approval*.

5 UNATTENDED CONTINUOUS NOISE MONITORING

5.1 Results of Unattended Continuous Monitoring

The unattended ambient noise logger data from each monitoring location are presented graphically on a daily basis and are attached as **Appendices C1** to **C5**. A summary of the results of the unattended continuous noise monitoring is given in **Table 7**. The ambient noise level data quantifies the overall noise level at a given location independent of its source or character.

Noise data from Catholic Diocese was limited due to a noise logger fault, causing logging to cease on the first day of monitoring (i.e. Tuesday 16 December 2008).

The measured ambient noise levels were divided into three periods representing day, evening and night as designated in the NSW Industrial Noise Policy. The day, evening and night periods replace the day and night periods defined under the Environmental Noise Control Manual (ENCM). However, as the Donaldson conditions of consent are under the ENCM, these periods have also been reported.

Precautions can be taken to minimise influences from extraneous noise sources (eg optimum placement of the loggers away from creeks, trees, houses, etc), however not all these sources or their effects can be eliminated. This is particularly the case during the warmer times of year when noise from insects, frogs, birds and other animals can become quite prevalent.

Noise data during periods of any rainfall and/or wind speeds in excess of 5 m/s (approximately 9 knots) were discarded in accordance with INP weather affected data exclusion methodology.

Table 7 Unattended Continuous Monitoring Ambient Noise Levels (dBa Re 20 µPa)

Location	Period	LA1	LA10	LA90	LAeq
A Weakleys Drive Beresfield	Daytime	58	54	48	54
	Evening	59	56	46	55
	ENCM Daytime	59	55	47	55
	Night	58	54	41	52
F Lot 684 Black Hill Road, Black Hill	Daytime	64	55	45	55
	Evening	63	54	43	57
	ENCM Daytime	64	55	44	55
	Night	56	52	41	52
G 156 Buchannan Road, Buchannan	Daytime	74	67	41	62
	Evening	72	63	40	61
	ENCM Daytime	73	67	40	62
	Night	65	47	35	56
I Lord Howe Drive, Ashtonfield	Daytime	51	44	35	57
	Evening	49	45	36	44
	ENCM Daytime	51	45	35	57
	Night	46	41	32	48
K Catholic Diocese of Maitland	Daytime	No Data	No Data	No Data	No Data
	Evening	56	50	41	49
	ENCM Daytime	No Data	No Data	No Data	No Data
	Night	No Data	No Data	No Data	No Data

Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm 10.00 pm; Night - 10.00 pm to 7.00 am pm Monday to Saturday, 10.00 pm to 8.00 am Sunday.
EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.

5.2 Unattended Continuous Monitoring Summary for Donaldson Mine and Abel Project

Sections 5.2.1 and 5.2.2 make minor reference to unattended noise logging data for Location K given the insufficient data set due to a noise logger fault as mentioned in **Section 5.1.** Based on observations made during operator attended noise surveys and previous monitoring periods, it is not likely that Donaldson Mine and Abel Project noise contributions exceeded the relevant criteria.

5.2.1 Ambient L_{A90} Noise Level Comparison

Baseline

The summary of results in **Table 7** show that ambient day, evening and night time L_{A90} noise levels recorded for the quarter ending December 2008 were within 3 dBA of levels recorded during the baseline monitoring process at Locations A and K. Significant increases of 6 dBA, 8 dBA and 10 dBA were recorded respectively in the daytime, evening and night-time periods at Location F. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by increase in traffic volumes, road-works and insect/cricket/frog activity and not from Donaldson Mine or Abel Project activity.

Previous Quarter (September 2008)

A comparison of the current monitoring period with the previous monitoring period shows that with the exception of a 3 dBA increase during the daytime at location F, L_{A90} noise levels have remained generally similar at Locations F and K. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by local traffic and road-works and not from Donaldson Mine or Abel Project activity.

Given that no data was available at Location A during September 2008 no comparison can be made to noise levels.

Coinciding Period Last Year (December 2007)

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that L_{A90} noise levels recorded during the evening at location K and during all periods at locations A were significantly lower than those recorded in December 2007. Increases were recorded during the daytime (2 dBA), evening (2 dBA) and night-time (1 dBA) at location F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Project activity.

5.2.2 Ambient L_{A10} Noise Level Comparison

Baseline

The summary of results in **Table 7** show that ambient day, evening and night-time L_{A10} noise levels recorded for the quarter ending December 2008 were less than or equal to levels recorded during the baseline monitoring process at Locations A and K. A significant increase was recorded during the daytime (4 dBA), evening (5 dBA) and night-time (5 dBA) at location F. Operator attended noise surveys at this location (Location F) noted that the L_{A10} noise levels were dominated by local traffic and not from Donaldson Mine or Abel Project activity.

Previous Quarter (September 2008)

A comparison of the current monitoring period with the previous monitoring period shows that recorded L_{A10} noise levels were generally equal to or less than levels at Locations F and K. A slight increase (2 dBA) in noise level was recorded at Location F during the evening and night-time.

Given that no data was available at Location A during September 2008 no comparison can be made to noise levels.

Coinciding Period Last Year (December 2007)

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that L_{A10} noise levels during all periods were generally equal to or less than those recorded at Locations A, F and K.

6 SUMMARY OF RESULTS AND FINDINGS

Heggies were engaged by Donaldson Coal Pty Ltd to conduct quarterly noise monitoring surveys for Donaldson Coal Mine and Abel Coal Project in accordance with the Abel Mine Project Noise Monitoring Program, dated 27 May 2008.

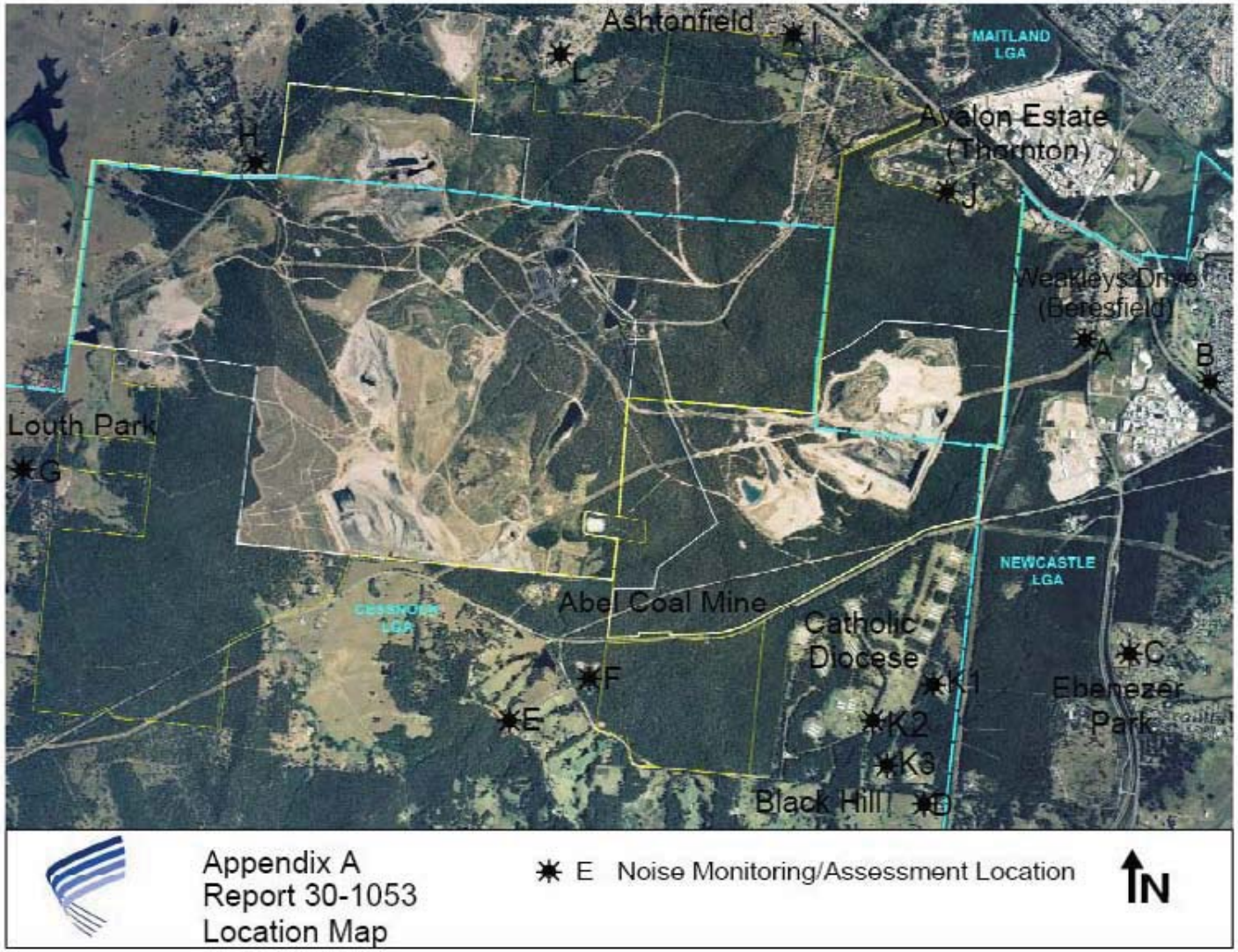
The results of the operator-attended noise measurements conducted at five (5) focus locations surrounding the mine site are included in **Table 2** to **Table 6**.

Donaldson Mine operations were observed to be inaudible during all survey periods at all locations except at Location K (Catholic Diocese) during the daytime, evening and night-time. However, Donaldson Mine contributions were found to be within the relevant consent conditions at all assessed locations.

Abel Project operations were inaudible at all residential locations during all periods and as such contributed noise levels from Abel Project did not exceed noise emission goals (including the sleep arousal criteria) and were in compliance with the Abel Project *Project Approval*.

A comparison of ambient L_{A10} and L_{A90} noise levels recorded during the current monitoring period (December 2008), the baseline monitoring period, the last monitoring period (September 2008), and the coinciding monitoring period from last year (December 2008) has been conducted.

In summary, where noise levels have risen, the ambient noise environment has been identified to generally contain traffic and natural noise sources and not noise from Donaldson Mine or Abel Project activity. This is most applicable to Locations F and K. Generally noise levels at other monitoring locations (where valid data was obtained) were similar to or less than noise levels recorded during the baseline monitoring process and previous compliance monitoring periods.


Ashtonfield
I
L
MAITLAND LGA
Ayalon Estate (Thornton)
H
J
Weakleys Drive (Beresfield)
A
B
Louth Park
G
NEWCASTLE LGA
Abel Coal Mine
Catholic Diocese
C
F
K1
Ebenezer Park
E
K2
K3
Black Hill
D
Appendix A
Report 30-1053
Location Map
E Noise Monitoring/Assessment Location
N

Appendix B

Report Q32 30-1053-R1
Equipment Register Page 1 of 1

APPENDIX B - EQUIPMENT REGISTER

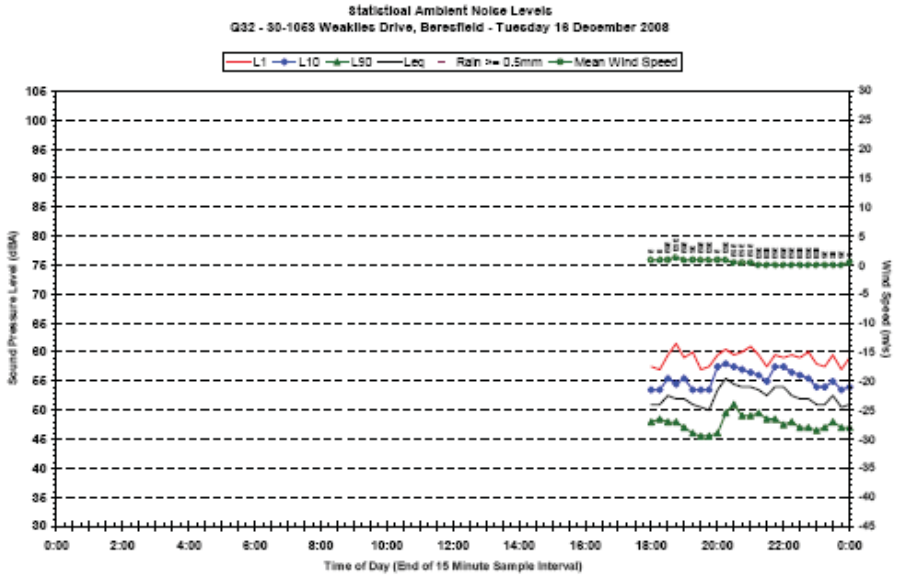
JOB NUMBER: 30-1053

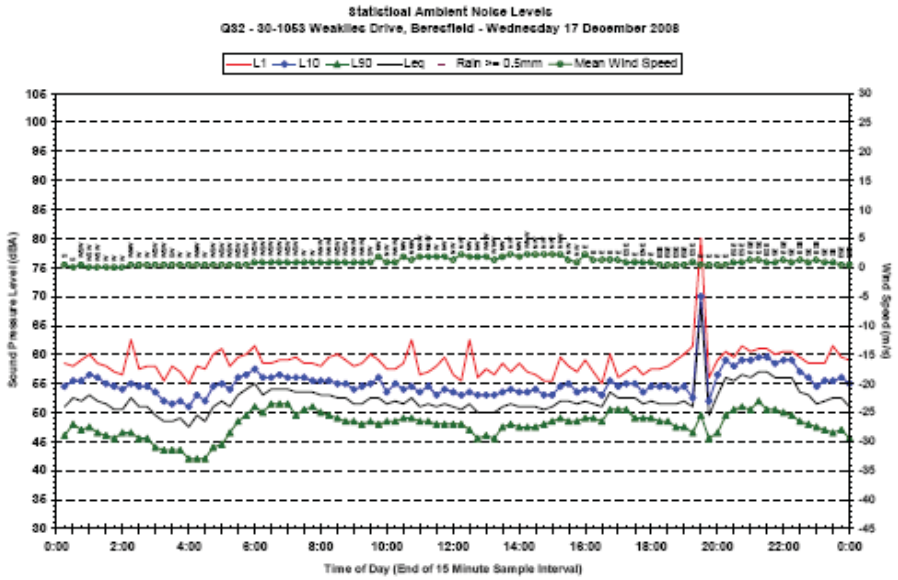
JOB DESCRIPTION: Donaldson Mine Quarterly Monitoring – December 2008

Unit ID	Serial No.	Type	Comments	Date on Site	Start Hrs
DOZ065	85X875	CAT 824C		14-Jan-02	22007
DOZ074	1JD01953	CAT D9N		15-May-02	26482
DOZ079	2YD1571	CAT D10N		22-May-03	16584
DOZ089	07TL001127	CAT D9R		10-Feb-03	13465
DOZ091	74Z00585	CAT D11N		4-Nov-04	38292
DOZ092	07TL00685	CATD9R		7-Jun-04	15284
DRI010	5163-0119	Schramm SC45M		21-Jun-04	8429
EXC034	10128	Komatsu PC1000/1		11-Oct-02	27718
EXC046	22724	Komatsu PC300/5		30-Aug-04	15211
EXC047	10127	Komatsu PC1000/1		14-May-02	28250
EXC072	184-00108	Hitachi EX2500		9-Jul-04	25211
EXC073	8TR272	CAT 330BL		18-Mar-02	7734
EXC082	7LL00032	CAT 5230		12-Oct-05	25317
EXC085	10025	Komatsu PC1600		30-Jul-01	20652
GRD036	93U3039	CAT 16G Grader		10-Feb-05	23204
GRD039	93U	CAT 16G Grader		11-Jan-06	7589
LOD005	10714	Komatsu WA600		10-Mar-03	23653
LOD019	10530	Komatsu WA800		3-Nov-01	29070
LOD042	5SD01059	CAT IT28B		14-Jun-01	247
LOD044	10106	WA700		2-Nov-04	17301
RDT014	2278	Komatsu HD465/3		14-May-01	11908
RDT026	84A01034	Caterpillar 777A		19-Apr-04	44008
RDT029	2124	Komatsu HD465-3		31-May-05	30580
RDT072	2022	Komatsu HD785/3 (on site 17/11/02)		4-Feb-03	16129
RDT073	2023	Komatsu HD785/3		17-Nov-02	41844
RDT100	8GB00596	CAT 785		21-May-05	43764
RDT107	8GB00320	CAT 785		25-Jul-01	32791
RDT140	8GB00333	CAT 785		30-Jul-01	44444
RDT143	8GB00374	CAT 785		30-Jul-01	42142
RDT155	8GB00152	CAT 785		17-Aug-01	37395
RDT162	8GB00258	CAT 785		14-Mar-02	1745
RDT174	84A00306	CAT 777A		5-May-04	7909
RDT175	84A00942	CAT 777A		10-May-04	5906
RDT182	8GB00494	CAT 785		1-Mar-04	45557
STR034		Volvo Service Truck		19-Apr-04	7000

Appendix C1

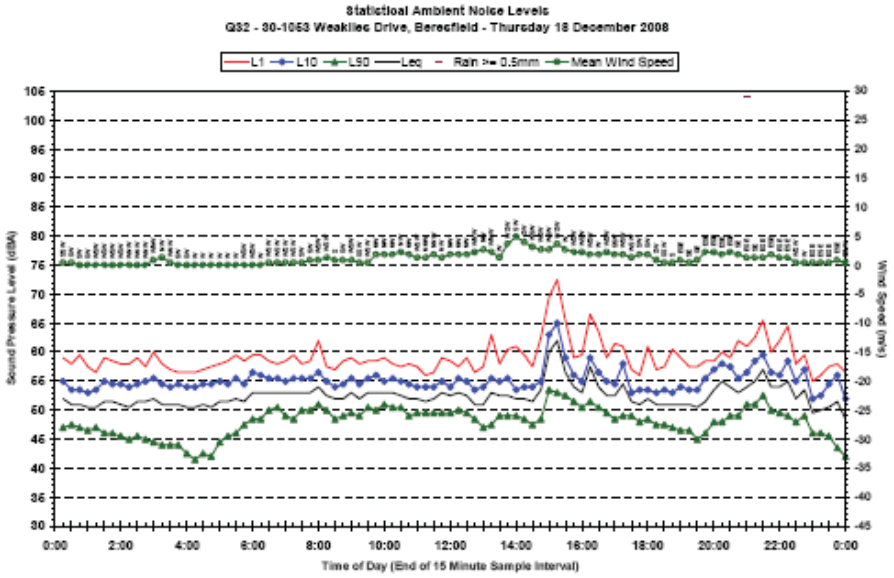
Report Q32 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 1 of 1

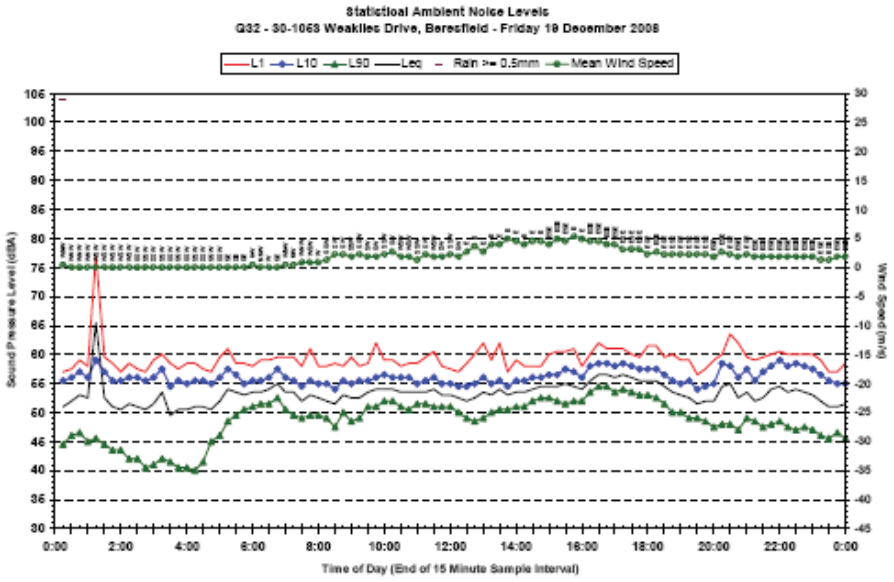




Appendix C1

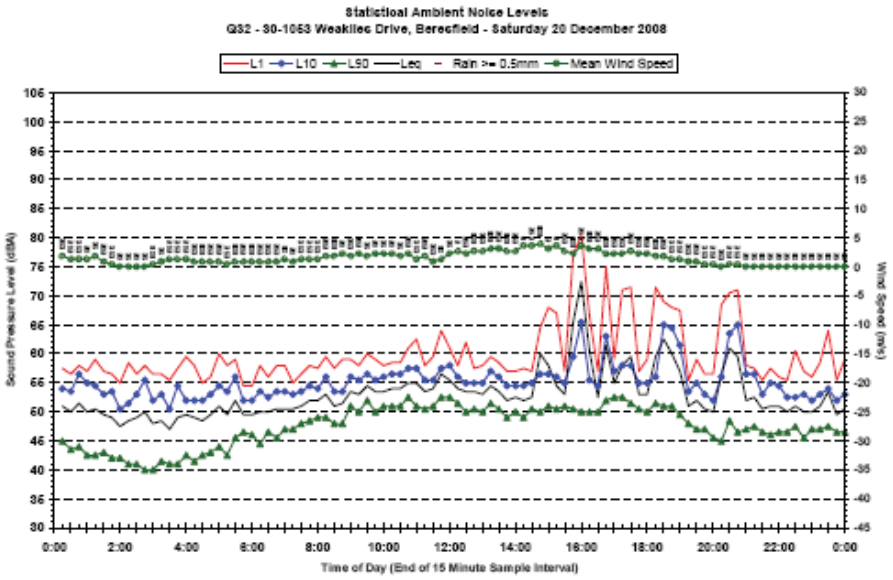
Report Q32 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 2 of 2

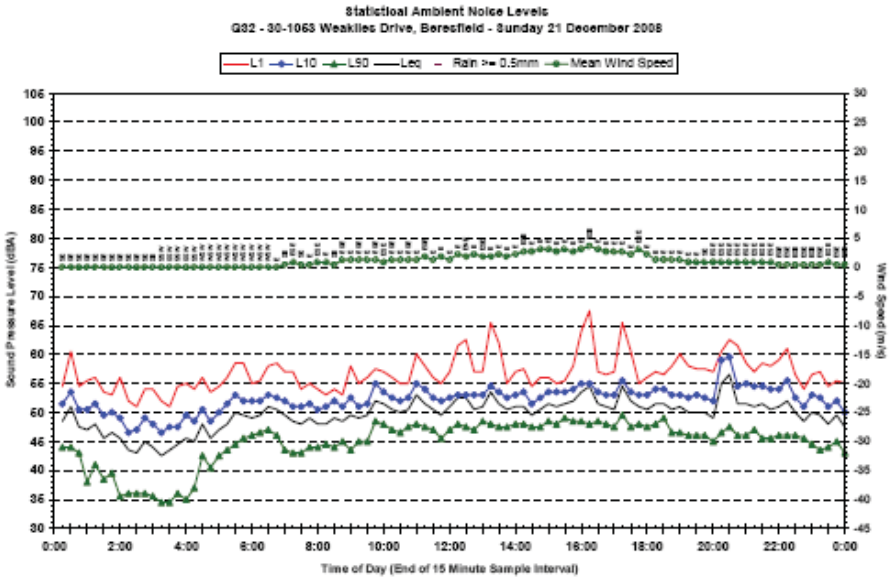




Appendix C1

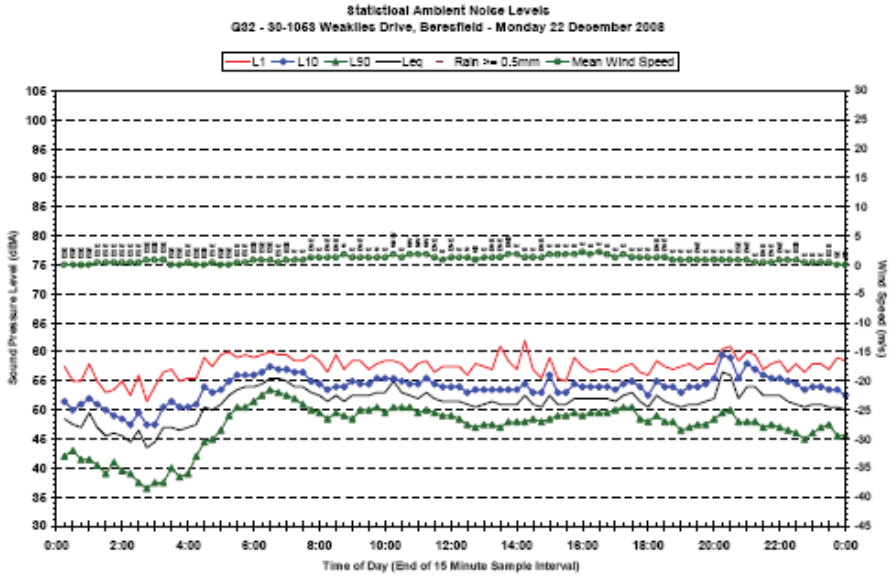
Report Q32 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 3 of 3

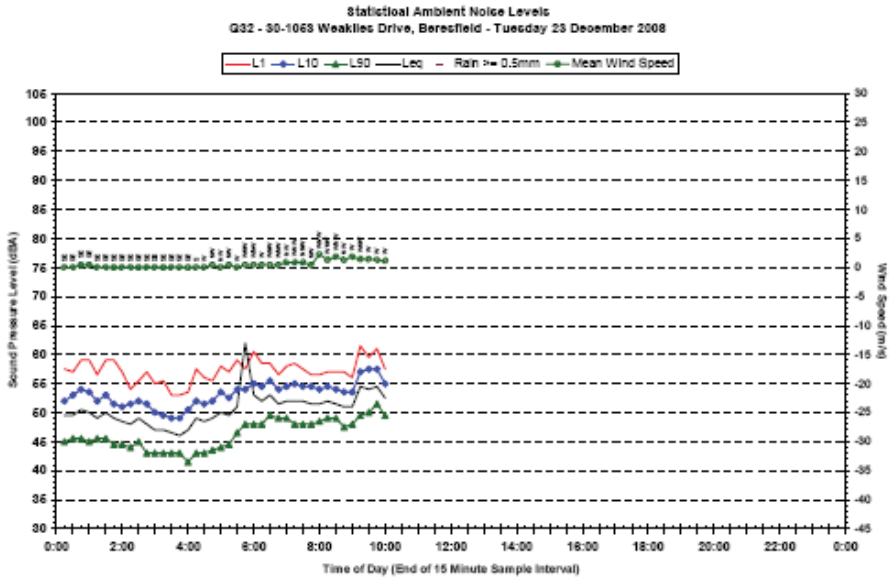




Appendix C1

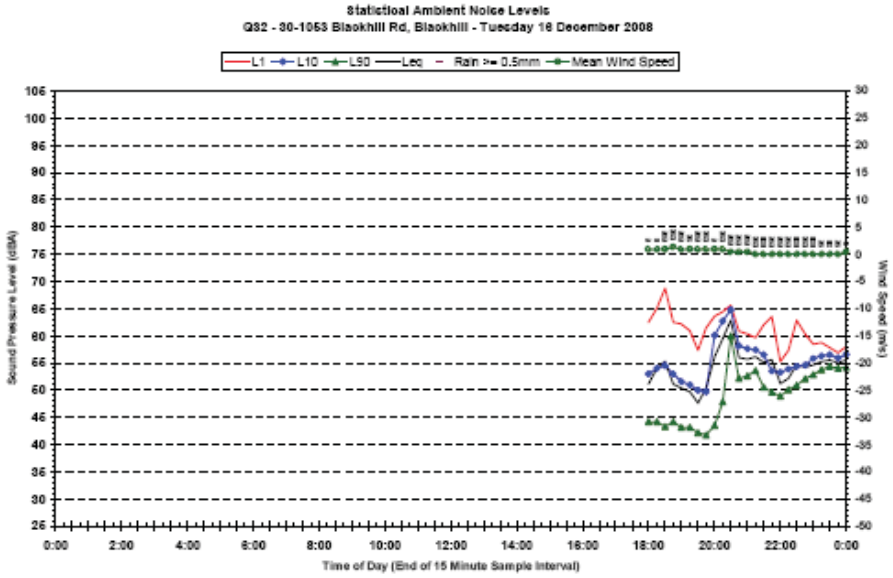
Report Q32 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 4 of 4

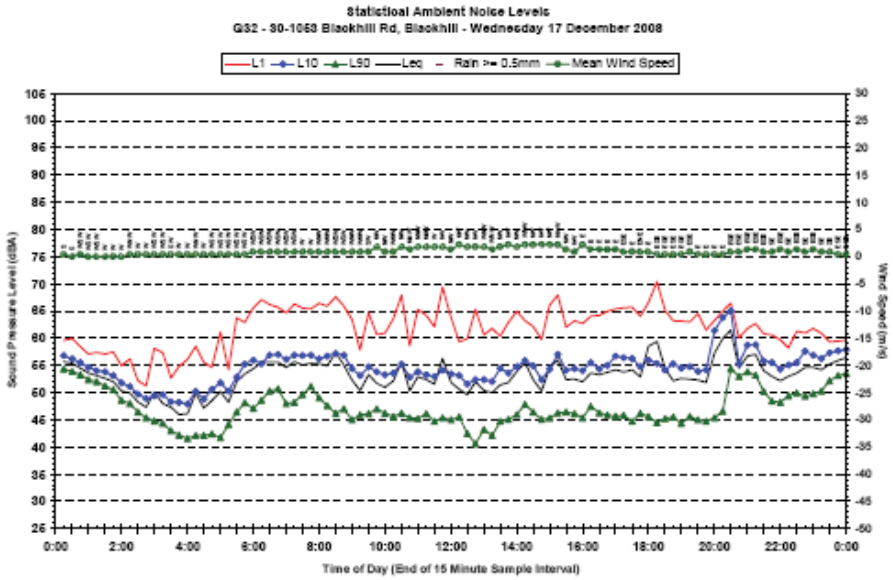




Appendix C2

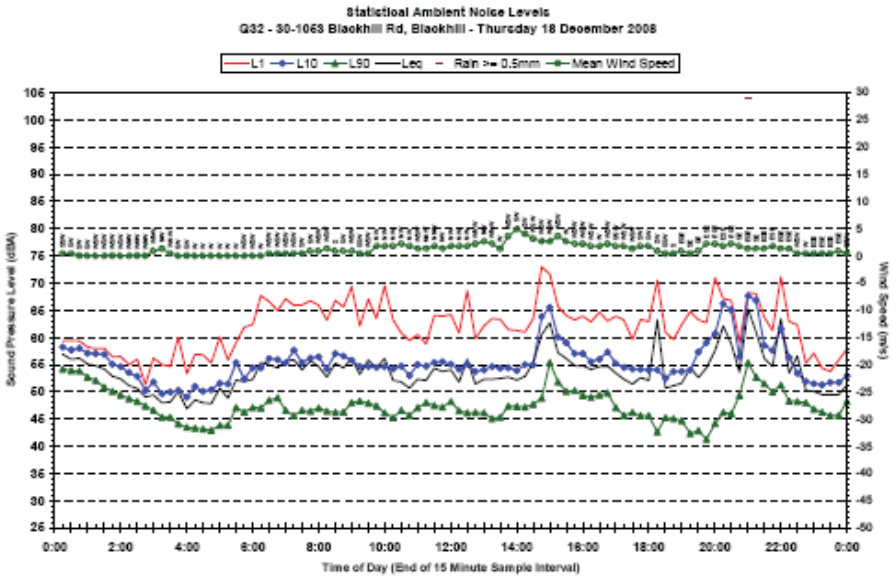
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 1 of 1

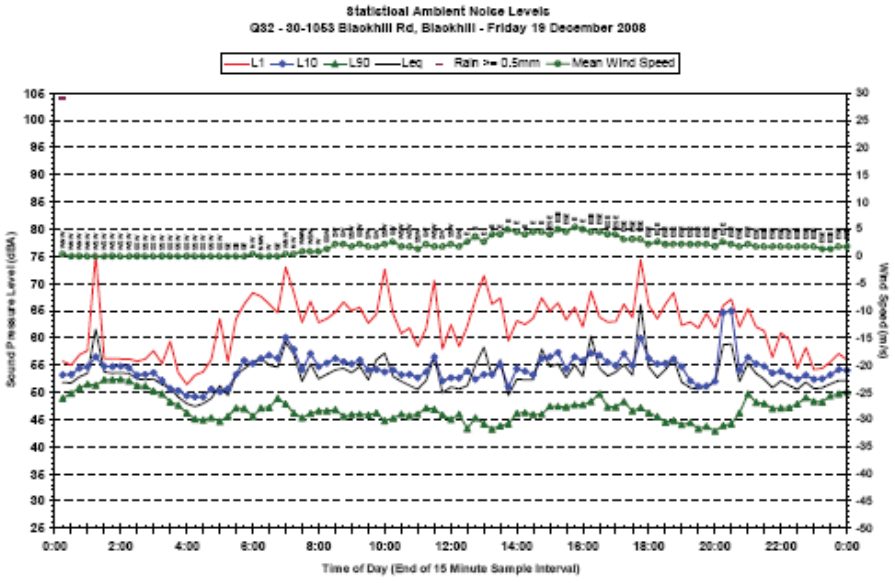




Appendix C2

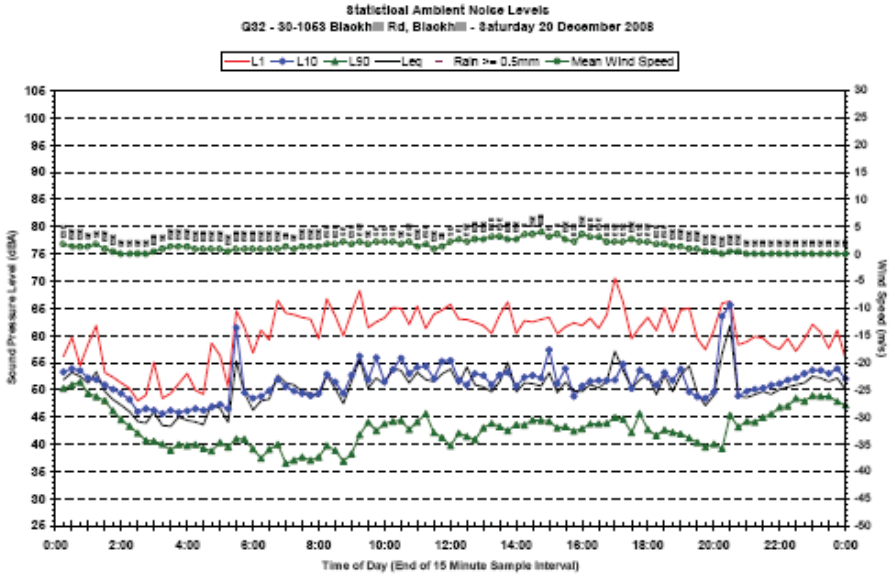
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 2 of 2

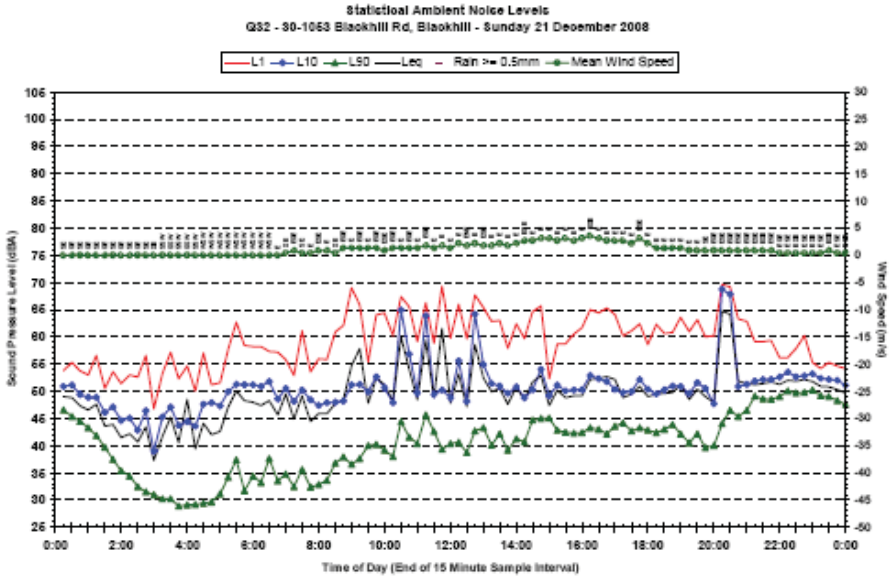




Appendix C2

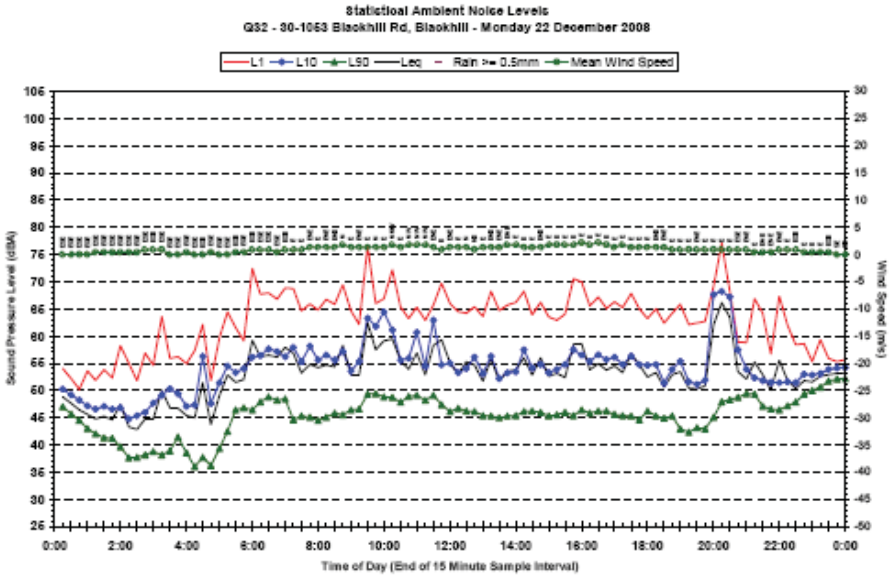
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 3 of 3

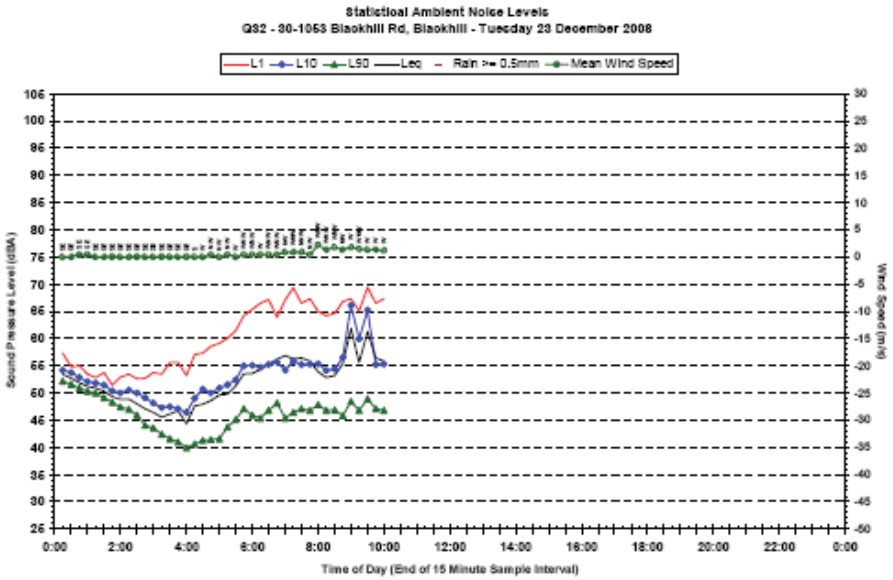




Appendix C2

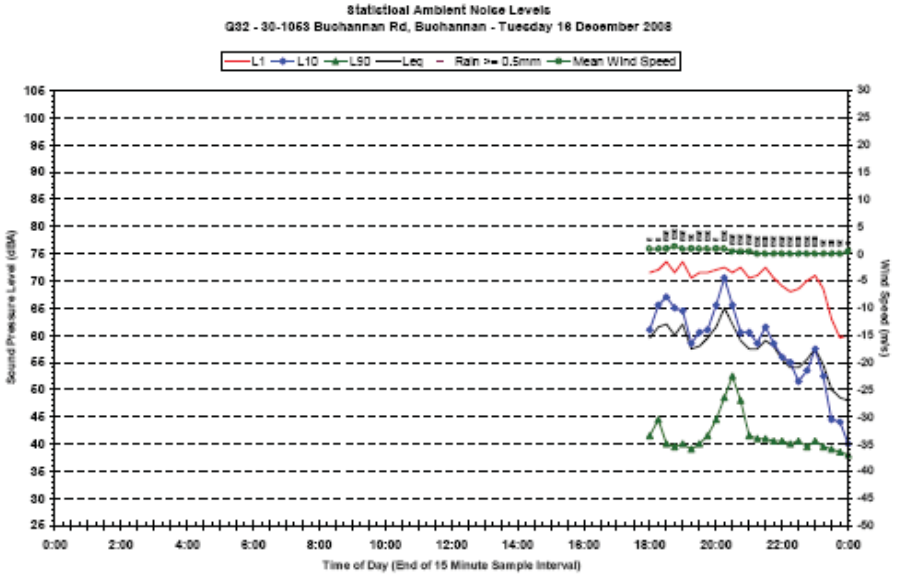
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 4 of 4

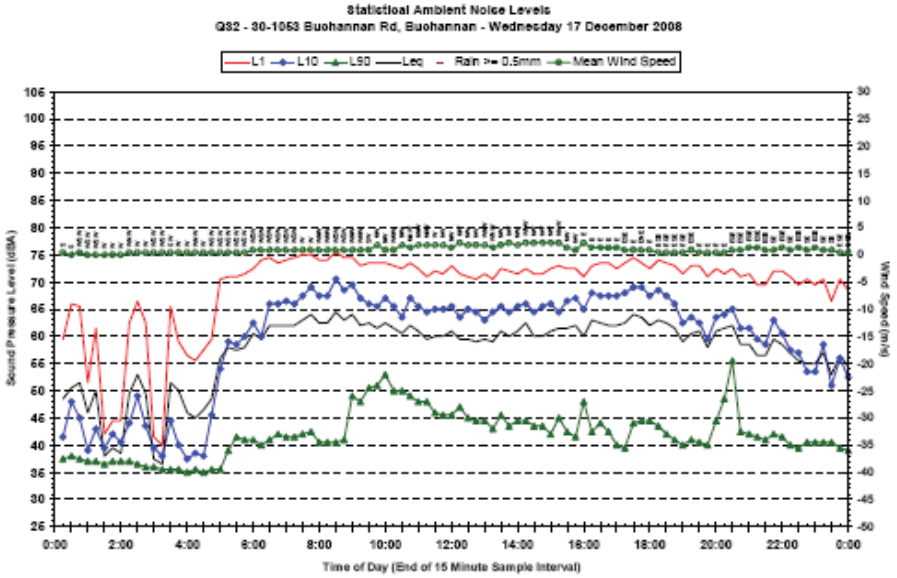




Appendix C3

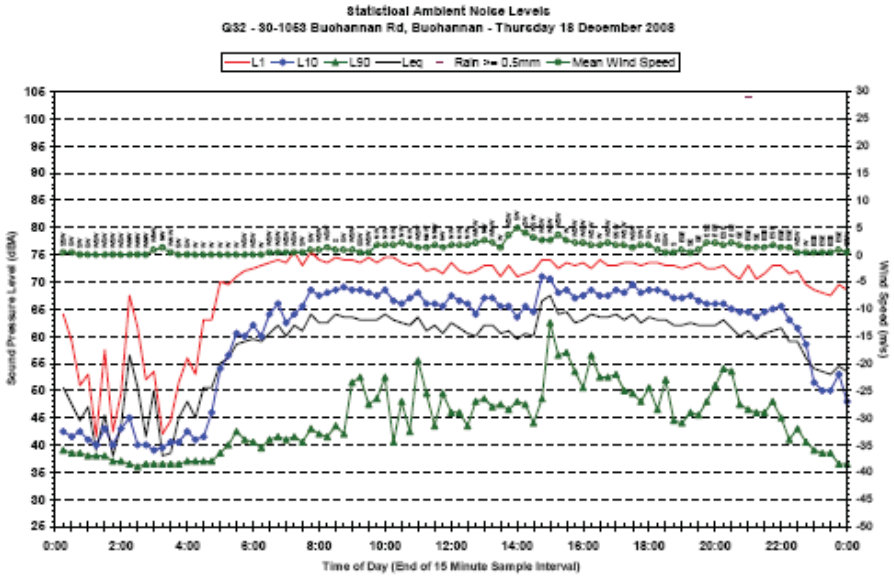
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 1 of 1

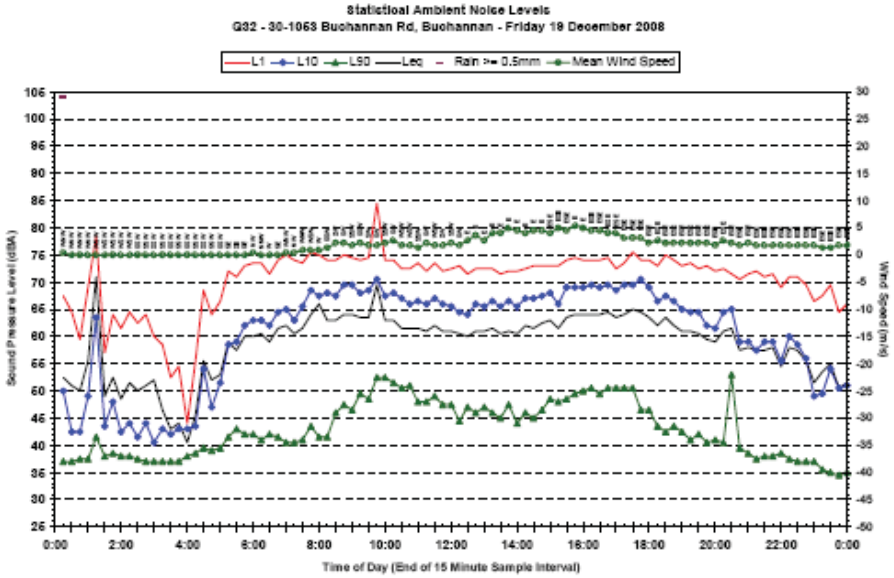




Appendix C3

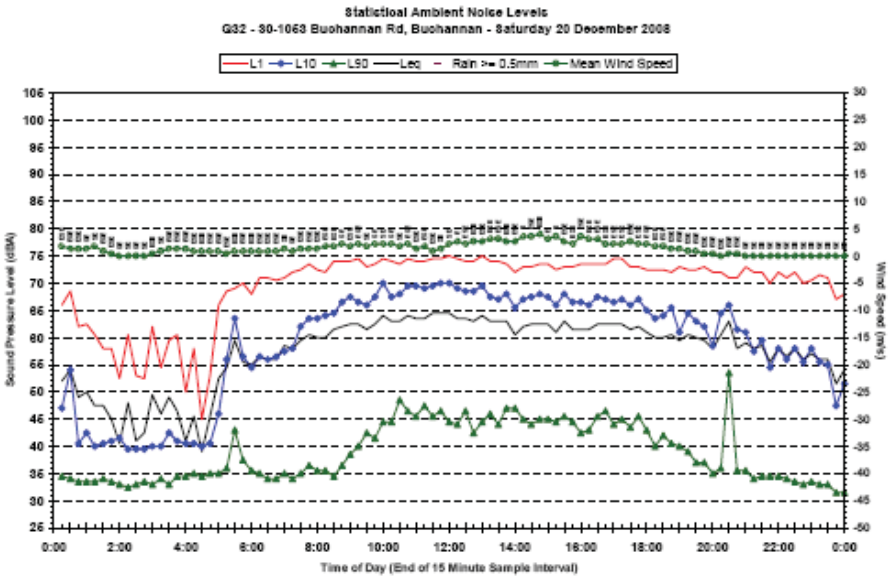
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 2 of 2

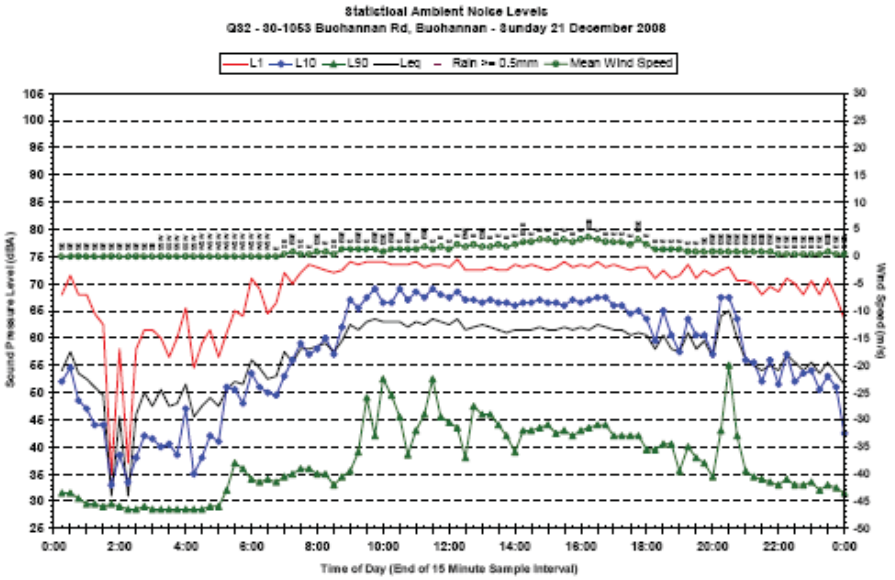




Appendix C3

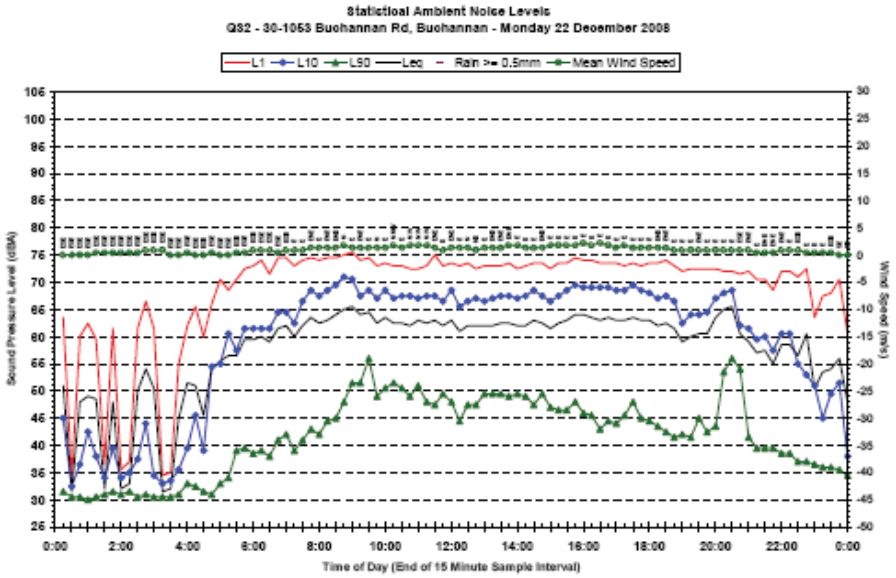
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 3 of 3

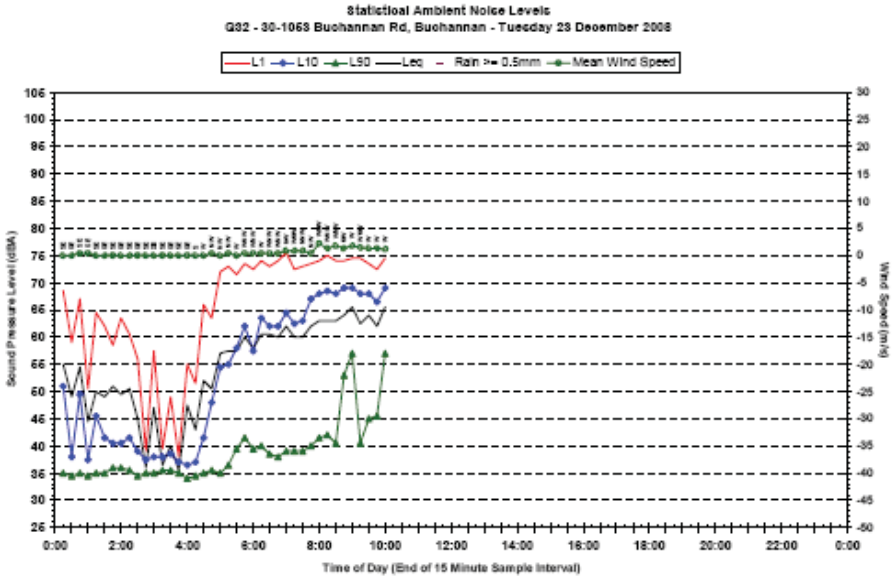




Appendix C3

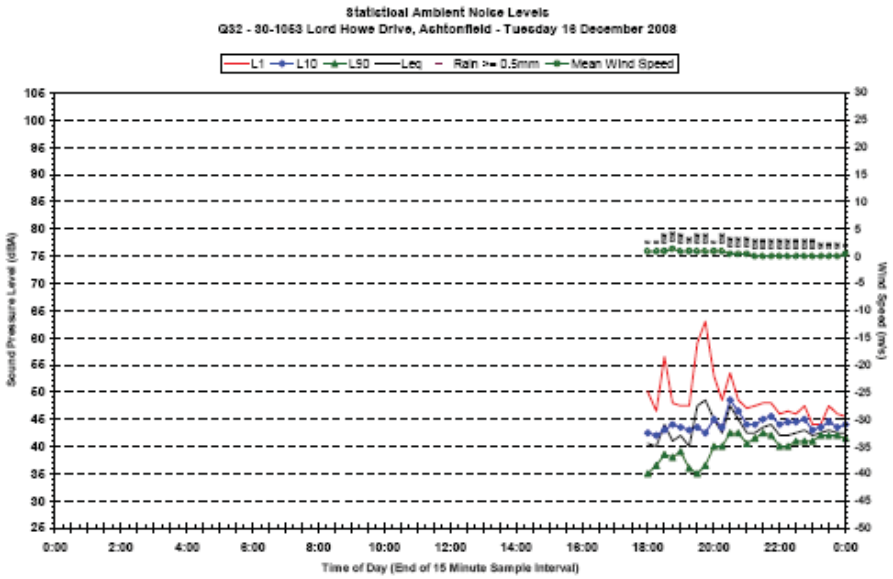
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 4 of 4

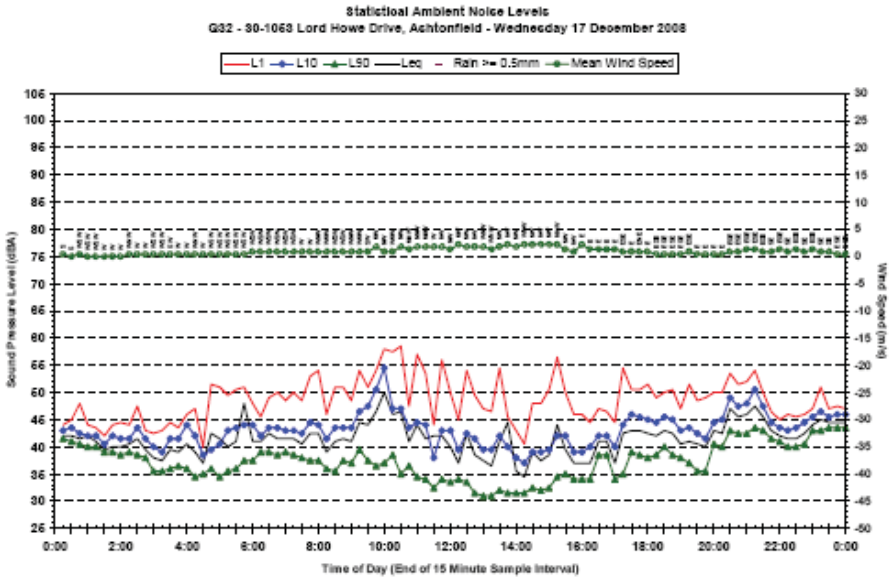




Appendix C4

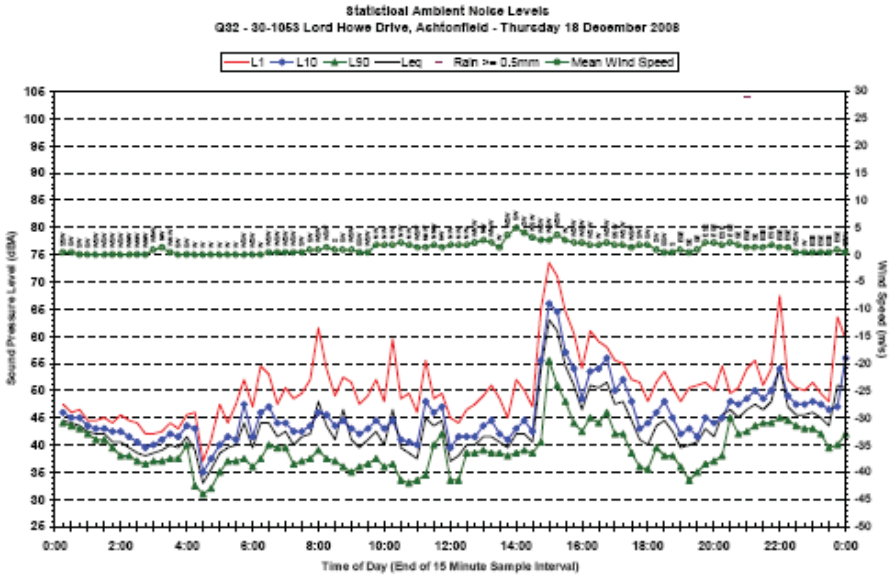
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location I Page 1 of 1

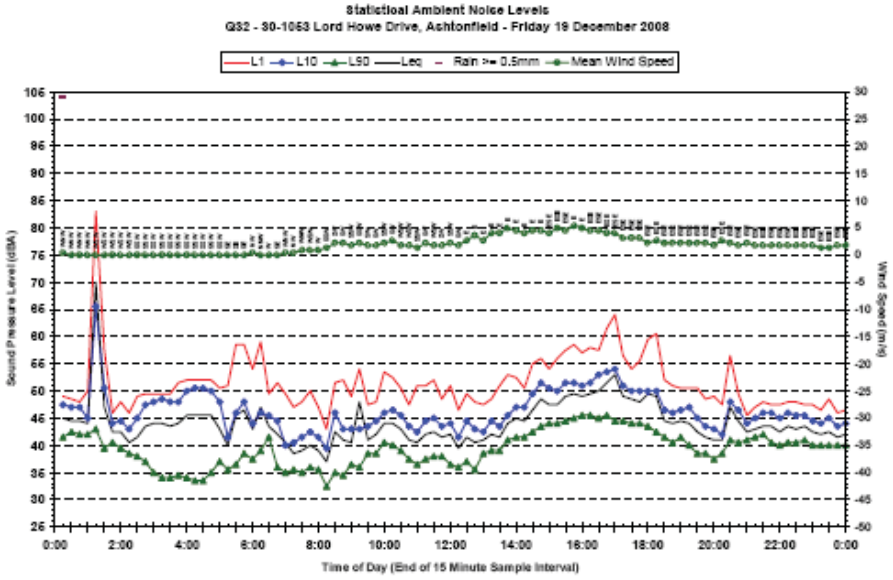




Appendix C4

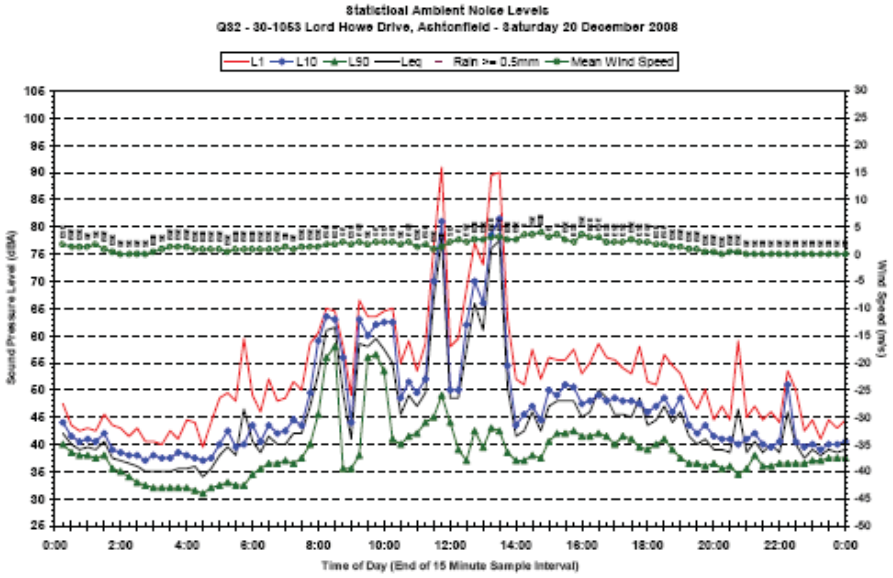
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location I Page 2 of 2

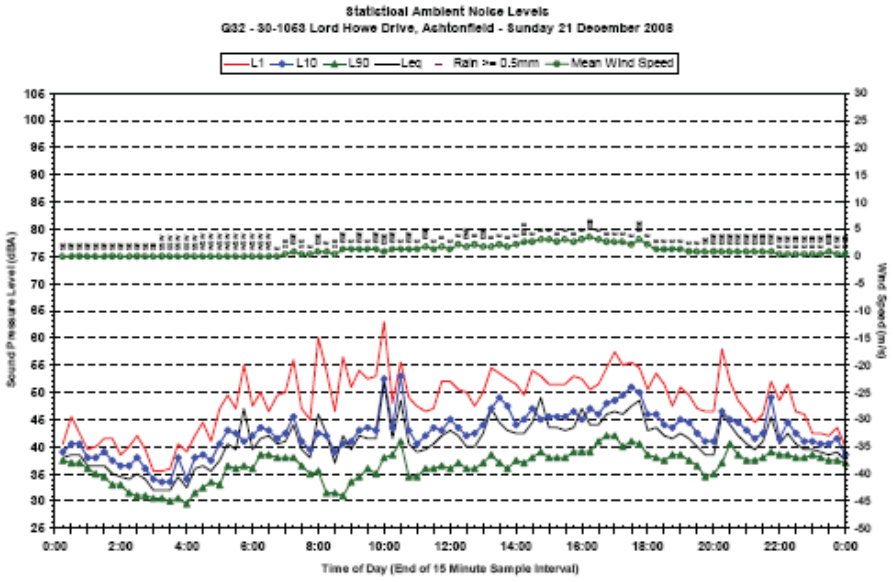




Appendix C4

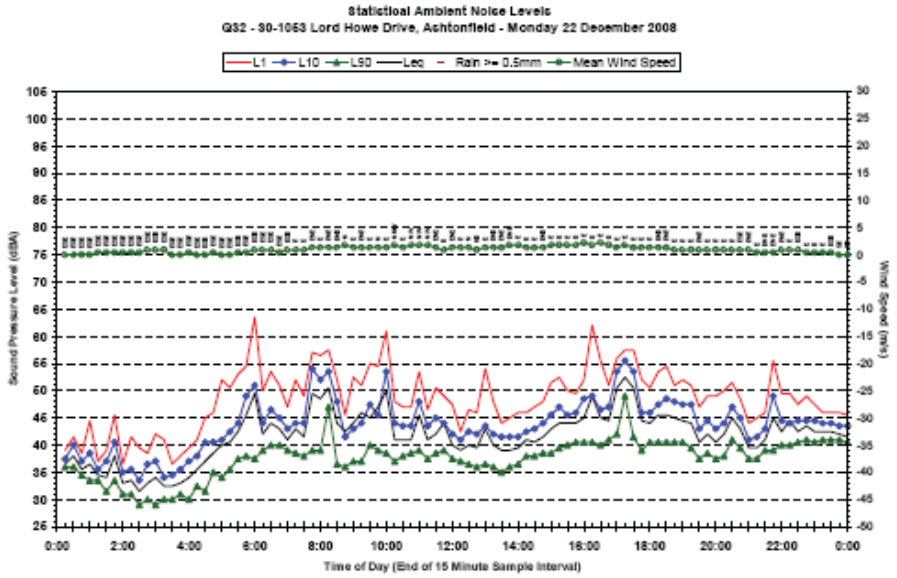
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location I Page 3 of 3

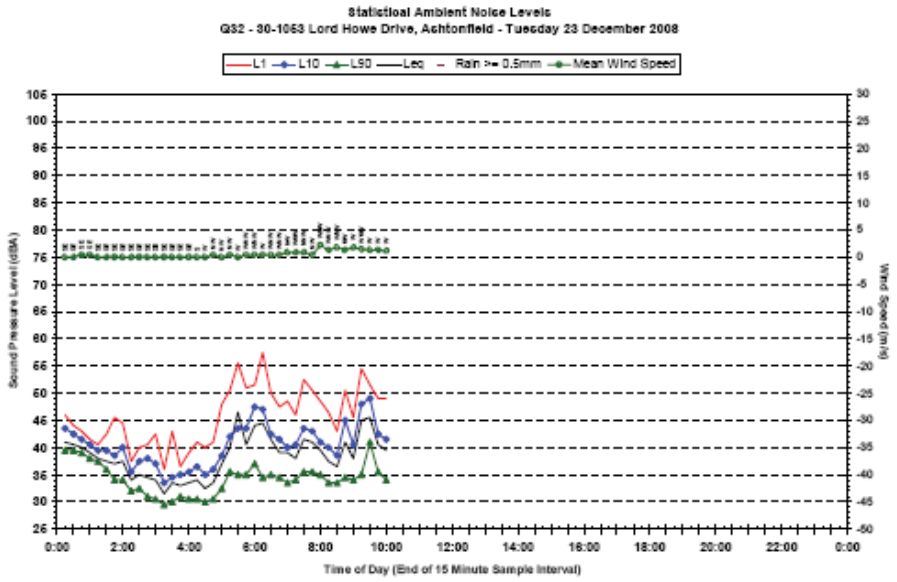




Appendix C4

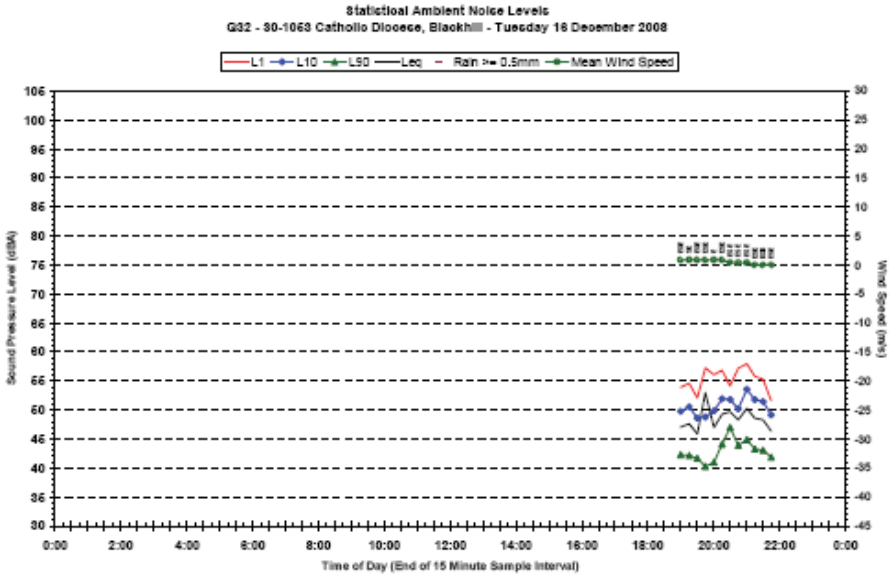
Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location I Page 4 of 4





Appendix C5

Report Q32 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 1 of 1



HEGGIES

REPORT Q33 30-1053-R1
Revision 0

Abel Coal Mine
Quarterly Noise Monitoring
Quarter Ending March 2009

PREPARED FOR
Donaldson Coal Pty Ltd
PO Box 675
Green Hills NSW 2320

30 APRIL 2009

HEGGIES PTY LTD
ABN 29 001 584 612
Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

Abel Coal Mine
Quarterly Noise Monitoring
Quarter Ending March 2009

PREPARED BY:

Heggies Pty Ltd
Level 1, 14 Watt Street Newcastle NSW 2300 Australia
(PO Box 1768 Newcastle NSW 2300 Australia)
Telephone 61 2 4908 4500 Facsimile 61 2 4908 4501
Email newcastle@heggies.com Web www.heggies.com

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
Q33 30-1053-R1	Revision 0	30 April 2009	Ben Carlyle	John Cotterill	John Cotterill

TABLE OF CONTENTS

1 INTRODUCTION

Development consent was obtained by Donaldson Coal Pty Ltd for the Donaldson Mine in October 1999 following a Commission of Inquiry. Development Consent number N97/00147 was issued by the Minister for Urban Affairs pursuant to Section 101 of the Environmental Planning and Assessment Act 1979.

Project Approval (Application No. 05_0136) granted by the Minister of Planning was obtained by Donaldson Coal Pty Ltd for Abel Coal Mine in 2008.

Donaldson Coal Pty Ltd has commissioned Heggies Pty Ltd (Heggies) to conduct quarterly noise monitoring surveys for the Donaldson Coal Mine and Abel Coal Mine in accordance with the Abel Mine Project Noise Monitoring Program, dated 27 May 2008.

The objectives of the noise monitoring survey for this operating quarter were as follows:

- Measure the ambient noise levels at five (5) focus receptor locations (potentially worst affected) surrounding Donaldson Coal Mine and Abel Coal Mine. Noise surveys comprise both continuous unattended monitoring and operator attended monitoring, in 15 minute intervals, coinciding with day, evening and night-time periods. Statistical indices recorded include L_{Amax}, L_{A1}, L_{A10}, L_{A90} and L_{Aeq}.
- Qualify all sources of noise within each of the attended surveys, including estimated contribution or maximum level of individual noise sources.
- Assess the noise emissions of Donaldson Coal Mine and Abel Coal Mine with respect to the limits contained in the Development Consent.

2 DEVELOPMENT CONSENT AND PROJECT APPROVAL

2.1 Donaldson Coal Mine Development Consent Conditions

The Development Consent nominates hours of operation and mine noise emission goals in the Sections entitled "*Operation of Development, Condition No. 3(1) and 3(2)*", and *"Noise and Vibrational Noise Limits: Condition No. 15*" as follows:

"3.(1) Subject to (2) the approved hours of operation are as follows:

Works	*Period*	*Hours*
Construction, including construction of any bunds	*Monday to Friday* *Saturday*	*7 am to 6 pm* *8 am to 1 pm*
Mining operations, including mining, haulage of waste to dumps and coal processing	*Monday to Friday* *Saturday, Sunday*	*24 hours per day* *7 am to 6 pm*
Road Transportation and stockpiling of coal	*7 days per week*	*24 hours per day*
Rail loading of coal	*7 days per week*	*7 am to 10 pm*
Maintenance of mobile and fixed plant	*7 days per week*	*24 hours per day*
Blasting, not involving closure of John Renshaw Drive	*Monday to Saturday*	*7 am to 5 pm*
Blasting, involving closure of John Renshaw Drive	*Monday to Saturday*	*10 am to 2 pm*

Notes: Restrictions on Public Holidays are the same as Sundays

(2) The Applicant shall submit a report to the Director-General's satisfaction demonstrating the noise limits in Condition 15 can be met while rail loading of coal is occurring during the period from 6 pm to 10 pm. If that report does not demonstrate that the noise limits can be met to the Director-General's satisfaction, then the hours of operation for rail loading of coal shall be restricted to 7 am to 6 pm."

15. Unless subject to a negotiated agreement in accordance with Condition 23, the Applicant shall ensure that the noise emission from construction or mining operations, when measured or computed at the boundary of any dwelling not owned by the applicant (or within 30 metres of the dwelling, if the boundary is more that 30 metres from the dwelling), shall not exceed the following noise limits:

Location	***LA10(15minute) Noise Limits (dBA)***	
	Daytime	***Night-time***
Beresfield area (residential)	*45*	*35*
Steggles Poultry Farm	*50*	*40*
Ebenezer Park Area	*46*	*41*
Black Hill Area	*40*	*38*
Buchanan and Louth Park Area	*38*	*36*
Ashtonfield Area	*41*	*35*
Thornton Area	*48*	*40*

Note: Daytime is 7 am to 10 pm Monday-Saturday, and 8 am to 10 pm Sundays and Public Holidays. Night-time is 10 pm to 7 am Monday-Saturday, and 10 pm to 8 am Sundays and Public Holidays.

The noise limits apply for prevailing meteorological conditions (winds up to 3 m/s), except under conditions of temperature inversions."

Other Conditions of Consent relevant to noise are as follows:

"18. The applicant shall survey and investigate noise reduction measures from plant and equipment and set targets for noise reduction in each Annual Environmental Management Report (AEMR), taking into consideration valid noise complaints received in the previous year. The Report shall also include remedial measures.

19. The Applicant shall revise the Noise Management Plan as necessary and provide an updated Plan five years after commencement of mining to the Director-General, the independent noise expert (Condition 48), EPA, Councils and the Community Consultative Committee."

2.2 Abel Coal Mine – Project Approval

The relevant conditions relating to noise from the Abel Coal Mine approval are reproduced below.

Schedule 4

NOISE

Note: These conditions should be read in conjunction with section 3 of the Statement of Commitments.

Noise Limits

23 The Proponent shall ensure that the noise generated by the Project does not exceed at any privately-owned residence the levels set out in the following table for the monitoring location nearest that residence.

Table 1: Noise limits dB(A)

Day	Evening	Night		Location and Locality
LAeq(15 minutes)	LAeq(15 minutes)	LAeq(15 minutes)	LA1(1 minute)	
50	48	41	51	**A** Weakleys Dr, Beresfield
50	48	41	51	**B** Yarrum Rd, Beresfield
43	44	38	50	**C** Phoenix Rd, Black Hill
41	40	36	46	**D** Black Hill School
41	40	36	46	**E** Brown Rd, Black Hill
41	40	36	46	**F** Black Hill Rd, Black Hill
43	41	36	46	**G** Buchanan Rd, Buchanan
43	41	36	46	**H** Mt Vincent Rd, Louth Park
44	46	38	48	**I** Lord Howe Dr, Ashtonfield
49	47	40	50	**J** Kilarney St, Avalon Estate
41	40	37	46	**K** Catholic Diocese (Former Bartter) K1, K2, K3
46	46	40	53	**L** Kilshanny Ave, Ashtonfield

Notes:

- To determine compliance with the LAeq(15 minute) limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the L A1(1 minute) limit, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- These limits apply under the relevant meteorological conditions outlined in the assessment procedures in Chapter 5 of the NSW Industrial Noise Policy.
- These limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

* Revised to list alphabetically

Noise Monitoring

24. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:

(a) be submitted to the Director-General for approval within 6 months of this approval;

(b) be prepared in consultation with the DECC; and

(c) use a combination of attended and unattended monitoring measures to monitor the performance of the project.

2.2.1 Statement of Commitments

3.3 Monitoring

Within 6 months of this approval being granted a Noise Monitoring Program shall be prepared and implemented for the Abel Underground Mine and the Bloomfield CHPP, to the satisfaction of the Director-General. The Noise Monitoring Program shall include a combination of real-time and supplementary attended monitoring measures, and a noise monitoring protocol for evaluating compliance with the noise environmental assessment. This plan will be integrated with the monitoring plans for the Tasman, Donaldson and Bloomfield Mines to provide a single integrated Noise Monitoring Program for all 4 mines.

3 PROCEDURES AND METHODOLOGY

3.1 General Requirements

The operational noise monitoring programme was conducted with reference to Development Consent N97/00147 (Donaldson Coal Mine), Project Approval 05_0136 (Abel Coal Mine), and in accordance with Heggies Report 30-1409-R2 dated 27 May 2008 (*Abel Mine Project Noise Monitoring Program)* and AS 1055-1997 "*Acoustics -Description and Measurement of Environmental Noise*".

3.2 Monitoring Locations

Baseline and preceding operational quarterly surveys have been conducted at 11 locations surrounding the Donaldson Mine and Abel Coal Mine sites. With the experience of these previous surveys, it was decided to concentrate noise monitoring at five (5) focus locations that represent the potentially most affected areas from noise from Donaldson Mine and Abel Coal Mine. The details of the monitoring locations are contained within **Table 1**.

Table 1 Monitoring Locations

Noise Monitoring Location	Description
A	98 Weakleys Drive, Beresfield
F	Lot 684 Black Hill Road, Black Hill
G	156 Buchannan Road, Buchannan
L	17 Kilshanny Ave, Ashtonfield
K	Catholic Diocese of Maitland (formerly Bartter Enterprises)

A map giving the approximate location of the noise monitoring sites is contained within **Appendix A**.

3.3 Unattended Continuous Noise Monitoring

Environmental noise loggers were deployed on Tuesday 17 March 2009 at each of the five (5) nominated locations given in **Table 1**, and retrieved on Wednesday 25 March 2009. All unattended monitoring equipment was programmed to continuously record statistical noise level indices in 15 minute intervals including the L_{Amax}, L_{A1}, L_{A10}, L_{A90}, L_{A99}, L_{Amin} and L_{Aeq}. The statistical noise exceedance levels (L_{AN}) are the levels exceeded for N% of the 15 minute interval. The L_{A90} represents the level exceeded for 90% of the interval period and is referred to as the average minimum or background noise level. The L_{A10} is the level exceeded for 10% of the time and is usually referred to as the average maximum noise level. The L_{Aeq} is the equivalent continuous sound pressure level and represents the steady sound level which is equal in energy to the fluctuating level over the interval period. The L_{Amax} is the maximum noise level recorded over the interval. Instrument calibration was conducted before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA.

3.4 Operator Attended Monitoring

Operator attended surveys were conducted at each of the five (5) monitoring locations for daytime, evening and night-time periods, to verify the unattended logging results and to determine the character and contribution of ambient noise sources.

3.5 Equipment Operation

The mobile equipment operating on the Donaldson Mine site during the survey period are contained in **Appendix B**.

During the survey period the following operations were being undertaken:

- Coal mining operations were ongoing during the monitoring period, operating 24 hours a day.
- Overburden material and coal was being removed from strips CP 09 - 15 between 6.00 am and midnight Monday - Friday. The waste was generally being placed in strips Ex 23 and CP01 - 3. The grader and water cart were operating on both day and afternoon shift where needed.

The only surface equipment operating on the Abel Coal Mine site during the survey periods is a ventilation fan.

4 OPERATOR ATTENDED NOISE MONITORING

4.1 Results of Operator Attended Monitoring

Operator attended noise measurements were conducted during the daytime on Tuesday 17 March 2009, the evening on Monday 23 March 2009 and the night-time on Tuesday 24 March 2009. The results of the operator attended noise measurements are given in **Table 2** to **Table 6**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations.

The tables provide the following information:

- Monitoring location.
- Date & start time.
- Wind velocity (m/s) and Temperature (°C) at the measurement location.
- Typical maximum (L_{Amax}) and contributed noise levels.

Mine contributions listed in the tables are from Donaldson Mine and Abel Coal Mine and are stated only when a contribution could be quantified.

Table 2 Location A Weakleys Drive, Beresfield

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels
		LAmax	LA1	LA10	LA90	LAeq	LAmax – dBA
17/3/2009 11:55 W = 1m/s W Temp = 27°C	Daytime Ambient	72	64	59	49	56	Traffic noise dominant (Weakleys Drive) ~ 49-53, Birds/Insects ~ 39-46, Resident noise ~ 45-47. Donaldson mine inaudible Abel mine inaudible
23/3/2009 19:05 W = <1m/s NE Temp = 25°C	Evening Ambient	84	77	73	56	72	Traffic noise dominant (Weakleys Drive) ~ 60-84, Crickets/insects < 56, Other Industry ~ 57-63. Donaldson mine inaudible Abel mine inaudible
24/3/2009 23:15 W = Calm Temp = 22°C	Night-time Ambient	90	81	65	47	67	Traffic noise dominant (Weakleys Drive) ~ 50-90, Insects ~ 47-49 Other Industry 48-54. Donaldson mine inaudible Abel mine inaudible

Table 3 Location F Lot 684 Black Hill Road, Black Hill

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
17/3/2009 10:33 W = <0.5m/s W Temp = 26°C	Daytime Ambient	85	70	57	39	59	Traffic (John Renshaw Dr) ~ 41-53, Traffic (Black Hill Rd) ~ 85, Sheep ~ 38-41, Birds ~ 40-47. Donaldson mine inaudible Abel mine inaudible
23/3/2009 18:21 W = <1m/s NE Temp = 27°C	Evening Ambient	83	75	60	46	61	Traffic (John Renshaw Dr) ~ 47-64, Traffic (Black Hill Rd) ~ 83, Crickets/insects/frogs ~ 46-56, Donaldson mine Cricket Drill just audible in lulls of 44 dBA Donaldson L_{A10} Contribution <36 dBA. Abel mine inaudible
24/3/2009 22:25 W = Calm Temp = 21°C	Night-time Ambient	73	64	55	44	53	Traffic (John Renshaw Dr) ~ 49-73, Crickets/insects/frogs ~ 41-46, Abel Mine; fan noise ~ 40-44. Abel L_{Aeq} Contribution ~ 38 dBA. Donaldson mine inaudible

Table 4 Location G 156 Buchanan Road, Buchanan

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
17/3/2009 13:50 W = <1m/s W Temp = 30°C	Daytime Ambient	86	81	71	44	68	Traffic (Buchannan Rd) ~ 46-74, Birds/insects ~ 44-56. Donaldson mine inaudible Abel mine inaudible
23/3/2009 18:44 W = <1m/s NE Temp = 28°C	Evening Ambient	86	83	79	42	73	Traffic (Buchannan Rd) ~ 44-86, Insects ~ 44-46, Plane ~ 42-45 Donaldson mine inaudible Abel mine inaudible
24/3/2009 22:48 W = Calm Temp = 22°C	Night-time Ambient	83	81	66	65	36	Traffic (Buchannan Rd) ~up to 83, Wind in trees ~ 36-40. Donaldson mine inaudible Abel mine inaudible

Table 5 Location L 17 Kilshanny Ave, Ashtonfield

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
17/3/2009 13:20 W = <1m/s W Temp = 31°C	Daytime Ambient	64	54	47	33	44	Distant Traffic ~ 35-37, Bird ~ 33-38, Dog ~ 35-53 Resident noise ~ 37-39. Donaldson mine inaudible Abel mine inaudible
23/3/2009 19:31 W = <1m/s NE Temp = 25°C	Evening Ambient	77	61	46	36	45	Distant Traffic ~ 36-38, Local Traffic up to 77, Insects/birds ~ 36-41, Resident noise up to 56. Donaldson mine inaudible Abel mine inaudible
24/3/2009 23:47 W = Calm Temp = 20°C	Night-time Ambient	52	47	40	36	39	Dog Bark ~ 37, Crickets/insects ~ 36-39, Operator noise up to 52 Donaldson mine inaudible Abel mine inaudible

Table 6 Location K Catholic Diocese of Maitland (formerly Bartter Enterprises)

Date/Start Time/Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
17/3/2009 11:12 W = 1m/s W Temp = 26°C	Daytime Ambient	71	59	53	45	51	Traffic (John Renshaw Dr) ~ 44-53, Birds/insects ~ 44-55, Plane ~ 50-53, Donaldson mine; Excavator ~ 43-54 Reverse alarm ~ 47-48 Donaldson L_{A10} Contribution ~ 49 dBA. Abel mine inaudible
23/3/2009 18:03 W = <1m/s NE Temp = 25°C	Evening Ambient	95	87	82	57	78	Traffic (John Renshaw Dr) ~ 56-95, Birds/insects ~ 55-61, Donaldson Mine (just audible); excavator ~ 55, truck ~ 55-58. Donaldson L_{A10} Contribution <47 dBA. Abel mine inaudible
24/3/2009 22:03 W = Calm Temp = 23°C	Night-time Ambient	99	84	73	75	47	Traffic (John Renshaw Dr) ~ 48-99, Insects ~ 45-48, Donaldson Mine; excavator ~ 44-48. Donaldson L_{A10} Contribution ~ 45 dBA. Abel mine inaudible

4.2 Operator Attended Monitoring Summary

4.2.1 Donaldson Mine

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time and at Location F black Hill Rd, during the evening.

The operator attended surveys determined that the Donaldson mine contribution at Location F was less than 36 (L_{A10}) dBA during the evening and as such contributed noise levels at Location F do not exceed Donaldson Mine consent.

Condition 23 of schedule 2 of the Donaldson Mine consent is currently operable at the Catholic Diocese site with an agreement in place for the receiver to accept higher noise levels. However, Heggies understand the dwellings on the Catholic Diocese site are currently unoccupied and therefore determining whether consent is achieved at this location is unnecessary. Attended noise surveys conducted with relevance to Location K have therefore been used to assess noise levels at nearest occupied residential receivers to the Catholic Diocese site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 35 dBA during the daytime, 33 during the evening and 31 dBA during the night-time and which is in compliance with Donaldson Mine consent.

Based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine did not exceed noise emission goals for any period.

4.2.2 Abel Coal Mine

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Abel Mine operations were observed to be audible at Location F Black Hill Rd during the night-time.

The operator attended surveys determined that the Abel mine contribution at Location F was 38 (L_{Aeq}) dBA during the night-time

It is part of the INP to allow for a 2 dBA tolerance of noise emission goals to account for measurements taken within the field and as such contributed noise levels from Abel Coal Mine did not exceed noise emission goals (including night-time sleep arousal criteria) and were in compliance with the Abel Coal Mine *Project Approval*.

5 UNATTENDED CONTINUOUS NOISE MONITORING

5.1 Results of Unattended Continuous Monitoring

The unattended ambient noise logger data from each monitoring location are presented graphically on a daily basis and are attached as **Appendices C1** to **C5**. A summary of the results of the unattended continuous noise monitoring is given in **Table 7**. The ambient noise level data quantifies the overall noise level at a given location independent of its source or character.

The measured ambient noise levels were divided into three periods representing day, evening and night as designated in the NSW Industrial Noise Policy. The day, evening and night periods replace the day and night periods defined under the Environmental Noise Control Manual (ENCM). However, as the Donaldson conditions of consent are under the ENCM, these periods have also been reported.

Precautions can be taken to minimise influences from extraneous noise sources (eg optimum placement of the loggers away from creeks, trees, houses, etc), however not all these sources or their effects can be eliminated. This is particularly the case during the warmer times of year when noise from insects, frogs, birds and other animals can become quite prevalent.

Noise data during periods of any rainfall and/or wind speeds in excess of 5 m/s (approximately 9 knots) were discarded in accordance with INP weather affected data exclusion methodology.

Table 7 Unattended Continuous Monitoring Ambient Noise Levels (dBa Re 20 µPa)

Location	Period	LA1	LA10	LA90	LAeq
A Weakleys Drive Beresfield	Daytime	59	56	48	54
	Evening	59	54	46	53
	ENCM Daytime	59	55	47	53
	Night	58	53	41	51
F Lot 684 Black Hill Road, Black Hill	Daytime	64	55	39	53
	Evening	60	50	37	51
	ENCM Daytime	63	54	38	52
	Night	55	48	33	48
G 156 Buchannan Road, Buchannan	Daytime	64	60	37	55
	Evening	63	55	32	52
	ENCM Daytime	64	59	34	54
	Night	60	40	28	48
L 17 Kilshanny, Ashtonfield	Daytime	58	48	35	51
	Evening	58	45	37	52
	ENCM Daytime	58	47	35	51
	Night	44	41	36	42
K Catholic Diocese of Maitland	Daytime	56	51	41	52
	Evening	55	50	41	49
	ENCM Daytime	56	51	40	51
	Night	56	50	36	49

Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm 10.00 pm; Night - 10.00 pm to 7.00 am pm Monday to Saturday, 10.00 pm to 8.00 am Sunday.
EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.

5.2 Unattended Continuous Monitoring Summary for Donaldson Mine and Abel Coal Mine

5.2.1 Ambient L_{A90} Noise Level Comparison

Baseline

The summary of results in **Table 7** show that ambient day, evening and night time L_{A90} noise levels recorded for the quarter ending March 2009 were within 3 dBA of levels recorded during the baseline monitoring process at Locations A, F and K. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by an increase in traffic volumes and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Given that no data was available at Locations G and L during baseline measurements no comparison can be made to noise levels.

Previous Quarter (December 2008)

A comparison of the current monitoring period with the previous monitoring period shows that with the exception of a 4 dBA increase during the night-time at location L, L_{A90} noise levels were similar (within 1 dBA) at Locations A and L and were significantly lower (4 dBA to 8 dBA) at Locations F and G. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels during night at Location L was caused by local traffic and natural noise sources and not from Donaldson Mine or Abel Coal Mine activity.

Given that limited data was available at Location K during December 2008 no comparison can be made to noise levels.

Coinciding Period Last Year (March 2008)

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that L_{A90} noise levels were similar (within 1 dBA) at Location A and were significantly lower (2 dBA to 8 dBA) at Locations F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Given that no data was available at Locations G, L and K during March 2008 no comparison can be made to noise levels.

5.2.2 Ambient L_{A10} Noise Level Comparison

Baseline

The summary of results in **Table 7** show that ambient day, evening and night-time L_{A10} noise levels recorded for the quarter ending March 2009 were less than or similar (within 1 dBA) to levels recorded during the baseline monitoring process at Locations A and K. Ambient evening and night-time L_{A10} noise levels were less than or similar (within 1 dBA) to levels recorded during the baseline monitoring process at Location F. A significant increase (4 dBA) was recorded during the daytime at location F. Operator attended noise surveys at this location (Location F) noted that the L_{A10} noise levels were dominated by local traffic and not from Donaldson Mine or Abel Coal Mine activity.

Given that no data was available at Locations G and L during baseline measurements no comparison can be made to noise levels.

Previous Quarter (December 2008)

A comparison of the current monitoring period with the previous monitoring period shows that recorded L_{A10} noise levels were generally equal to or less than levels at Locations A, F, G and L. Increases of 2 dBA and 4 dBA were respectively recorded during the daytime at Location A and L. Operator attended noise surveys at these locations (Location A and L) noted that the L_{A10} noise levels were dominated by local traffic and not from Donaldson Mine or Abel Coal Mine activity.

Given that limited data was available at Location K during December 2008 no comparison can be made to noise levels.

Coinciding Period Last Year (March 2008)

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that L_{A10} noise levels during all periods were generally equal to (within 1 dBA) or less than those recorded at Locations A and F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Given that no data was available at Locations G, L and K during March 2008 no comparison can be made to noise levels.

6 SUMMARY OF RESULTS AND FINDINGS

Heggies were engaged by Donaldson Coal Pty Ltd to conduct quarterly noise monitoring surveys for Donaldson Coal Mine and Abel Coal Mine in accordance with the Abel Coal Mine Noise Monitoring Program, dated 27 May 2008.

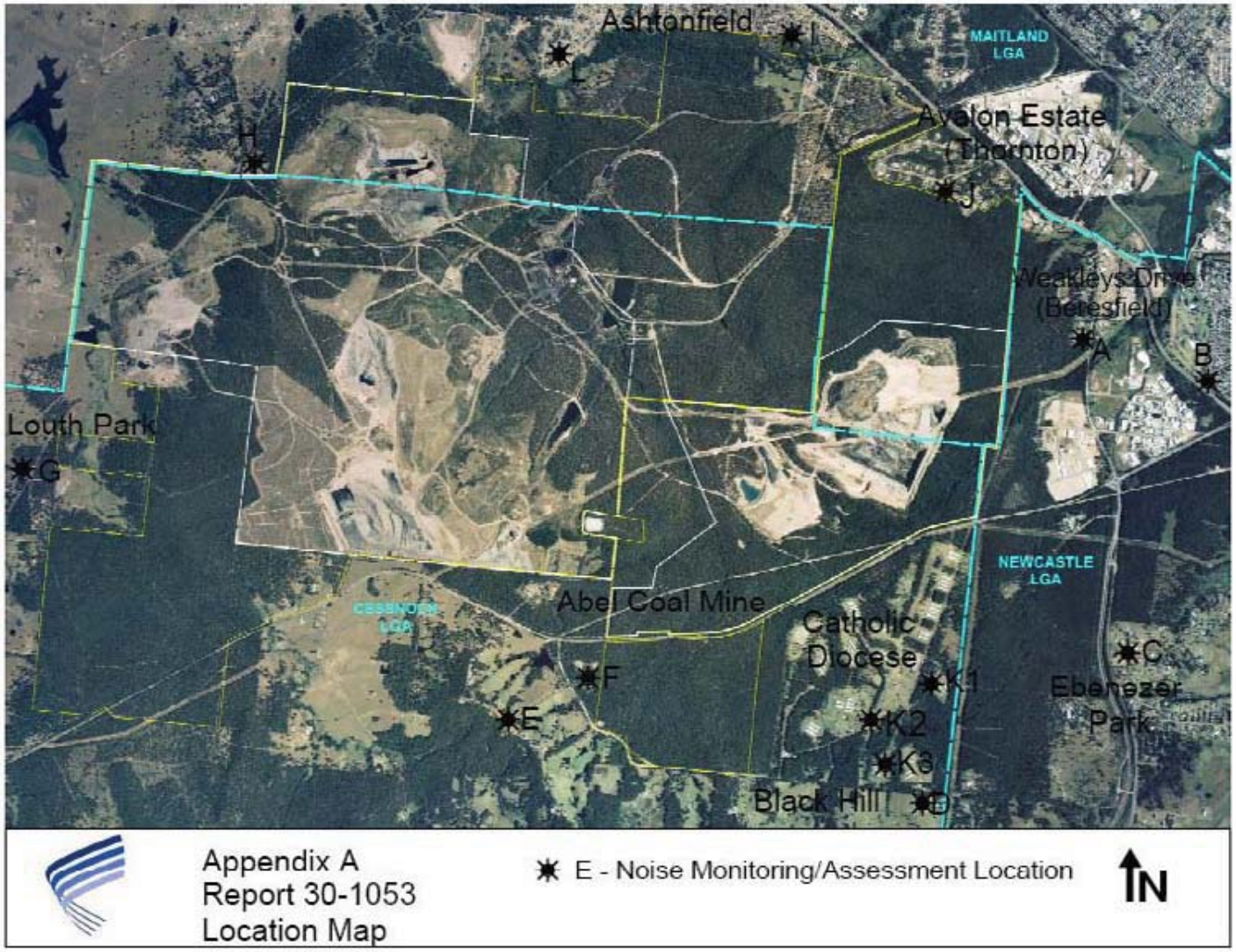
The results of the operator-attended noise measurements conducted at five (5) focus locations surrounding the mine site are included in **Table 2** to **Table 6**.

Donaldson Mine operations were observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time and at Location F Black Hill Rd, during the evening. However, Donaldson Mine contributions were found to be within the relevant consent conditions at all assessed locations.

Abel Mine operations were observed to be audible at Location F Black Hill Rd during the night-time. However contributed noise levels from Abel Coal Mine did not exceed noise emission goals (including the sleep arousal criteria) and were in compliance with the Abel Coal Mine *Project Approval*.

A comparison of ambient L_{A10} and L_{A90} noise levels recorded during the current monitoring period (March 2009), the baseline monitoring period, the last monitoring period (December 2008), and the coinciding monitoring period from last year (March 2008) has been conducted.

In summary, where noise levels have risen, the ambient noise environment has been identified to generally contain traffic and natural noise sources and not noise from Donaldson Mine or Abel Coal Mine activity. This is most applicable to Locations F and L. Generally noise levels at other monitoring locations (where valid data was obtained) were similar to or less than noise levels recorded during the baseline monitoring process and previous compliance monitoring periods.


Ashtonfield
I
L
MAITLAND LGA
Avalon Estate (Thornton)
H
J
Weakleys Drive (Beresfield)
A
B
Louth Park
G
NEWCASTLE LGA
CESSNOCK LGA
Abel Coal Mine
Catholic Diocese
C
F
K1
Ebenezer Park
E
K2
K3
Black Hill
D
Appendix A
Report 30-1053
Location Map
E - Noise Monitoring/Assessment Location
N

Appendix B

Report Q33 30-1053-R1
Equipment Register Page 1 of 1

APPENDIX B - EQUIPMENT REGISTER

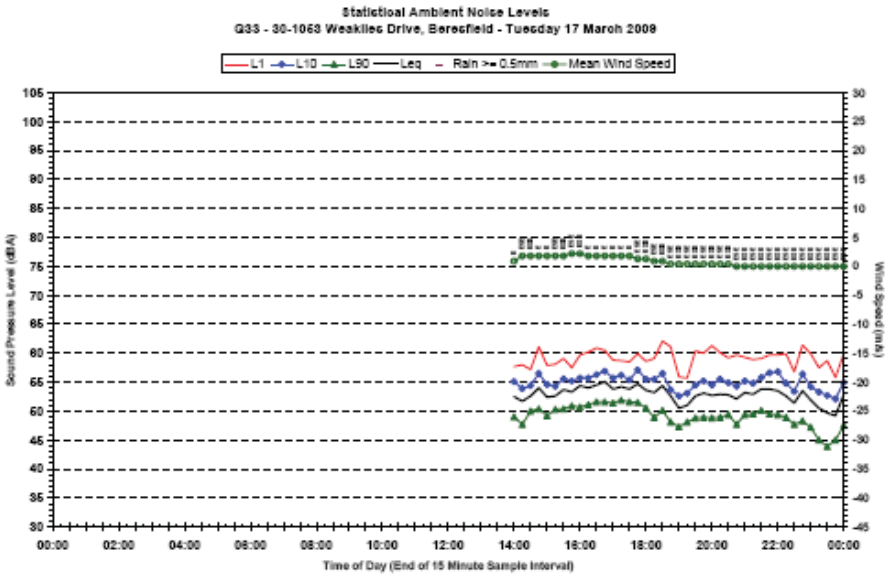
JOB NUMBER: 30-1053

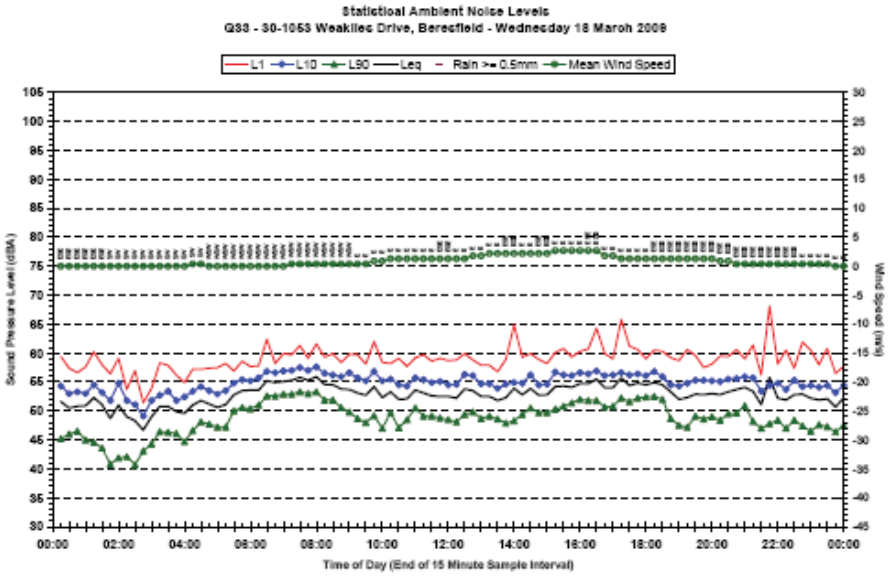
JOB DESCRIPTION: Donaldson Mine Quarterly Monitoring – March 2009

Unit No	Equipment	Description	Serial Number
1	DOZ004	CATERPILLAR D9R	7TL00898
2	DOZ005	CATERPILLAR D10R	3KR01384
3	DOZ006	CATERPILLAR D11N	74Z00717
4	DOZ008	CATERPILLAR D10R	3KR01233
5	DOZ009	CATERPILLAR D10R	AKT00823
6	EXC021	CATERPILLAR 330DL	NBD00168
7	EXC072	HITACHI EX2500	184-00108
8	EXC089	CATERPILLAR 5110B	AAA00311
9	LOD004	CATERPILLAR IT28G	CWAC00351
10	LOD044	KOMATSU WA700	10106
11	LOD149	CATERPILLAR 990II	4FR00394
12	RDT026	CATERPILLAR 777A W/CART	84A01034
13	RDT033	CATERPILLAR 740 W/CART	B1P02699
14	RDT100	CATERPILLAR 785	8GB00596
15	RDT107	CATERPILLAR 785	8GB00320
16	RDT140	CATERPILLAR 785	8GB00333
17	RDT143	CATERPILLAR 785	8GB00374
18	RDT155	CATERPILLAR 785	8GB00152
19	RDT162	CATERPILLAR 785	8GB00258
20	RDT163	CATERPILLAR 785	8GB00259
21	RDT182	CATERPILLAR 785	8GB00494
22	GRD004	CATERPILLAR 16H	6ZJ00678
23	GRD036	CATERPILLAR 16G	93U03039
24	CMP059	AIRMAN COMPRESSOR – STR034	
25	CMP061	SULLAIR COMPRESSOR 185CFM	200610160001
26	CMP062	SULLAIR COMPRESSOR 185CFM	206101100049
27	GEN001	KUBOTA GENERATOR – VEH154	
28	WEL057	LINCOLN SAM400 – VEH154	
29	VEH154	ISUZU NPS300 BOILY TRUCK	
30	STR034	VOLVO FL7 SERVICE TRUCK	YV5FAG6JD560318
31	UTE001	NISSAN PATROL SERVICE UTE	
32	UTE002	NISSAN NAVARA TRAYBACK	

Appendix C1

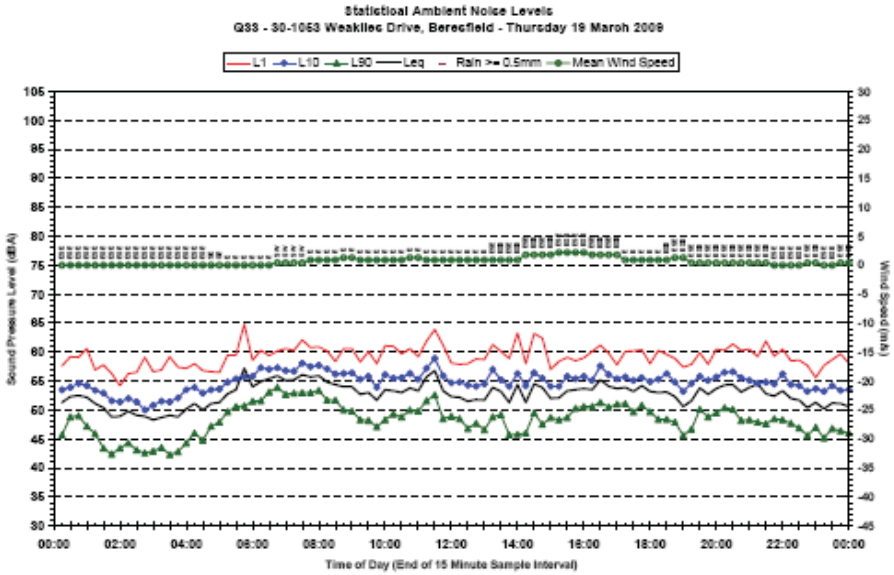
Report Q33 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 1 of 1

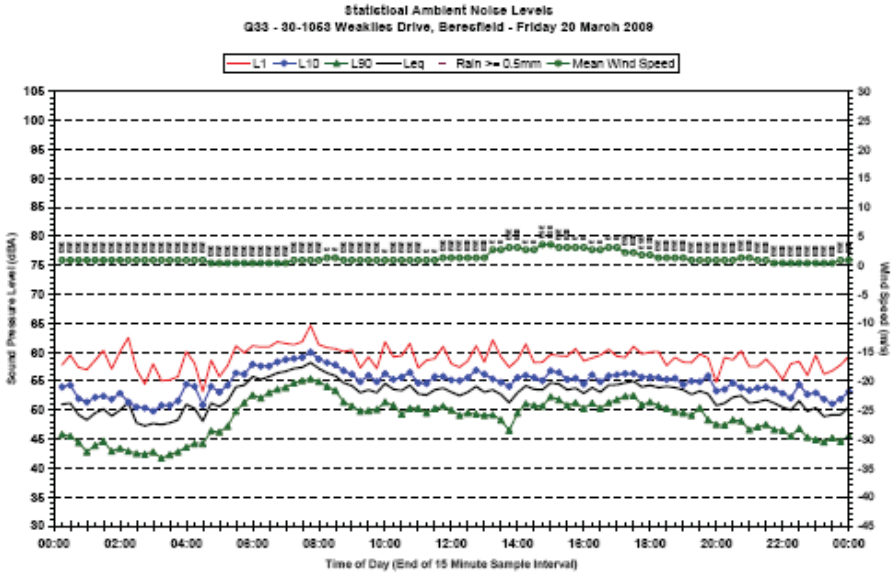




Appendix C1

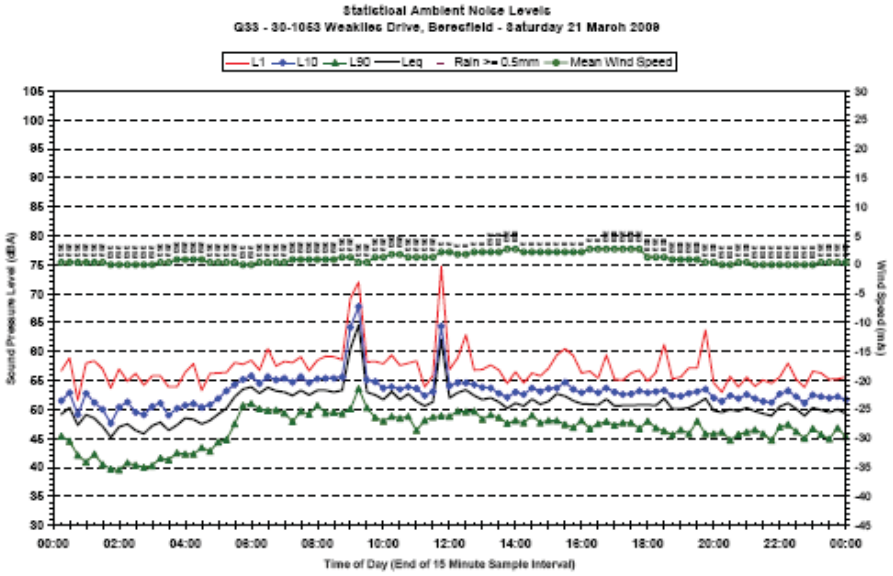
Report Q33 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 2 of 2

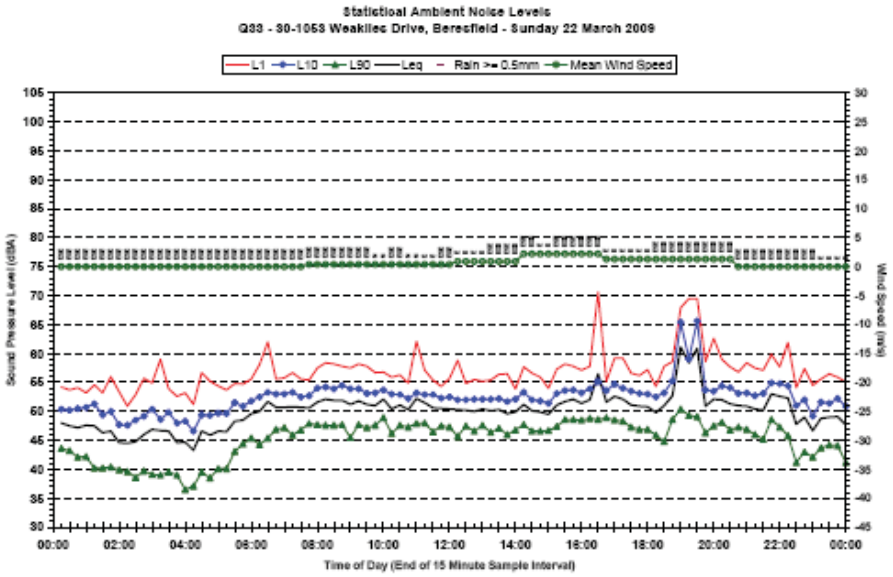




Appendix C1

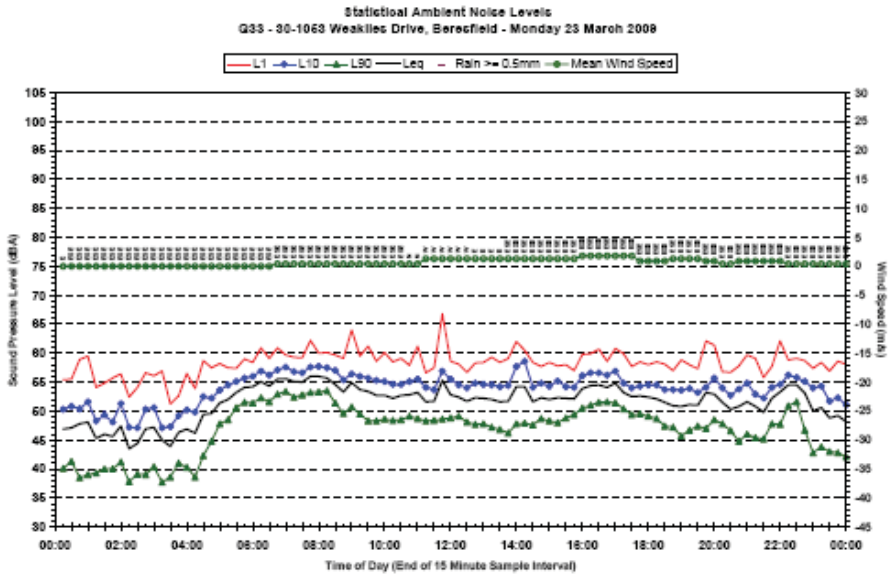
Report Q33 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 3 of 3

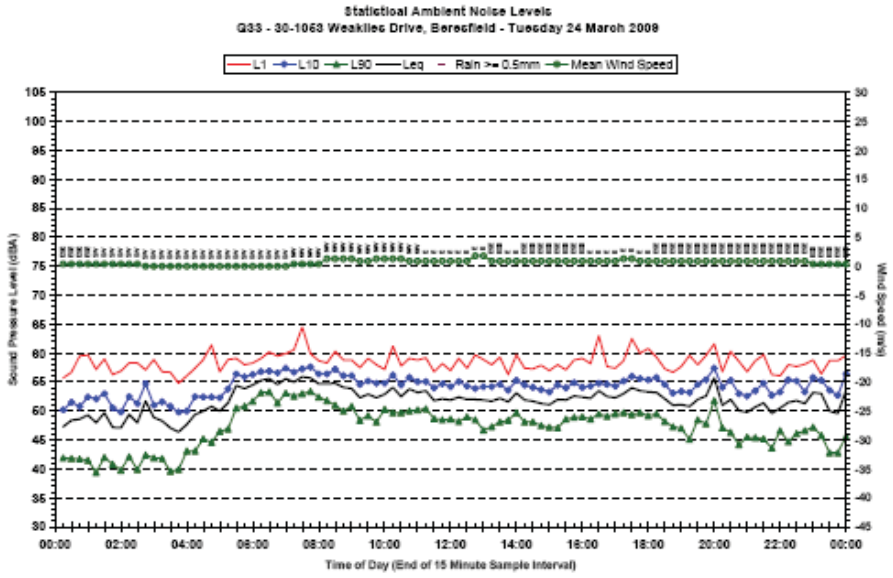




Appendix C1

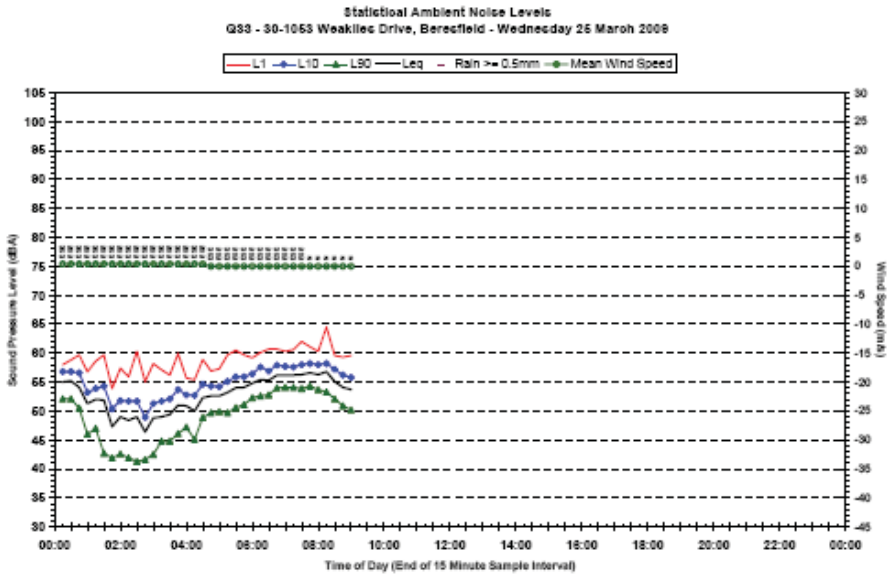
Report Q33 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 4 of 4





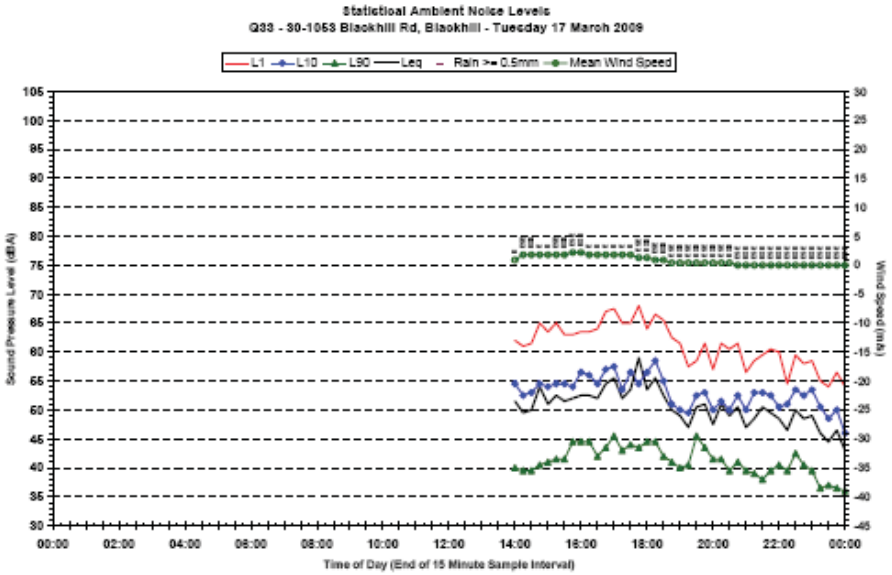
Appendix C1

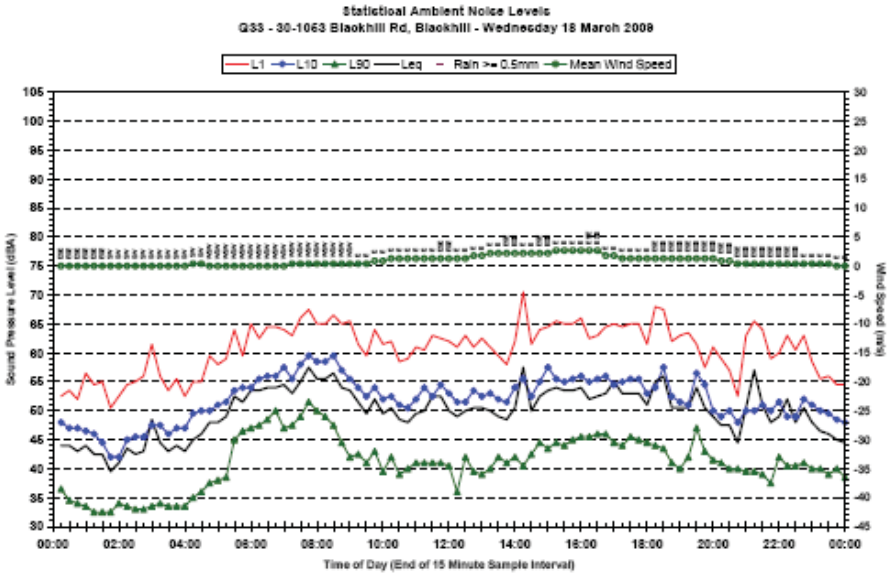
Report Q33 30-1053-R1
Statistical Ambient Noise Levels - Location A Page 5 of 5



Appendix C2

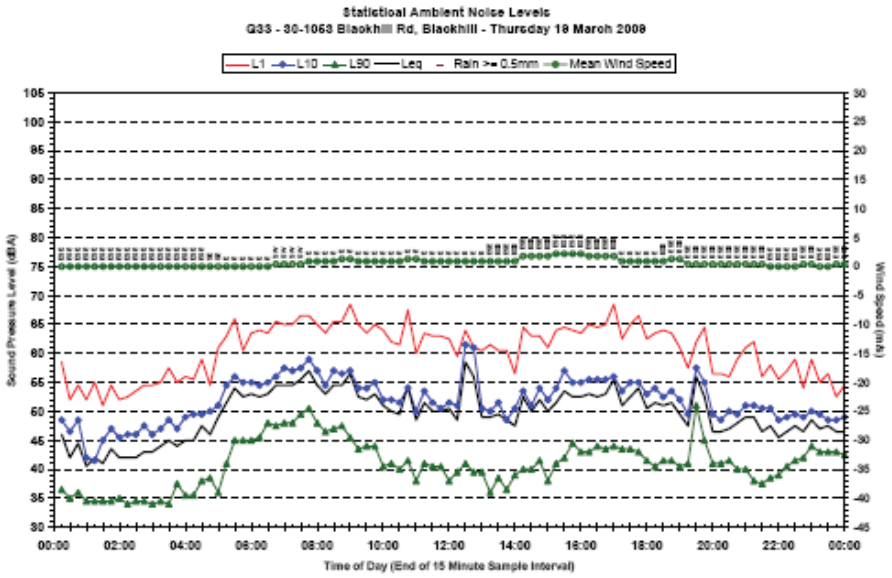
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 1 of 1

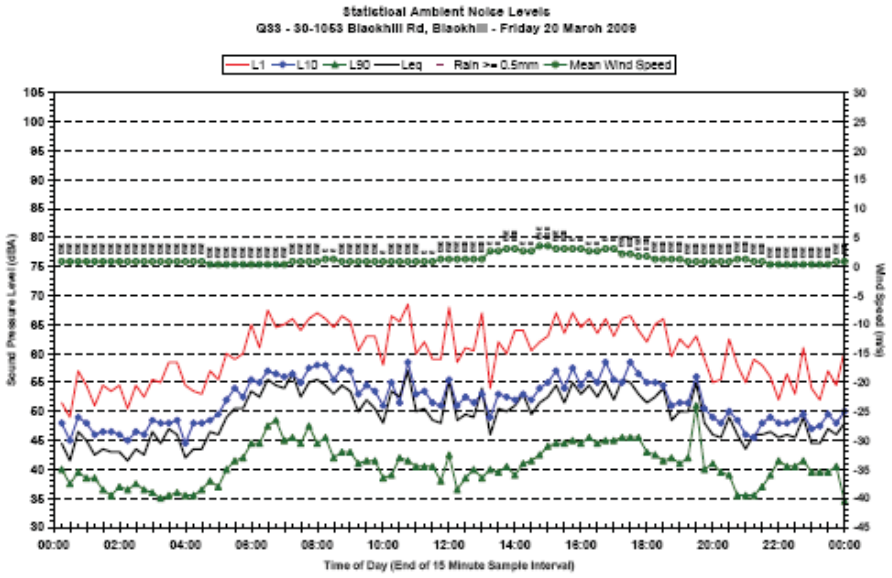




Appendix C2

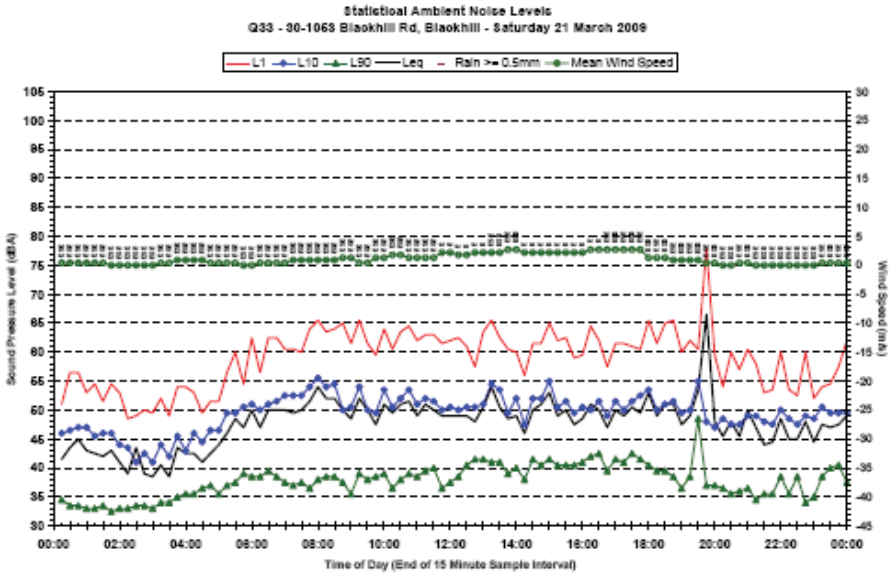
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 2 of 2

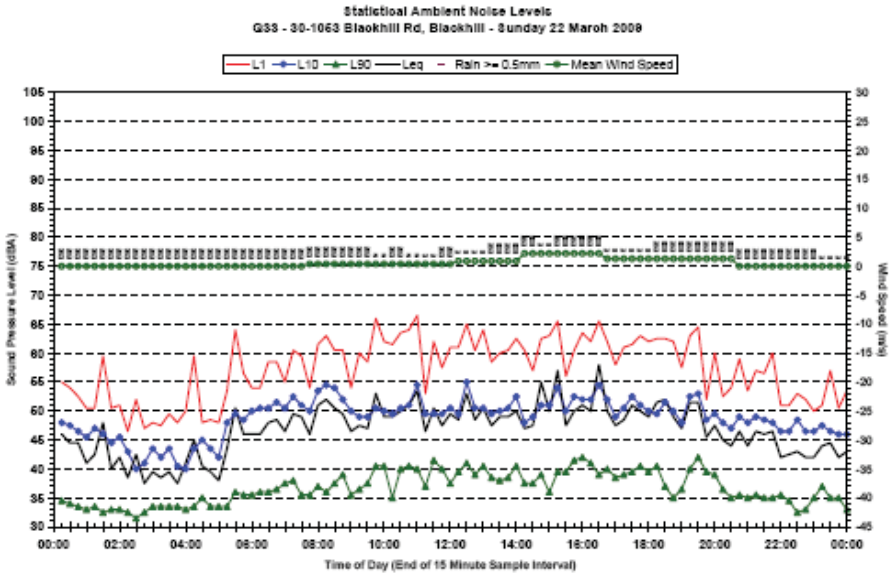




Appendix C2

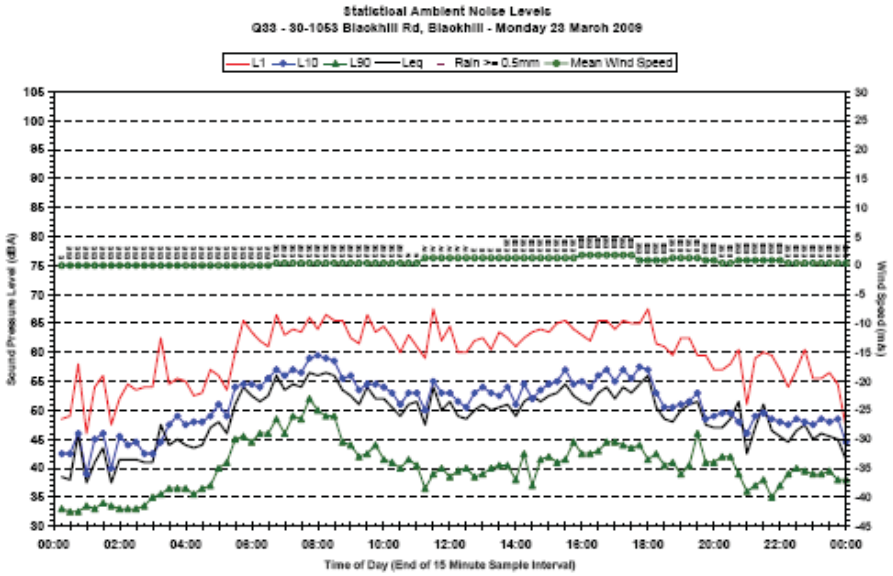
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 3 of 3

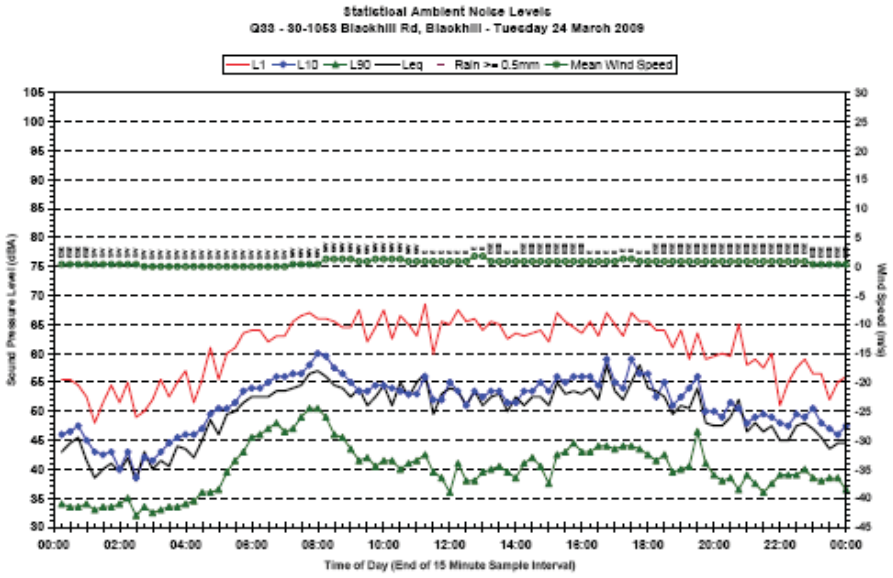




Appendix C2

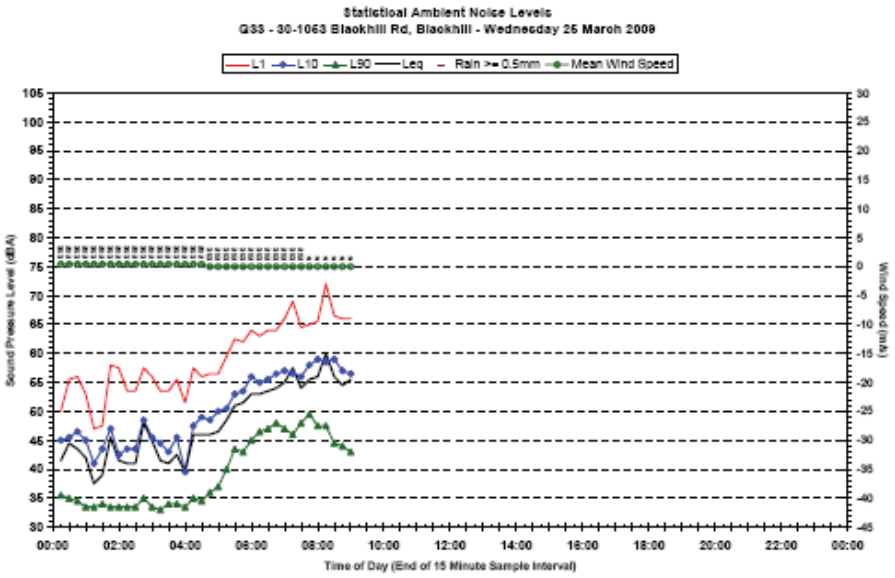
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 4 of 4





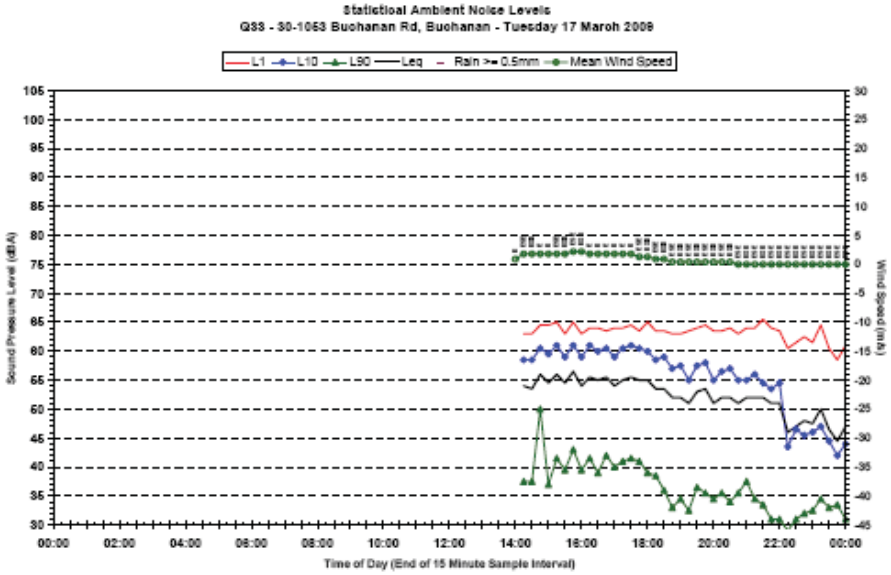
Appendix C2

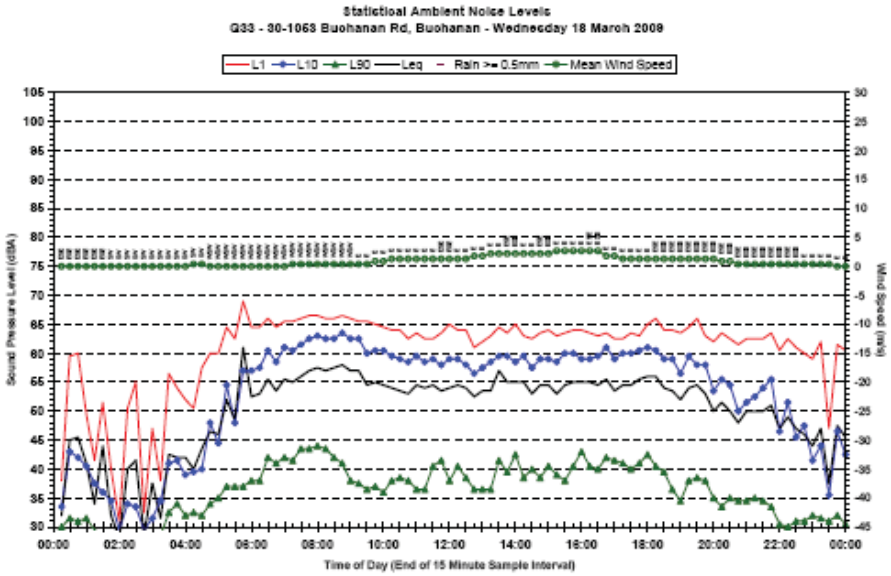
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location F Page 5 of 5



Appendix C3

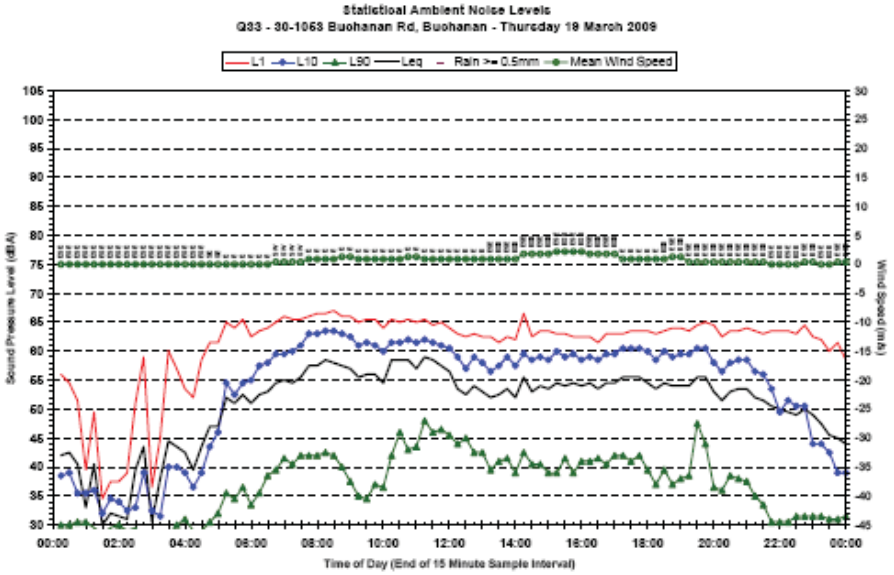
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 1 of 1

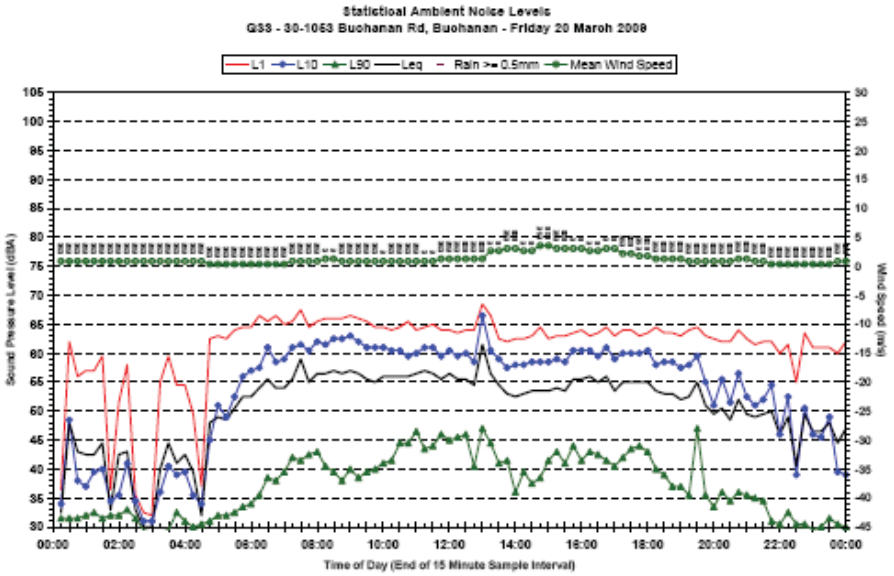




Appendix C3

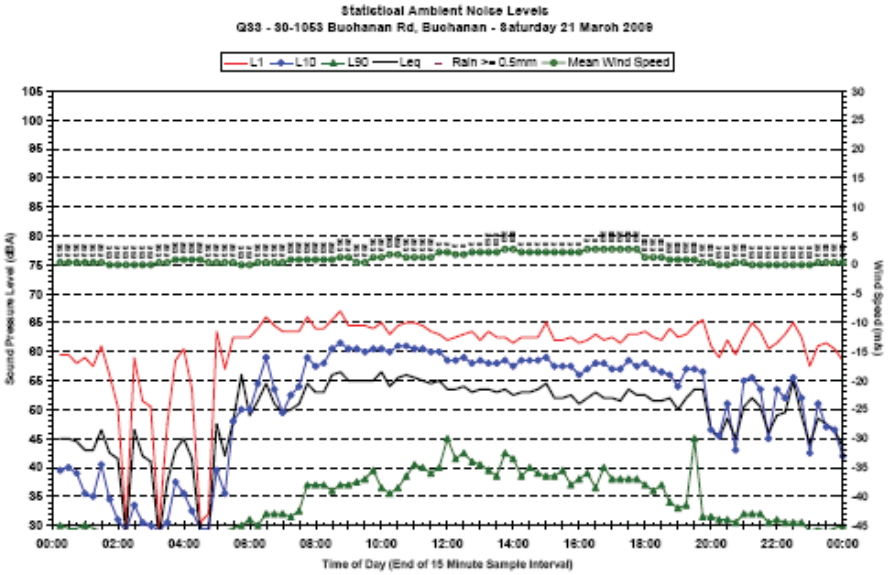
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 2 of 2

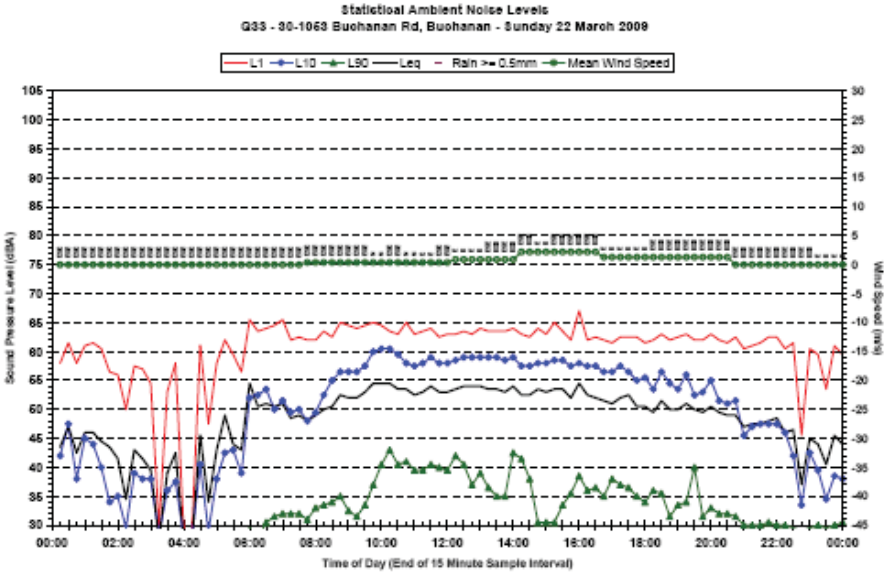




Appendix C3

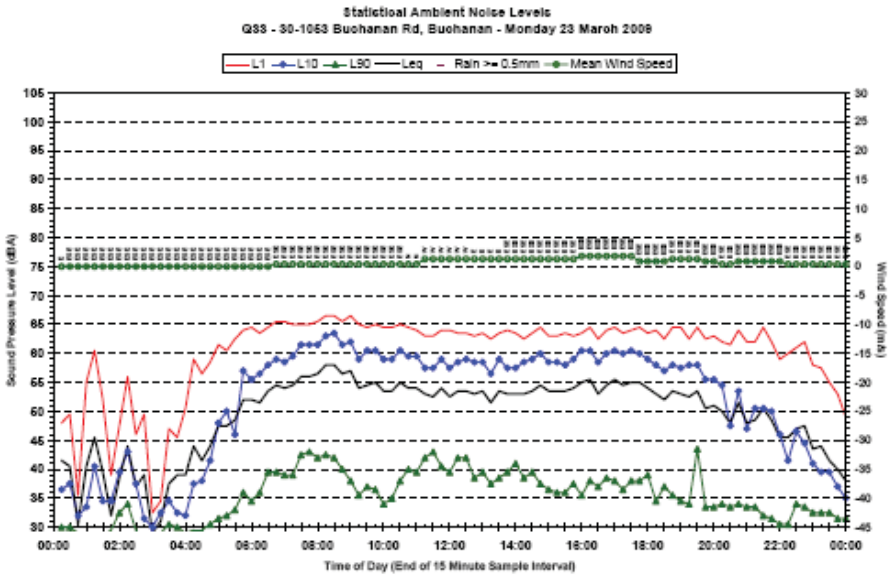
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 3 of 3

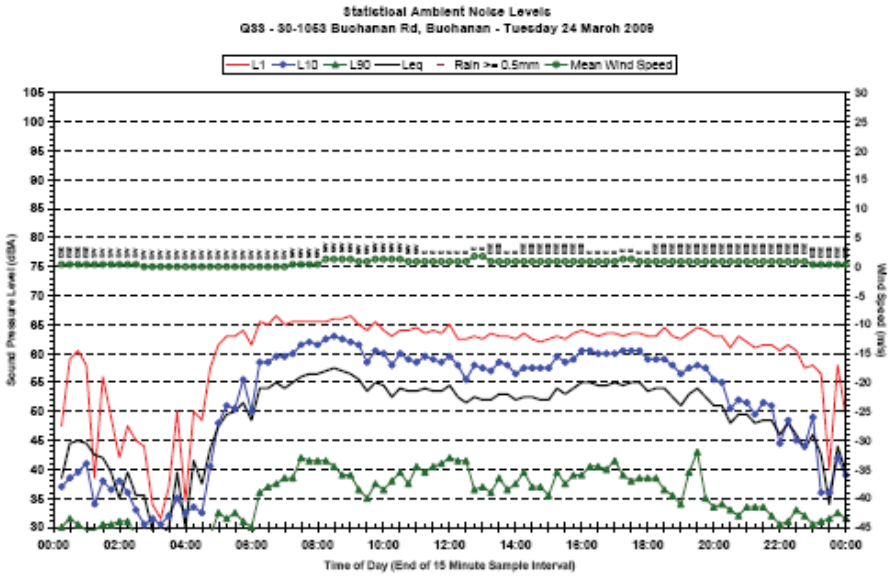




Appendix C3

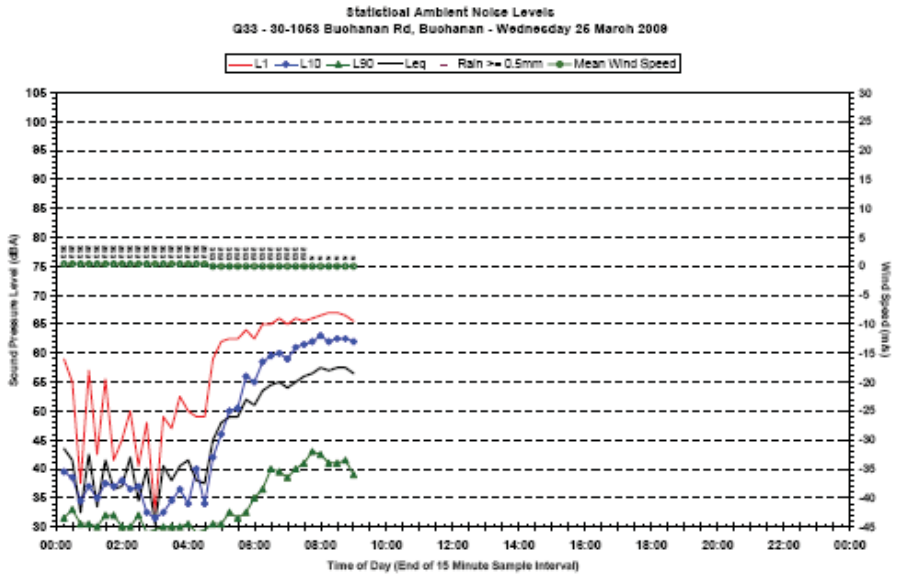
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 4 of 4





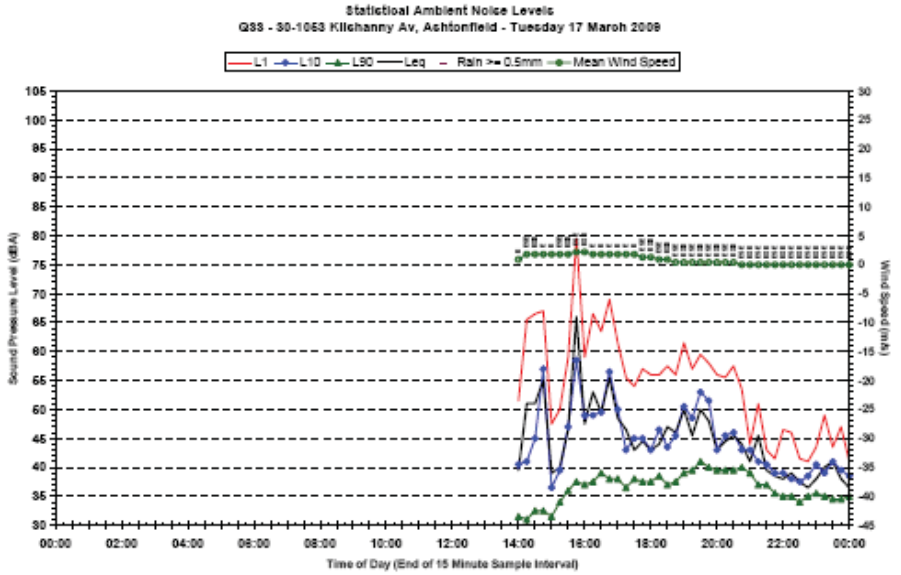
Appendix C3

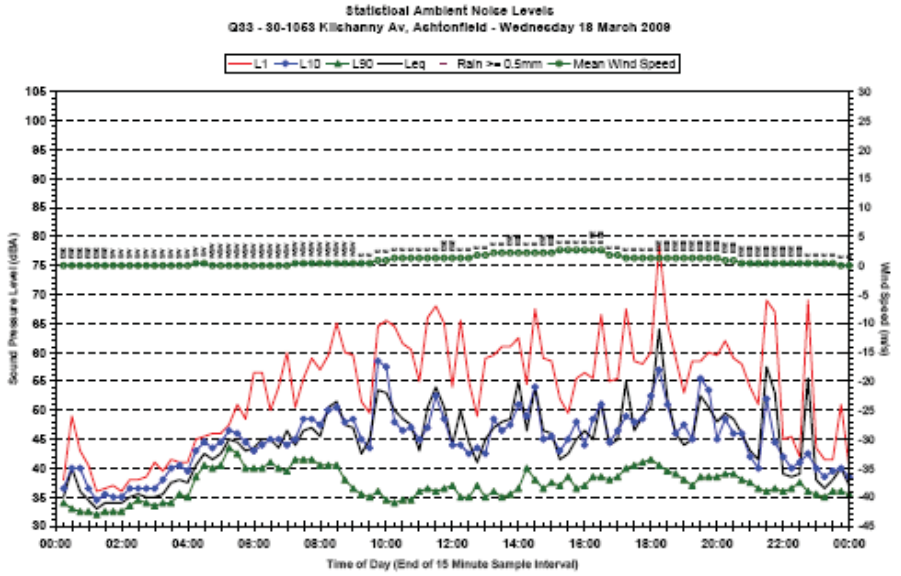
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location G Page 5 of 5



Appendix C4

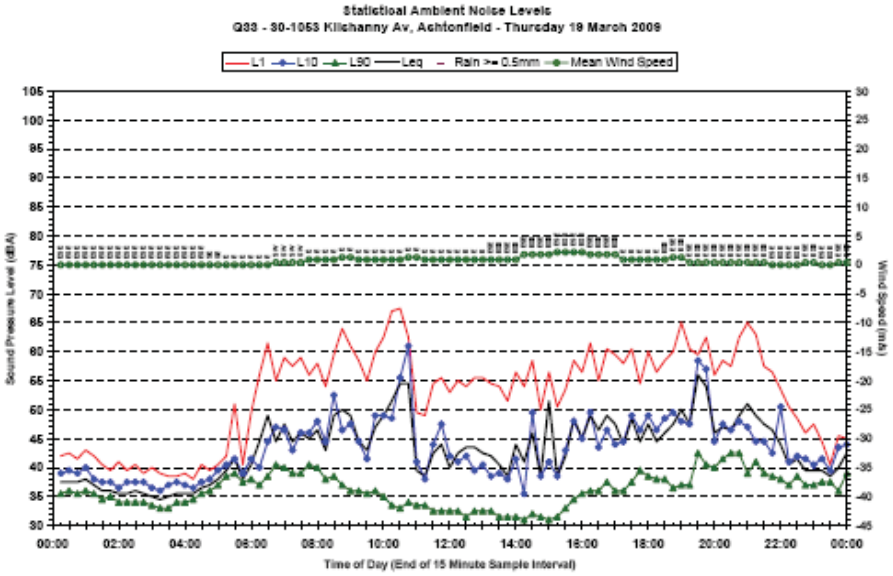
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location L Page 1 of 1

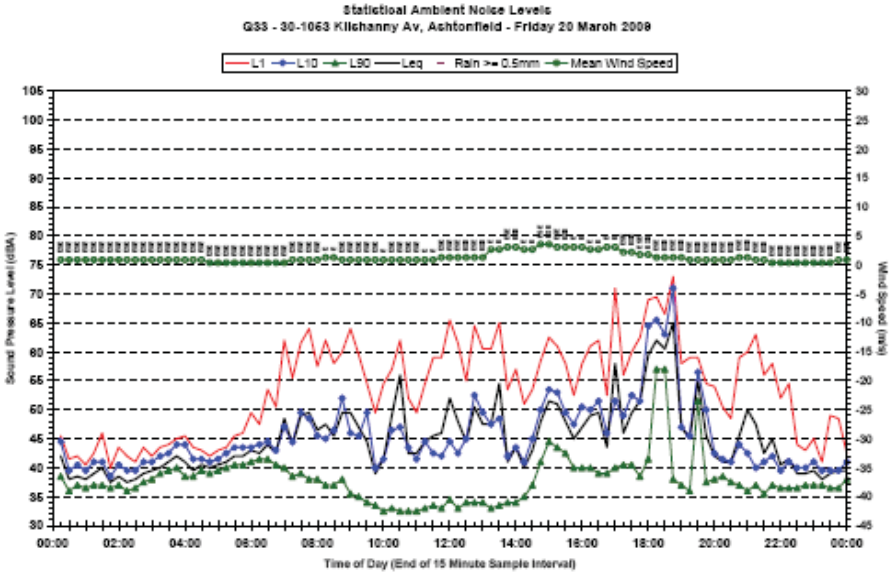




Appendix C4

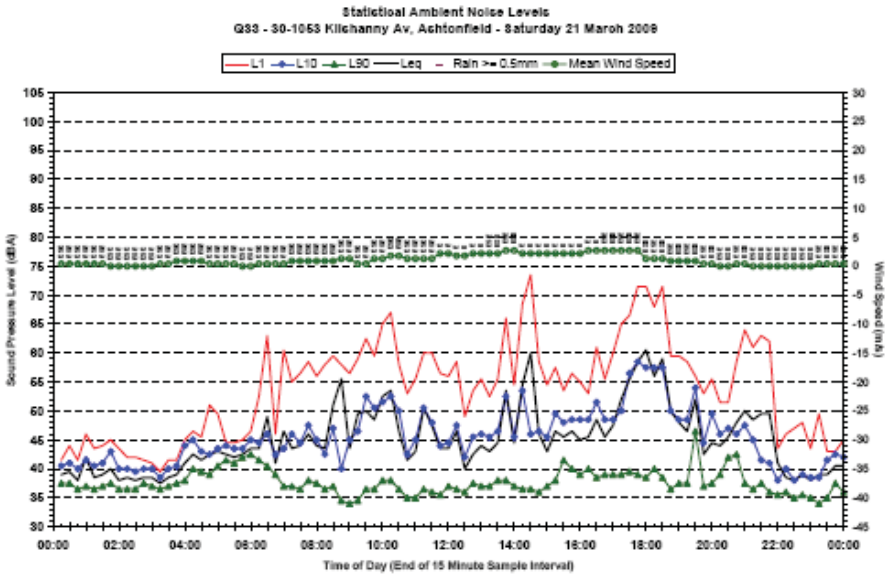
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location L Page 2 of 2

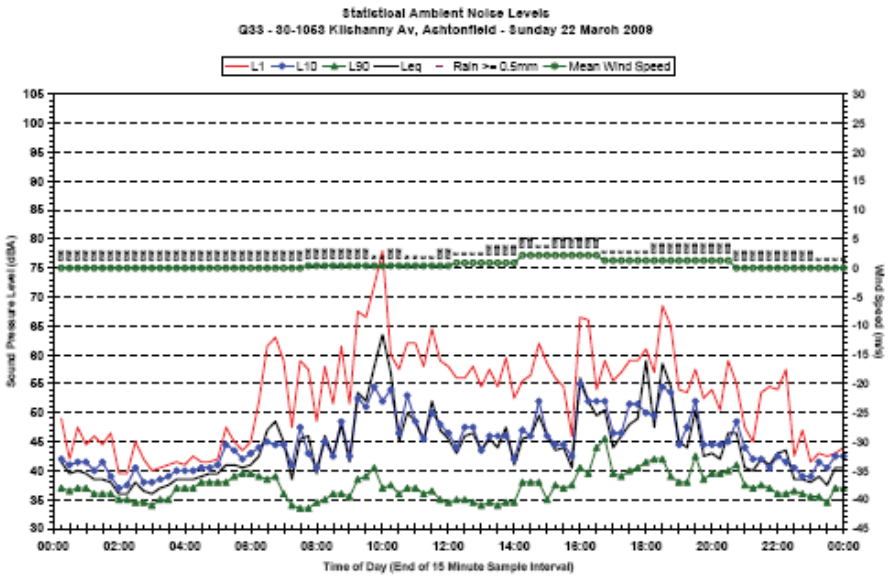




Appendix C4

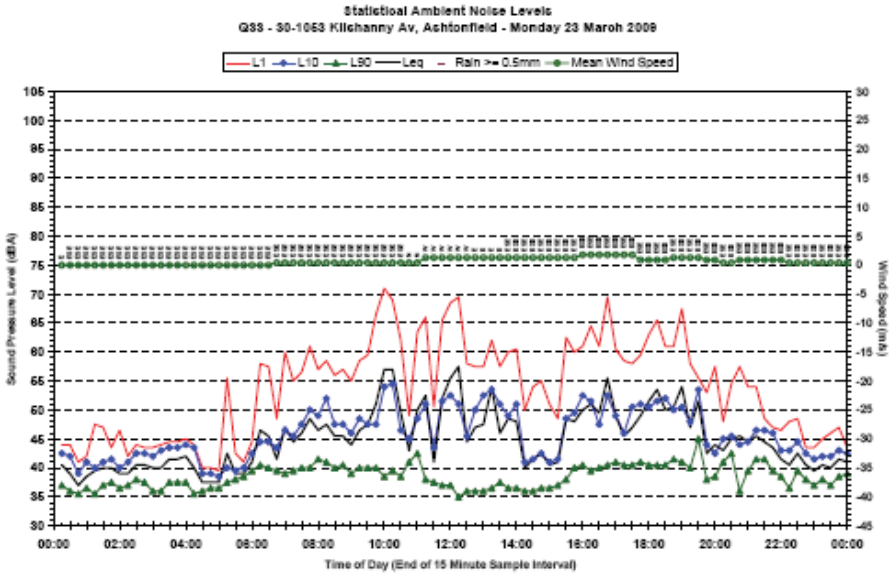
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location L Page 3 of 3

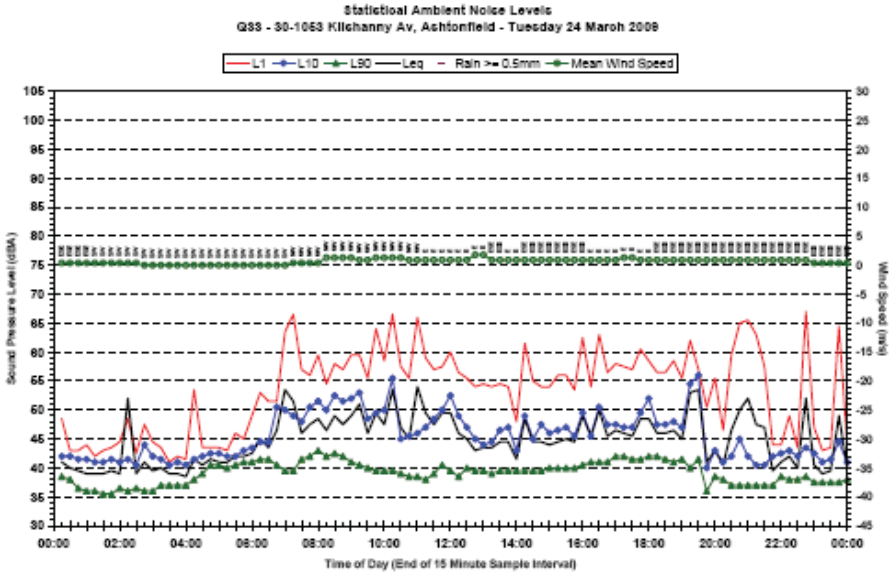




Appendix C4

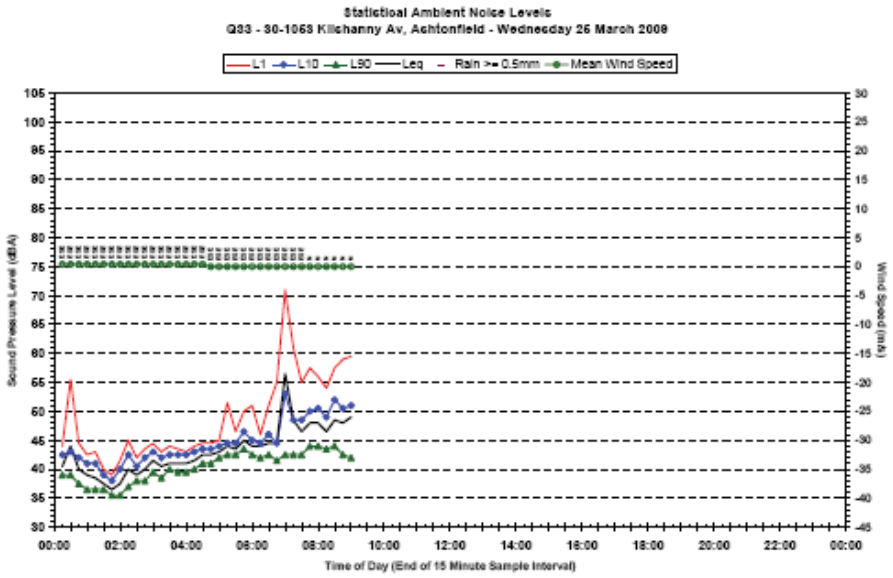
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location L Page 4 of 4





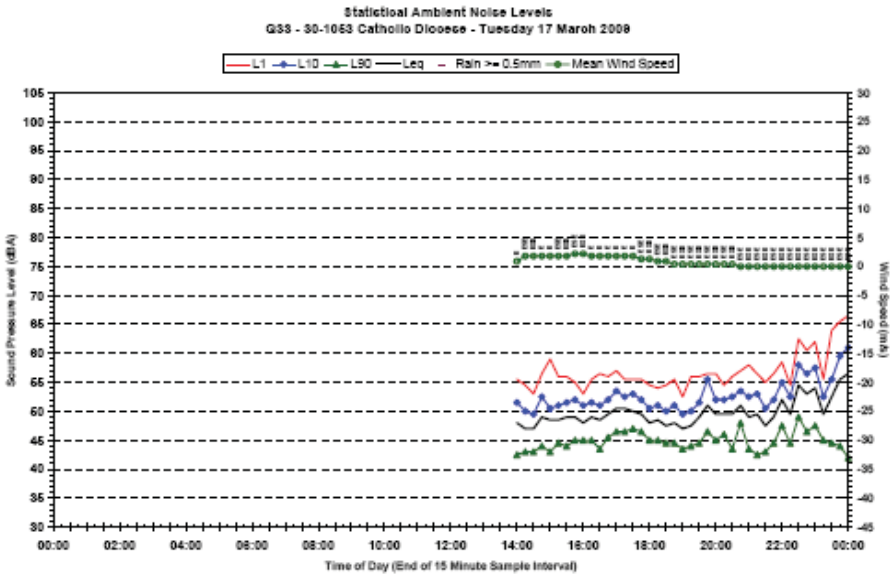
Appendix C4

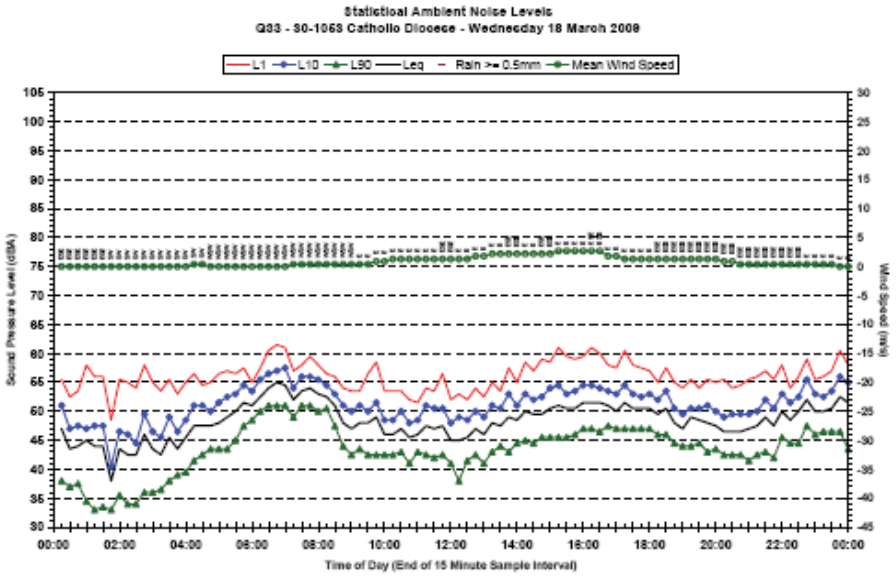
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location L Page 5 of 5



Appendix C5

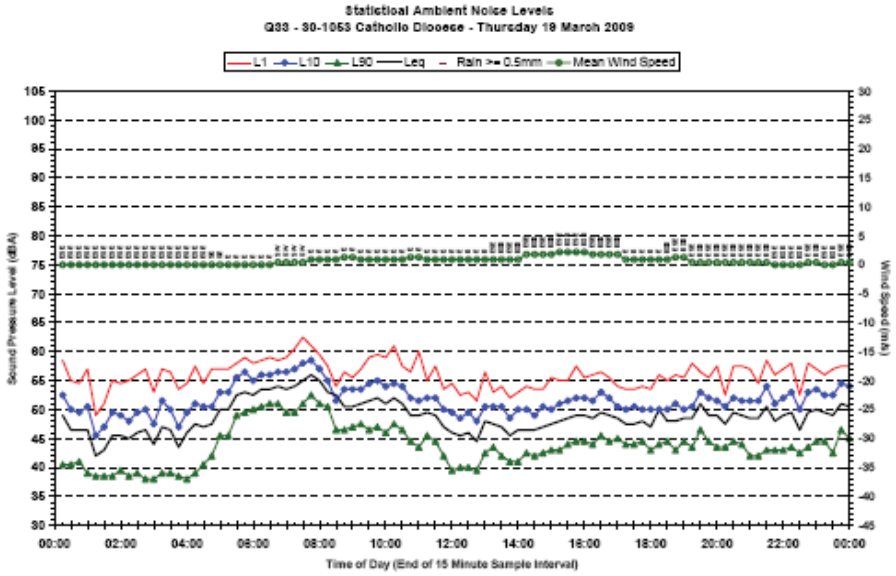
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 1 of 1

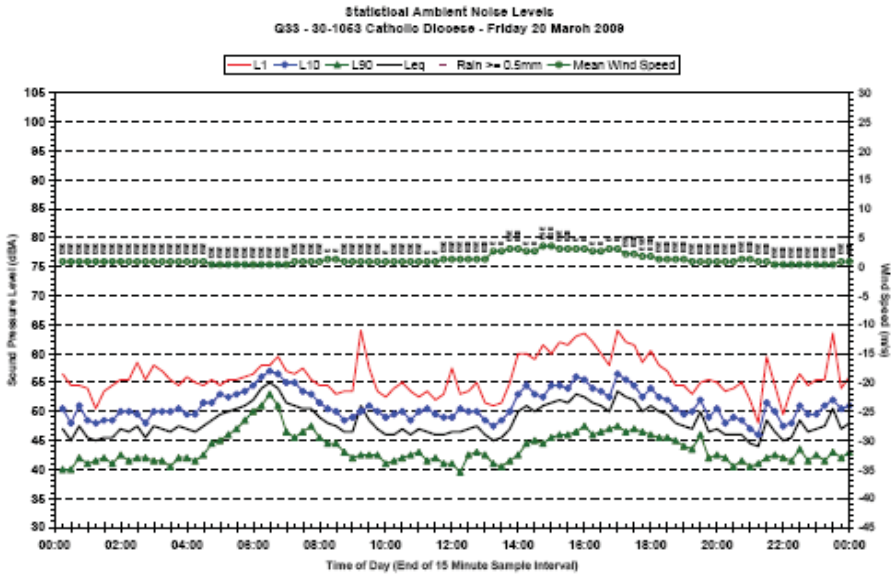




Appendix C5

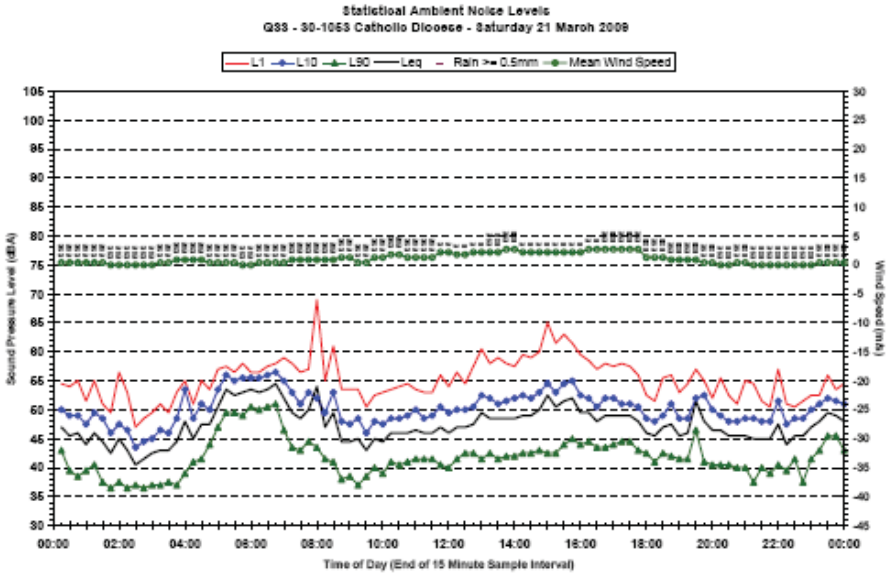
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 2 of 2

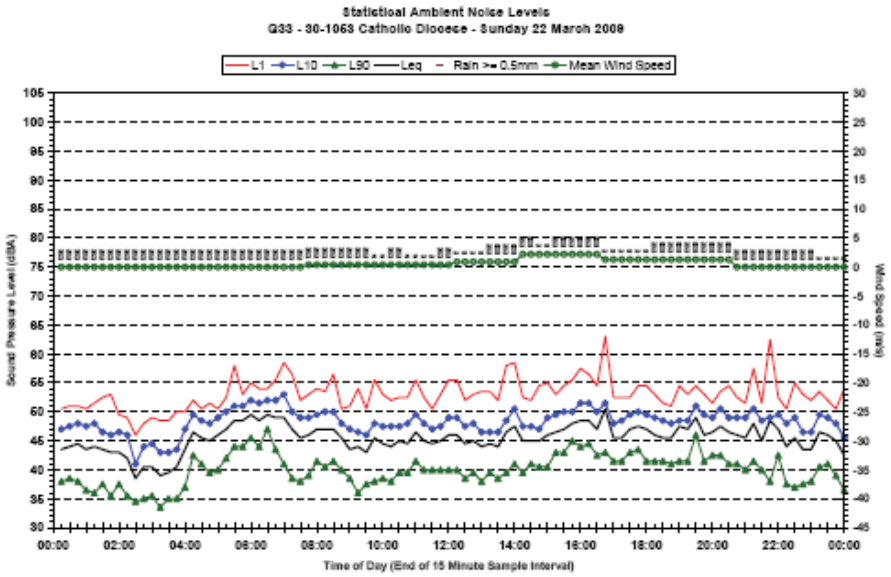




Appendix C5

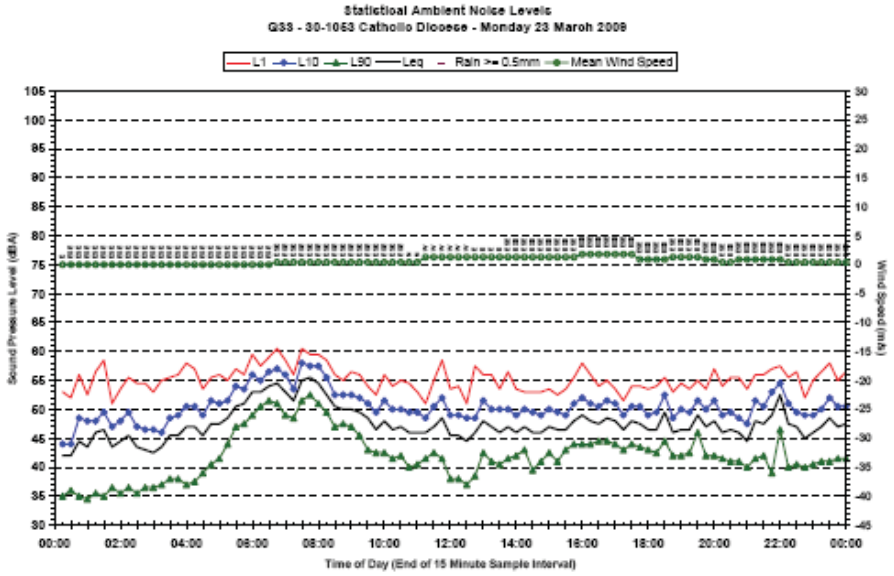
Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 3 of 3

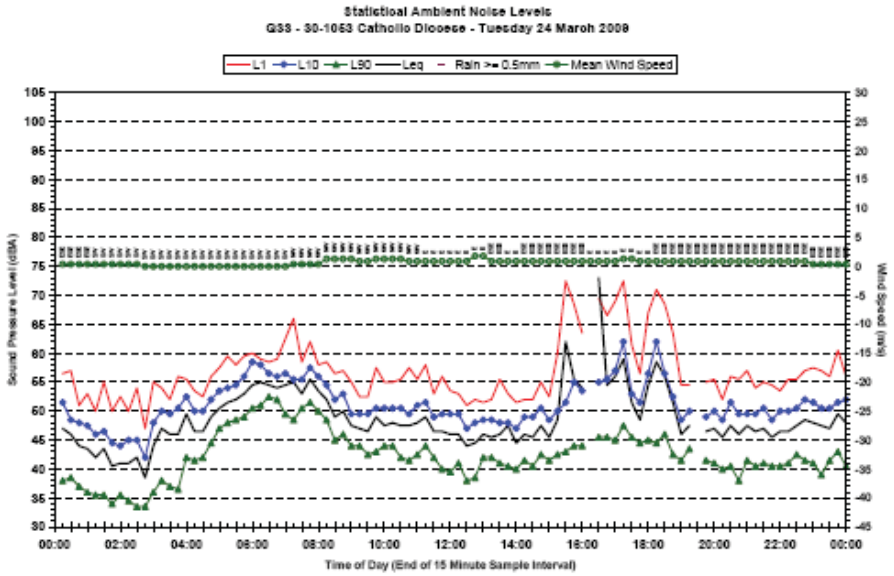




Appendix C5

Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 4 of 4





Appendix C5

Report Q33 30-1053-R1
Statistical Ambient Noise Levels – Location K Page 5 of 5