EVENT NOISE MANAGEMENT

Sydney Cricket Ground Trust

NOISE MONITORING, AFL – SYDNEY SWANS v GOLD COAST

5 SEPTEMBER 2015

September 2015

Report Prepared by:
EVENT NOISE MANAGEMENT
Queensland – Unit 3, 4 Tombo Street, Capalaba, QLD 4157
New South Wales – 6/69 Reservoir Street, Surry Hills, NSW 2010

☎ 1300 851 761
✉ enm@ane.com.au
🌍 www.ane.com.au/enm

Project Reference: 4291

Document Title: *Sydney Cricket Ground Trust Noise Monitoring, AFL - Sydney Swans v Gold Coast*

Client: Sydney Cricket Ground Trust

Document Reference: /Network/Projects/4291/Reporting/4291_Report_AFL_01.odt

Version:	Description:	Date:	Author:	Checked by:	Approved by:	Signature:
00	Draft for internal review	9/09/15	BW	CMR	-	-
01	Final for Client	9/09/15	BW	CMR	CMR	
02						
03						
04						

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Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by the client or their nominees during the visit, visual observations and any subsequent discussions with regulatory authorities. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to EVENT NOISE MANAGEMENT is both complete and accurate. It is further assumed that normal activities were being undertaken at the site on the day of the site visit(s).

Executive Summary

Monitoring of noise levels at sensitive receptors in the area surrounding Sydney Cricket Ground was undertaken during the Sydney Swans v Gold Coast AFL match held on 5 September 2015 to determine compliance with the following noise criteria defined in the site's Noise Management Plan (NMP) and EPA Variation of Prevention Notice (2 December 2013):

> *'(a) When measured at the specified monitoring locations, the L_{Amax} of noise emanating from any sound amplification equipment must not exceed 60 dB(A) during any sporting events. This noise limit applies to wind speeds up to 5 m/s, above which wind generated noise on the microphone limits measurement accuracy. During period of winds greater than 5 m/s this noise limit does not apply.*
>
> *i) Noise levels measured when wind speed exceeds 5m/s (at microphone height) should not be used to measure compliance with noise limits, as wind generated noise may influence measurement accuracy. During periods of wind greater than 5 m/s the Trust must continue to take all reasonable and feasible actions to minimise noise.'*

Noise levels were measured for the duration of the amplified activities associated with the event 5:00 pm to 10:10 pm at the three positions required by the Noise Management Plan. During the monitoring, notes were also made regarding the sources of noise in the area and the source of any potential exceedences of the noise criteria.

Throughout the monitoring, noise levels were recorded at each location every two minutes. During each two minute period notes were also made regarding the sources of noise in the area and the source of any potential exceedences of the noise criteria. The noise levels recorded represent the highest RMS noise level recorded during the two minute period.

During the AFL match it was identified that noise levels from the event were within the criteria defined in the site's NMP throughout the noise monitoring.

At Positions 1 and 2 the match was audible at times, but no exceedances were recorded. At Position 3 the match was generally inaudible relative to traffic and other ambient noise.

No complaints were forwarded to Event Noise Management staff for investigation.

During the event, L_{Amax} noise levels were higher than the 60 dB(A) criteria for the majority of the time due to traffic noise and patrons external to the venue. These sources of noise are not directly attributable to the sound amplification system and therefore do not represent an exceedance of the criteria.

CONTENTS

1 INTRODUCTION

1.1 SCOPE OF ASSESSMENT

Sydney Cricket Ground Trust (SCGT) commissioned Event Noise Management to conduct event noise monitoring during the Sydney Swans v Gold Coast AFL match held on 5 September 2015 as part of the requirements under the Noise Management Plan (NMP) for the facility[1]

This report presents a summary of the results of the monitoring and a comparison with the noise criteria for the event as defined in the NMP and EPA Variation of Prevention Notice (2 December 2013).

1.2 EVENT DETAILS

The sporting event was held at Sydney Cricket Ground (SCG) on Saturday 5 September 2015. 5:00 pm and 10:04 pm, with amplified music, announcements and advertising continuing at a low level until approximately 10:10 pm.

1.3 EVENT NOISE CRITERIA

Noise limits for sporting events held at Allianz Stadium are provided in the EPA Variation of Prevention Notice (2 December 2013):

> *'(a) When measured at the specified monitoring locations, the L_{Amax} of noise emanating from any sound amplification equipment must not exceed 60 dB (A) during any sporting events. This noise limit applies to wind speeds up to 5 m/s, above which wind generated noise on the microphone limits measurement accuracy. During period of winds greater than 5 m/s this noise limit does not apply.*
>
> > *i) Noise levels measured when wind speed exceeds 5 m/s (at microphone height) should not be used to measure compliance with noise limits, as wind generated noise may influence measurement accuracy. During periods of wind greater than 5 m/s the Trust must continue to take all reasonable and feasible actions to minimise noise.'*

Section 15.4 of the NMP details the monitoring positions that must be considered as follows:

> ***'Description Of Location***
>
> *For both sporting events and concerts attended monitoring locations will be as set out below.*
>
> *a) For activities taking place at the SCG:*
>
> - *At a point within one (1) metre of the boundary nearest to the SCG at the corner of Poate Road and Poate Lane, Centennial Park;*

[1] *Sydney Cricket and Sports Ground Trust (SCGT) Noise Management Plan for Sydney Cricket and Sports Ground Trust (April 2011)*

- *At a point within one (1) metre of the boundary nearest to the SCG at the corner of Leinster and Regent Streets, Paddington;3*
- *At a point within one (1) metre of the boundary nearest to the SCG at the corner of Robertson Road and Martin Road (northern intersection), Moore Park.*

2 MONITORING METHODOLOGY

2.1 MONITORING POSITIONS

Monitoring during the match were undertaken at two fixed monitoring positions as required by the NMP. Table 2.1 presents a summary of the monitoring locations assessed during the event, with the monitoring positions identified on Figure 1.

TABLE 2.1: SUMMARY OF MONITORING POSITIONS

Position	Description
1	Fixed monitoring position located within 1 m of the front boundary at the corner of Poate Road and Poate Lane
2	Fixed monitoring position located within 1 m of the front boundary at the corner of Leinster and Regent Streets
3	Fixed monitoring position located within 1 m of the front boundary at the corner of Robertson Road and Martin Road (northern intersection)

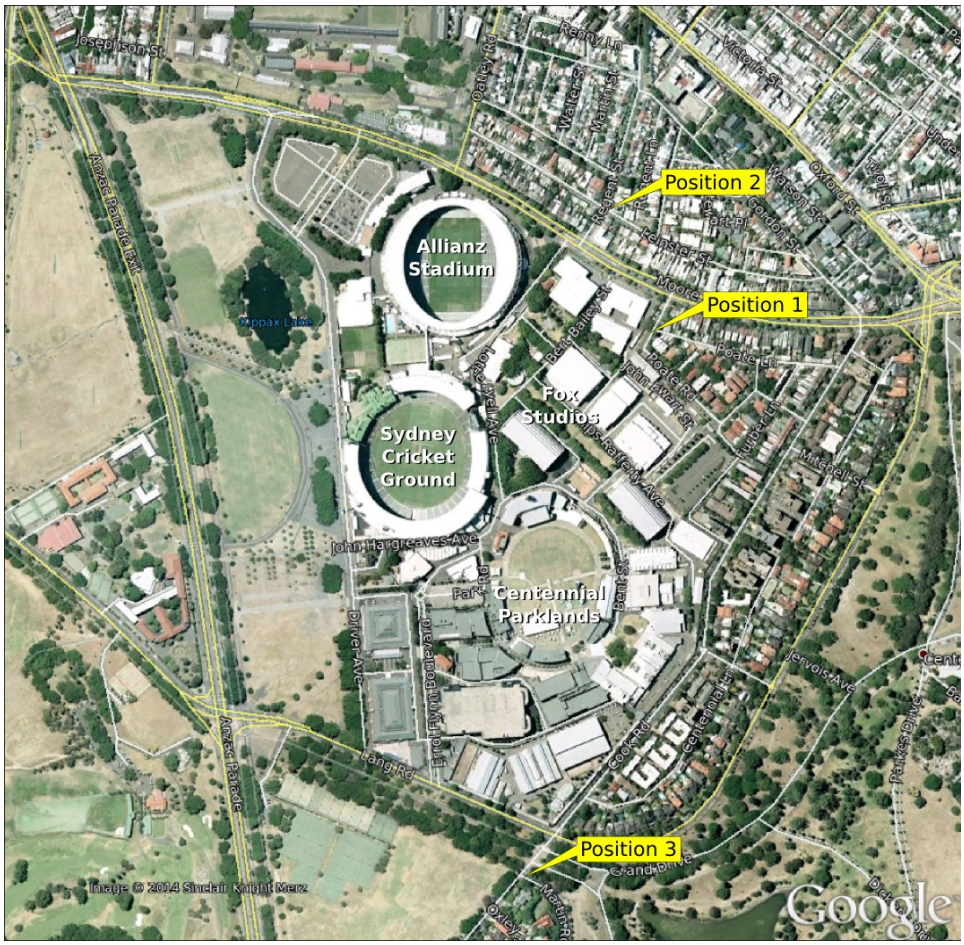

Figure 1: Noise Monitoring Positions (External Fixed Locations)

2.2 OPERATORS

During the monitoring undertaken on 5 September 2015, Event Noise Monitoring personnel were located at each position identified in Figure 1. The monitoring exercise was undertaken by the following personnel:

- Position 1: Roger Treagus: BA, MA Env. Stud, MAAS.
- Position 2: Glen Slough: AssocDeg(Audio Eng), MSc, MAAS, MAES.
- Position 3: Beau Weyers: BEng(Mech), MAAS, RPEQ.

2.3 MONITORING EQUIPMENT

Table 2.2 presents a summary of the equipment used to complete the monitoring. The monitoring instruments utilised conform to Australian Standard 1259 "Acoustics - Sound Level Meters", (1990) as Type 1 precision sound level meters and have an accuracy suitable for both field and laboratory use.

The sound level meters and calibrator used for the monitoring have been checked, adjusted and aligned to conform to the Type 1 specifications and issued with a conformance certificate (NATA).

TABLE 2.2: SUMMARY OF MONITORING EQUIPMENT

Position	Instrument Model	Instrument Serial	Instrument Calibration Due Date	Calibrator Model	Calibrator Serial	Calibrator Calibration Due Date
1	Nor 140	1404663	6/07/17	Svan SV03A	358	6/01/16
2	Nor 140	1405261	7/05/17	Svan SV03A	358	6/01/16
3	Nor 140	1405306	9/07/17	Svan SV03A	358	6/01/16

Field calibrations of each of the instruments were also undertaken prior to and immediately after the monitoring was completed. Less than 0.5 dB drift occurred over the measurement periods. All instruments were fitted with a windshield and monitoring was completed at a height of 1.5 m above ground level.

2.4 WEATHER CONDITIONS DURING THE EVENT

During the monitoring period winds speeds on site were typically light to moderate south-easterly winds up to 24 km/h. The temperature was generally cool with predominantly overcast conditions.

Table 2.3 presents a summary of the meteorological data from Sydney Airport obtained from the Bureau of Meteorology during the event.

TABLE 2.3: SUMMARY OF METEOROLOGICAL DATA

Time	Temp °C	Wind					Pressure hP	Rain since 9 am mm
		Direction	Speed km/h	Gust km/h	Speed knots	Gust knots		
5:00 pm	16.2	SE	24	33	13	18	1020.8	0
5:30 pm	15.9	SE	22	32	12	17	1020.9	0
6:00 pm	16	SE	24	30	13	16	1021.4	0
6:30 pm	16	SE	19	24	10	13	1021.7	0
7:00 pm	15.7	SE	20	26	11	14	1021.9	0
7:30 pm	15.8	SE	20	26	11	14	1022.2	0
8:00 pm	15.9	SE	17	20	9	11	1022.5	0
8:30 pm	15.9	SE	17	20	9	11	1022.8	0
9:00 pm	15.6	SE	17	22	9	12	1022.7	0
9:30 pm	16.2	SE	17	20	9	11	1022.9	0
10:00 pm	15.9	SSE	17	20	9	11	1023.2	0
10:30 pm	14.7	SW	19	26	10	14	1023.3	0

2.5 METEOROLOGICAL INFLUENCES ON MONITORING

During the main match the, light SE winds would have tended to carry noise from the SCG away from the residential areas, and may have reduced noise levels at the three monitoring positions.

3 RESULTS OF MONITORING

3.1 METHODOLOGY

Noise monitoring was completed continuously at each location throughout the monitoring period with the maximum noise level recorded for every two minute period. During the monitoring, notes were also made regarding the sources of noise in the area and the source of any potential exceedances of the noise criteria. The noise levels represent the highest RMS noise level recorded during the two minute period. Hence, even where exceedances are identified, it is possible that for the majority of the two minute period receptor noise levels (from amplified activities in the SCG) were compliant with the NMP criteria.

3.2 MONITORING RESULTS

Noise monitoring during the Sydney Swans v Gold Coast AFL Match held on 5 September 2015 at the SCG was conducted between 5:00 pm and 10:10 pm at monitoring positions 1, 2 and 3. The measured noise levels and associated notes that were recorded during this period are presented in Appendix B.

During the AFL match it was identified that noise levels from the event were within the criteria defined in the site's NMP throughout the noise monitoring.

At Positions 1 and 2 the match was audible at times, but no exceedances were recorded. At Position 3 the match was generally inaudible relative to traffic and other ambient noise.

All recorded L_{Amax} noise levels were greater than the noise criteria set in the NMP for noise emanating from sound amplification equipment. However, these noise levels do not represent non-compliance with the NMP as the L_{Amax} levels recorded were attributable to extraneous noise sources and not the PA system. These sources included passing vehicles, aircraft overhead and event patrons outside the venue.

3.3 CONCERT HOTLINE

During the event no noise complaint related calls were received on the concert hotline established by the Sydney Cricket Ground Trust. No complaints were received by Event Noise Management staff for investigation.

4 CONCLUSIONS

Noise monitoring of amplified noise from Sydney Cricket Ground during the Sydney Swans v Gold Coast AFL match held on 5 September 2015 was completed at three positions as required by the site's Noise Management Plan.

Noise levels were measured for the duration of the amplified activities associated with the event from 5:00 pm to 10:10 pm. Throughout the monitoring, noise levels were recorded continuously and the maximum levels for every two minute period were identified. During each two minute period notes were also made regarding the sources of noise in the area and the source of any potential exceedences of the noise criteria. The noise levels recorded represent the highest RMS noise level recorded during the two minute period.

During the AFL match it was identified that noise levels from the event were within the criteria defined in the site's NMP throughout the noise monitoring.

At Positions 1 and 2 the match was audible at times, but no exceedances were recorded. At Position 3 the match was generally inaudible relative to traffic and other ambient noise.

No complaints were forwarded to Event Noise Management staff for investigation.

During the event, L_{Amax} noise levels were higher than the 60 dB(A) criteria for the majority of the time due to traffic noise and patrons external to the venue. These sources of noise are not directly attributable to the sound amplification system and therefore do not represent an exceedance of the criteria.

APPENDIX A

ACOUSTIC GLOSSARY

APPENDIX A: GLOSSARY OF ACOUSTIC TERMINOLOGY

A-Weighting	A response provided by an electronic circuit which modifies sound in such a way that the resulting level is similar to that perceived by the human ear.
dB (decibel)	This is the scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and the reference pressure ($0.00002 N/m^2$).
dB(A)	This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
dB(C)	This is a standard weighting of the audible frequencies, commonly used for the measurement of Peak Sound Pressure level.
Facade Noise Level	Refers to a sound pressure level determined at a point close to an acoustically reflective surface (in addition to the ground). Typically a distance of 1 metre is used.
Free Field	Refers to a sound pressure level determined at a point away from reflective surfaces other than the ground with no significant contribution due to sound from other reflective surfaces; generally as measured outside and away from buildings.
Hertz (Hz)	A measure of the frequency of sound. It measures the number of pressure peaks per second passing a point when a pure tone is present.
L_{Aeq} **Equivalent Continuous Sound Level**	This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period. For a steady sound with small fluctuations, its value is close to the average sound pressure level.
$L_{A90,T}$	This is the dB(A) level exceeded 90% of the time, T.
$L_{A10,T}$	This is the dB(A) level exceeded 10% of the time, T.
L_{Amax}	is the maximum A-weighted sound pressure level recorded over the period stated.
L_{Cmax}	is the maximum C-weighted sound pressure level recorded over the period stated.

APPENDIX B

DETAILED MONITORING DATA (FIXED POSITIONS)

EVENT NOISE MANAGEMENT

Project Number:	4291	**Date:**	SAT 05/09/2015
Project Description:	SCG - Swans v Gold Coast (AFL)		
Monitoring Location:	3 – SCG at Corner of Roberston Road and Martin Road, Moore Park		
Operator:	Beau Weyers		
Instrument:	Nor140 (2)	**Calibrator Model:**	Svan 03A
Instrument Serial:	1405306	**Calibrator Serial:**	358
Instrument NATA Calibration Date:	9/7/17	**Calibrator NATA Calibration Date:**	6/1/16
Pre-calibration:	93.7	**Post calibration:**	93.8

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
17:10:00	62.5	84.6	Traffic
17:12:00	74.6	87.4	Traffic 50-60 dB(A), horses on cobblestone, birds including cockatoos 61-67 dB(A)
17:14:00	66.4	81.6	Less frequent vehicles on Robertson Road or Martin Road 60-70 dB(A)
17:16:00	69.2	74.6	Traffic
17:18:00	65.2	73.3	Ambient Levels 48-50 dB(A)
17:20:00	66.7	76.8	Traffic
17:22:00	65.6	83.2	Traffic
17:24:00	69.7	81.6	Traffic
17:26:00	61.1	77.8	Traffic, Pedestrian talking, motorbike max
17:28:00	65.9	77.1	Traffic
17:30:00	60.9	75.1	Traffic
17:32:00	68.5	80.1	Traffic, lots of Cockatoos
17:34:00	73.5	78.7	Traffic, birds, occasional motorbike
17:36:00	59.3	73.4	Traffic
17:38:00	75	87.2	Traffic, motorbike max
17:40:00	66	77.6	Traffic
17:42:00	62.7	77.4	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
17:44:00	74.1	78.4	Traffic, local vehicle
17:46:00	75.5	79.4	Traffic, car horn
17:48:00	69.7	72.2	Traffic, pedestrians walking through leaves
17:50:00	66.5	77.4	Traffic, local vehicle
17:52:00	73.3	81.1	Traffic, resident gate bang, birds
17:54:00	63.6	74.4	Traffic
17:56:00	63.4	74.4	Traffic
17:58:00	69.9	82.4	Traffic, pedestrians talking nearby
18:00:00	65	73.4	Traffic
18:02:00	63.9	78.8	Traffic, Kookaburras/ flying foxes
18:04:00	66.7	85.3	Traffic, exhaust on main road 64.4 dB(A), local car 66.7 dB(A)
18:06:00	67.5	83.3	Traffic
18:08:00	63	74	Traffic
18:10:00	67.1	76.1	Traffic, idle vehicle nearby, bats
18:12:00	65.9	76.9	Traffic 52-57 dB(A) during red light reduced to 46 dB(A)
18:14:00	63.3	77.7	Traffic, resident gave bag
18:16:00	62.4	75.9	Traffic
18:18:00	70.2	75.9	Traffic, local vehicle
18:20:00	62.6	80.8	Traffic
18:22:00	63.9	80.7	Traffic
18:24:00	67.4	72	Traffic, pedestrian stomping leaves
18:26:00	64.7	76.9	Traffic, clouds dispersed
18:28:00	65.2	71.4	Traffic
18:30:00	68.4	78.3	Traffic, local vehicle
18:32:00	64.6	81.8	Traffic
18:34:00	64.5	77.8	Traffic, local vehicle, pedestrian talking
18:36:00	70	79.3	Traffic
18:38:00	71.6	89	Traffic, car doors

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
18:40:00	73.9	81.5	Traffic, bats define background, car door max
18:42:00	65	78.2	Traffic, pedestrians talking
18:44:00	64	81.2	Traffic, ambient 50 dB(A), bat 60.5 dB(A)
18:46:00	68.4	89.5	Traffic, pedestrians
18:48:00	61.5	71.8	Traffic
18:50:00	62.6	75.8	Traffic, some perceptible bass <48 dB(A)
18:52:00	65.1	74.6	Traffic, pedestrians
18:54:00	72.8	83.8	Traffic, 4 x local vehicles
18:56:00	64.9	75.1	Traffic
18:58:00	67.8	78.4	Traffic
19:00:00	66.2	82.9	Traffic, local vehicles, pedestrians, bats
19:02:00	58.8	72.6	Traffic
19:04:00	65.7	84.3	Traffic, motorbike on main road
19:06:00	74.7	79.5	Traffic, motorbike on local road
19:08:00	65.4	73.3	Traffic
19:10:00	66.6	78.9	Traffic, refuse truck entering park 61.4 dB(A)
19:12:00	65.7	79.5	Traffic, local vehicle 65.7 dB(A)
19:14:00	72.2	85.4	Traffic, motorbike on main road
19:16:00	66.2	74	Traffic, some bass just barely perceptible ~48 dB(A), phone (venue manager checking levels)
19:18:00	61.3	75	Traffic
19:20:00	66.6	82.9	Traffic
19:22:00	63.9	81.6	Traffic, game siren just audible
19:24:00	72.7	85.8	Traffic, motorbikes on main road
19:26:00	65	68.5	Traffic
19:28:00	64.6	82.2	Traffic
19:30:00	66.1	76.9	Traffic, car doors 65.5 dB(A), departing 66.1 dB(A)
19:32:00	63.7	83	Traffic
19:34:00	81.4	82.4	Traffic, resident talking loudly (positively) near microphone

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
19:36:00	62.9	74	Traffic
19:38:00	70.3	85.6	Traffic, car door
19:40:00	63.2	76.7	Traffic
19:42:00	61.8	72.6	Traffic
19:44:00	63.3	71.7	Traffic less consistent on main road
19:46:00	67	78.1	Bursts of traffic on main road, occasional bats
19:48:00	59.9	72.8	Traffic
19:50:00	63	77.1	Traffic
19:52:00	57.8	72.2	Traffic, pedestrian/ resident talking
19:54:00	63.9	75.1	Traffic, main road 55.1 dB(A), bats, exhaust popping 62.2 dB(A)
19:56:00	67.5	72.8	Traffic, local vehicle movement max
19:58:00	62.4	73.3	Traffic, siren just audible <45 dB(A)
20:00:00	62.9	73.8	Traffic
20:02:00	62.1	79.7	Traffic
20:04:00	61	72.5	Long pauses in traffic 42 dB(A)
20:06:00	54.8	67.7	Traffic
20:08:00	53.4	69.2	Traffic, 20:09 vehicle with loud bass music to 52 dB(A)
20:10:00	63.9	78.9	Traffic
20:12:00	62.3	70.5	Traffic
20:14:00	65	75.8	Traffic
20:16:00	61.1	70	Traffic
20:18:00	63.9	85.6	Traffic occasionally <40 dB(A)
20:20:00	56.2	70.9	Traffic
20:22:00	65.6	70.7	Traffic, resident on leaves, bats
20:24:00	55.4	72.6	Traffic
20:26:00	57.6	77.2	Traffic
20:28:00	59.9	74.2	Traffic
20:30:00	63.9	82.3	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
20:32:00	61.3	74.9	Siren just audible, bassy music to 51 dB(A)
20:34:00	63.1	77.5	Traffic
20:36:00	71.5	80.6	Local car with bassy music and old engine
20:38:00	67	75.9	Traffic
20:40:00	60.8	72.3	Traffic
20:42:00	60.4	76.2	Traffic
20:44:00	64.6	74.4	Local vehicle
20:46:00	67.8	71.1	Car horn, very faint music <40 dB(A)
20:48:00	61.7	68.3	Bats, game sirens, traffic all low level
20:50:00	62.7	79.5	Traffic
20:52:00	61.1	71.9	Traffic
20:54:00	62.7	70.9	General traffic, bats
20:56:00	55	69	Traffic
20:58:00	53.6	69.6	Traffic
21:00:00	57	72.4	Traffic
21:02:00	58	73.9	Traffic ~48 48 dB(A) with spikes above 50 dB(A)
21:04:00	60.2	71.7	Traffic
21:06:00	57.1	72.7	Garbage collection at park
21:08:00	65.6	85.2	Garbage truck departing
21:10:00	64.1	78.6	Traffic
21:12:00	59.2	71.3	Traffic
21:14:00	66.1	87.6	Car door 60.5 dB(A), 61.7 dB(A), 62.4 dB(A), car departing 66.1 dB(A)
21:16:00	62.7	79.1	Patrons departing
21:18:00	63.9	77	Siren just audible
21:20:00	55	70.9	General traffic increasing on main road
21:22:00	64.6	73.3	Traffic
21:24:00	59.8	69	Background ~36 dB(A), SCG siren ~41 dB(A), Traffic
21:26:00	64.4	77.1	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
21:28:00	61.9	68.3	Traffic
21:30:00	60.1	74.1	Bats, departing vehicles, traffic
21:32:00	70.3	72.2	Motorbike on main road nearby 70.4 dB(A)
21:34:00	59.4	71.5	Traffic
21:36:00	60.8	74.2	Traffic
21:38:00	64.3	73.7	More frequent local vehicles (departing)
21:40:00	58.4	74.9	Car idle in front of logger
21:42:00	61.2	76.2	Traffic
21:44:00	63.2	76.3	Traffic
21:46:00	54.6	68.4	Car playing bassy music ~54 dB(A)
21:48:00	63.4	74.5	Crowd cheer just perceptible ~48 dB(A)
21:50:00	60.1	75.7	Patrons departing, traffic, bats
21:52:00	66	81.1	Patrons departing
21:54:00	63.2	74.1	Car doors 53.5 dB(A), bats, car departing 63.2 dB(A)
21:56:00	65.3	80.5	Just perceptible crowd cheer , distant exhaust noise, louder than localised traffic movements
21:58:00	58.5	71.5	Final siren ~45 dB(A), Traffic
22:00:00	66.4	72.6	Traffic increased, ambient 45-50 dB(A)
22:02:00	60.4	72.2	Traffic
22:04:00	71.3	78.6	Patrons/ traffic
22:06:00	63.7	70.1	No audible SGC noise, stopped monitoring

EVENT NOISE MANAGEMENT

Project Number:	4291	**Date:**	SAT 05/09/2015
Project Description:	SCG - Swans v Gold Coast (AFL)		
Monitoring Location:	1 - SCG at Corner of Poate Road and Poate Lane, Centennial Park		
Operator:	Roger Treagus		
Instrument:	Nor140 (10)	**Calibrator Model:**	Svan 03A
Instrument Serial:	1404683	**Calibrator Serial:**	358
Instrument NATA Calibration Date:	6/7/17	**Calibrator NATA Calibration Date:**	6/1/16
Pre-calibration:	94.1	**Post calibration:**	94.0

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
16:56:00	76.3	83.1	Traffic
16:58:00	86.4	88.2	Traffic
17:00:00	81.3	83.9	Traffic
17:02:00	78.6	83.4	Traffic
17:04:00	-	-	Instrument reconfigured
17:06:00	-	-	-
17:08:00	-	-	-
17:10:00	73.6	91.9	Traffic
17:12:00	72	81	Traffic Dominates
17:14:00	67.6	80.5	Traffic
17:16:00	71.4	84.5	Traffic
17:18:00	75.5	96.5	Traffic
17:20:00	66.9	76	Traffic
17:22:00	76	87.2	Traffic
17:24:00	69.5	80.2	Traffic
17:26:00	65.2	79.2	Traffic
17:28:00	79.1	89.3	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
17:30:00	74.5	81	Traffic
17:32:00	73	89.8	Traffic
17:34:00	67.1	79.8	Traffic
17:36:00	86.4	92.2	Traffic
17:38:00	63.5	80.7	Traffic
17:40:00	80.1	85.3	Traffic
17:42:00	70.1	86.3	Traffic
17:44:00	74	81.7	Traffic
17:46:00	69.8	82.1	Traffic
17:48:00	71.8	79.3	Traffic
17:50:00	75.6	79.7	Traffic
17:52:00	70.5	80.3	Traffic
17:54:00	66.8	73.8	Traffic
17:56:00	68.5	76	Traffic
17:58:00	70.3	79.7	Traffic
18:00:00	70.3	86.4	Traffic
18:02:00	52	61.9	Traffic
18:04:00	-	-	Batteries failed, were replaced and instrument restarted. No noise identified from SCG during period.
18:06:00	-	-	
18:08:00	-	-	
18:10:00	-	-	
18:12:00	-	-	
18:14:00	-	-	
18:16:00	-	-	
18:18:00	-	-	
18:20:00	66	81.7	Traffic
18:22:00	67.4	82.8	Traffic, sirens to 56 dB(A)
18:24:00	70.2	77.1	Traffic, SLM Resetting to 2 min mode
18:26:00	68.8	76.4	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
18:28:00	70.8	87.6	Traffic, PA audible
18:30:00	68.6	74.7	Traffic, PA audible
18:32:00	66.9	81.9	Traffic
18:34:00	61	82.7	Traffic
18:36:00	66.9	82.3	Traffic
18:38:00	60.2	80.5	Traffic, PA < 48 dB(A)
18:40:00	78.6	87.8	Traffic
18:42:00	62.9	78.3	Traffic
18:44:00	67.3	74.8	Traffic
18:46:00	67.1	71.5	Traffic, PA audible <46 dB(A) max
18:48:00	69.4	76	Traffic, PA audible <46 dB(A) Max
18:50:00	63.4	74.1	Traffic
18:52:00	69.1	80.4	Traffic
18:54:00	73.4	82.5	Traffic
18:56:00	68.5	73.8	Traffic
18:58:00	71.6	71.8	Traffic
19:00:00	68.3	73.5	Traffic
19:02:00	69	83	Traffic
19:04:00	66.4	76.8	Traffic
19:06:00	64.1	75.1	Traffic
19:08:00	68.7	91.8	Traffic
19:10:00	80.6	82.6	Traffic
19:12:00	78.2	81.1	Traffic
19:14:00	71.3	72.1	Traffic, Siren < 56 dB(A)
19:16:00	69	79.5	Traffic
19:18:00	73.7	81	Traffic, music 56.8 dB(A), PA voice 53.0 dB(A)
19:20:00	70.7	75.8	Traffic
19:22:00	73.5	85	Traffic
19:24:00	66.8	74.3	Traffic, Sirens to 59 dB(A)

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
19:26:00	79.6	88.2	Traffic
19:28:00	66.6	73.8	Traffic
19:30:00	68.4	78.7	Traffic
19:32:00	68.6	80.5	Traffic
19:34:00	64.8	73	Traffic
19:36:00	55.3	72.3	Traffic
19:38:00	57.6	73.4	Traffic, crowd < 46 dB(A)
19:40:00	65.8	80.4	Traffic
19:42:00	67.4	80.9	Traffic
19:44:00	66	78.9	Traffic
19:46:00	57.9	67.5	Traffic, crowd
19:48:00	61.3	64.5	Traffic, crowd
19:50:00	67.3	80.3	Traffic
19:52:00	67.4	76.9	Traffic, PA voice 45 dB(A)
19:54:00	70.8	74.9	Traffic, siren 56 dB(A)
19:56:00	70.8	81.1	Traffic, PA 46 dB(A), siren 56 dB(A), music 48 dB(A)
19:58:00	69.7	73.1	Traffic
20:00:00	60	76.1	Traffic
20:02:00	73.7	89.7	Traffic
20:04:00	64.7	80.5	Traffic
20:06:00	64.2	84.7	Traffic
20:08:00	54.1	73.7	Traffic
20:10:00	71.6	78.2	Traffic
20:12:00	65	71.2	Traffic
20:14:00	62.3	79.5	Traffic
20:16:00	61	78.1	Traffic
20:18:00	65.9	80.7	Traffic
20:20:00	58.7	74.1	Traffic
20:22:00	55.7	68.6	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
20:24:00	75.2	81.8	Traffic
20:26:00	69.9	72.8	Traffic
20:28:00	68.2	74.7	Traffic
20:30:00	58.3	77.3	Traffic
20:32:00	61.7	72.4	Traffic
20:34:00	63	71.9	Traffic, PA voices 45 dB(A)
20:36:00	58.4	79	Traffic, PA voices 46 dB(A)
20:38:00	70.1	74.1	Traffic, PA voices 46 dB(A)
20:40:00	70.6	88.1	Traffic, PA voices 46 dB(A)
20:42:00	62	74.7	Traffic
20:44:00	67.4	75.7	Traffic, music to 49 dB(A)
20:46:00	69.5	85	Traffic, music to 49dB(A)
20:48:00	68.5	73.6	Traffic, music to 49 dB(A)
20:50:00	70.6	87.3	Traffic, music to 49 dB(A)
20:52:00	68.4	83.4	Traffic
20:54:00	54.1	65.7	Traffic
20:56:00	68.3	73.8	Traffic
20:58:00	59.9	67	Traffic
21:00:00	64.4	74.8	Traffic
21:02:00	53.4	66.2	Traffic, crowd music
21:04:00	66.4	74	Traffic, crowd music
21:06:00	59.7	76	Traffic
21:08:00	58.3	74.9	Traffic
21:10:00	67.4	95.3	Traffic
21:12:00	68.5	67.4	Traffic
21:14:00	67.7	78.6	Traffic
21:16:00	60.9	62.1	Traffic
21:18:00	69.1	76.4	Traffic
21:20:00	72	75.3	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
21:22:00	68.4	70.2	Traffic
21:24:00	69	78.8	Traffic
21:26:00	66.5	86.1	Traffic, crowd music
21:28:00	62.7	75.1	Traffic, crowd music
21:30:00	56.5	73.4	Traffic
21:32:00	61.9	67.5	Traffic
21:34:00	62.5	70.3	Traffic
21:36:00	68.2	75.3	Traffic
21:38:00	68	79.3	Traffic
21:40:00	67.9	78.8	Traffic
21:42:00	86.2	86.6	Traffic
21:44:00	82.6	82.9	Traffic
21:46:00	67	87.9	Traffic
21:48:00	71.5	86.3	Traffic, crowd <46 dB(A)
21:50:00	67.6	74.2	Traffic, crowd <46 dB(A)
21:52:00	63.6	69.3	Traffic
21:54:00	69.7	75.6	Traffic
21:56:00	62.5	75.6	Traffic
21:58:00	66.5	74.7	Traffic, final siren
22:00:00	70.8	86.2	Traffic, music 52 dB(A)
22:02:00	67.9	77.4	Traffic, PA announcement 49 dB(A)
22:04:00	67.6	76.3	Traffic, PA announcement 49 dB(A)
22:06:00	75.1	75.9	Traffic, music 52 dB(A)
22:08:00	75.3	83.3	Traffic, music 49 dB(A)
22:10:00	73.5	83.9	Traffic
22:12:00	67.5	78.1	Traffic
22:14:00	83.3	84.9	Traffic
22:16:00	105.1	126.9	Traffic

EVENT NOISE MANAGEMENT

Project Number:	4291	**Date:**	SAT 05/09/2015
Project Description:	SCG - Swans v Gold Coast (AFL)		
Monitoring Location:	2 – SCG at Corner of Leinster and Regent Streets, Paddington		
Operator:	Glen Slough		
Instrument:	Nor140 (7)	**Calibrator Model:**	Svan 03A
Instrument Serial:	1405261	**Calibrator Serial:**	358
Instrument NATA Calibration Date:	7/5/17	**Calibrator NATA Calibration Date:**	6/1/16
Pre-calibration:	93.8	**Post calibration:**	94.0

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
17:00:00	82.7	85.3	Background is dominated by traffic on Moore Park Road
17:02:00	81.4	84.4	Traffic
17:04:00	82.1	91.7	Traffic
17:06:00	71.9	88.4	No audible contribution from stadium
17:08:00	67.3	79.9	Traffic
17:10:00	71.5	81.8	Traffic
17:12:00	70.4	81.4	L_{Amax}'s typically caused by passing cars accelerating up the hill or passing pedestrians talking
17:14:00	68	81.1	Traffic
17:16:00	73.1	89.2	Traffic
17:18:00	74.1	81.1	Traffic
17:20:00	67.7	86.9	Traffic
17:22:00	70.6	80.7	Traffic
17:24:00	79.9	89.1	Traffic
17:26:00	73.5	88.3	Traffic
17:28:00	69.7	84	Traffic
17:30:00	65.8	79	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
17:32:00	71.1	79.5	House next to location slamming the front door
17:34:00	75.6	80.2	Background noise dominated by Moore Park Road. When traffic is stopped, suburban noises and voices from a party up the street dominate
17:36:00	71	84.6	Traffic
17:38:00	72.1	85.7	Traffic
17:40:00	74.8	85.7	Traffic
17:42:00	73.1	88.2	Traffic
17:44:00	78.1	81.5	Traffic
17:46:00	73.5	88.2	Stadium is inaudible
17:48:00	71.8	83.5	Traffic
17:50:00	69.4	91.7	Traffic
17:52:00	72.3	91.2	Traffic
17:54:00	70.3	85.2	Traffic
17:56:00	78.8	81.3	Traffic
17:58:00	68.3	89.3	Traffic
18:00:00	71.1	78.7	Traffic
18:02:00	75.3	85.7	L_{Amax} due to local passing traffic
18:04:00	70.2	84.5	Traffic
18:06:00	72.5	86.2	No noise from the stadium
18:08:00	70.3	82	Traffic
18:10:00	82.7	82.4	Traffic
18:12:00	68.7	74.2	Traffic
18:14:00	65.7	74.2	Traffic
18:16:00	69.8	81.4	Traffic
18:18:00	72.4	80.8	Traffic
18:20:00	66.1	75.9	Horn from kickoff audible but not dominant
18:22:00	69.8	82.9	Traffic
18:24:00	67	83	Announcements just audible for about 30 seconds but not contributing to L_{Amax}

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
18:26:00	72.7	79.2	Traffic
18:28:00	66.2	74.1	Traffic
18:30:00	77.1	80.1	Traffic
18:32:00	75.3	90.3	Traffic
18:34:00	75.6	87.4	Traffic
18:36:00	86.4	93.5	Traffic
18:38:00	72.4	86.1	Passerby talking into microphone
18:40:00	74.7	87.2	No noise audible from venue
18:42:00	73.4	89.5	L_{Amax}s still all from passing foot and road traffic
18:44:00	71.8	82.8	Traffic
18:46:00	67	83.1	Traffic
18:48:00	82	81.3	Traffic
18:50:00	82.5	82.6	Traffic
18:52:00	78.3	82.1	Traffic
18:54:00	81.6	83.6	Traffic
18:56:00	74.3	81.3	Traffic
18:58:00	74.3	84.4	Traffic
19:00:00	73.5	74.8	Traffic
19:02:00	74.6	75	Traffic
19:04:00	69.9	81	Traffic
19:06:00	69	82	Traffic
19:08:00	69.6	79.4	Traffic
19:10:00	69.9	83.7	Traffic
19:12:00	76.3	79.3	Traffic
19:14:00	75.6	92.1	Horn from venue heard at 19:13. did not contribute to L_{Amax}. No music or announcements audible
19:16:00	77.1	78.3	Music audible from venue estimated contribution 52 dB(A). Background traffic noise dominating measurement.

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
19:18:00	68.7	81.4	Traffic
19:20:00	70.6	80.6	Traffic
19:22:00	69	78.8	Traffic
19:24:00	71.1	81.2	Traffic
19:26:00	74.1	90.5	Traffic
19:28:00	78	83.8	Traffic
19:30:00	75.9	86	Traffic
19:32:00	79.3	89.1	No noise from the venue audible
19:34:00	69.9	85.2	Traffic
19:36:00	83.2	81.8	Traffic
19:38:00	83.8	82.4	Traffic
19:40:00	68.9	77.7	Traffic
19:42:00	67.4	76.1	Traffic
19:44:00	78.9	87.4	Traffic
19:46:00	73.7	81.3	Traffic
19:48:00	64.6	78.8	Traffic
19:50:00	66.6	82	Background noise has dropped back a bit with reduced foot and car traffic. Still no audible noise from the venue.
19:52:00	69.1	83.4	Traffic
19:54:00	82.4	92.8	Traffic
19:56:00	77	80.8	Slight amount of music audible from the venue between traffic lights. Estimated contribution 52 dB(A) or less relative to background.
19:58:00	67.3	79	Traffic
20:00:00	69.5	77.1	Traffic
20:02:00	82.4	95	Traffic
20:04:00	68.4	83.3	Traffic
20:06:00	68.8	72.2	Traffic
20:08:00	73.9	83.5	Traffic
20:10:00	69	81.2	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
20:12:00	62	79.4	Traffic
20:14:00	67.7	81.5	Traffic
20:16:00	68.3	83.7	Traffic
20:18:00	64	79.7	Traffic
20:20:00	84.7	98	Monitoring paused, instrument bumping in case defining maximums. No audible noise from venue identified during this period.
20:22:00	91.1	114.1	
20:24:00	71.9	102.2	
20:26:00	85.8	106.2	
20:28:00	89.8	100.2	
20:30:00	75.5	79.5	Traffic
20:32:00	74.2	86.3	Traffic
20:34:00	62.7	68	Traffic
20:36:00	71.2	86.5	Traffic
20:38:00	73.1	85.9	Half time music playing. Just audible – estimated contribution 50-52 dB(A)
20:40:00	73.4	87.1	Traffic
20:42:00	65.4	76.1	Traffic
20:44:00	70.1	77.5	Traffic
20:46:00	66.9	81.1	Traffic
20:48:00	73.1	89.4	Traffic
20:50:00	71.9	82	Traffic
20:52:00	75.2	79.2	Traffic has died off even more. Foot traffic increasing.
20:54:00	70.6	73.3	Traffic
20:56:00	65.7	76.4	Venue music stopped/not audible.
20:58:00	62.2	72.4	Distant mechanical plant audible when traffic reduces
21:00:00	68.9	82.1	Traffic
21:02:00	75.2	85.5	Traffic
21:04:00	65	71.5	Traffic
21:06:00	67.6	79.7	Traffic

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
21:08:00	65.2	85.2	Traffic
21:10:00	73.6	90.3	No audible noise from venue
21:12:00	67.3	72.9	Traffic increasing
21:14:00	63	78.2	Humidity has increased
21:16:00	64.9	77.9	No contribution from venue
21:18:00	74.9	90.5	Traffic
21:20:00	66.3	84.2	Traffic
21:22:00	62.8	74.4	Parked cars waiting for patrons dominating background (57-58 dB(A))
21:24:00	68.7	74.9	Traffic
21:26:00	66.6	76.5	Traffic
21:28:00	70.9	76.3	Traffic
21:30:00	68.5	76.8	No contribution from venue
21:32:00	70.7	78.9	Traffic
21:34:00	69.3	80.8	Traffic
21:36:00	66.3	81.3	Traffic
21:38:00	64.5	78.3	Traffic
21:40:00	60.6	76.5	Traffic
21:42:00	67.3	80.4	Traffic
21:44:00	67.7	85.2	Traffic
21:46:00	77.4	97.5	Traffic
21:48:00	64.8	77.9	Traffic
21:50:00	67.9	79.1	No contribution from venue, increased traffic especially cars u-turning on Regent St
21:52:00	79.3	92.8	Traffic
21:54:00	69.2	83.9	Traffic
21:56:00	66.1	78	Traffic
21:58:00	69.8	83.1	Game finished, some music playing. Bass just audible during breaks in traffic. Estimate contribution from SCG is 50 dB(A) or less

Weather:	**SW'ly Breeze (cold), approximately 50% cloud, dry**		
Time	**L_{max} dB(A)**	**L_{max} dB(C)**	**Description of Noise**
22:00:00	91.7	91.3	Traffic
22:02:00	67.5	86.4	Traffic
22:04:00	85.9	86.9	Traffic
22:06:00	64.8	80.4	Traffic
22:08:00	72.1	81	L_{Amax} recording due to people talking into the mic
22:10:00	72.9	84.1	No contribution from the venue
22:12:00	73.3	90.3	All pedestrians chatting
22:14:00	83.5	87.8	Traffic
22:16:00	76	83.4	Traffic
22:18:00	85.3	92.5	Traffic
22:20:00	60.2	69.6	Monitoring finished
22:22:00	94	94	Post Calibration