Final Environmental Noise Report

Electric Gardens 2020
The Brazilian Field, Centennial Park
February 21 & 22 2020

Prepared for

The Centennial Parklands & Moore Park Trust
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A. Introduction

The P.A. People were engaged by The Centennial Parklands & Moore Park Trust to provide Environmental Noise Management and Monitoring Services for Electric Gardens 2020

This document is the final report outlining the process and procedures employed by our Company to assist the venue and the event organiser to manage the environmental impact of this event on the surrounding residential areas of Centennial Park. The document is intended to fulfil the requirements of the sound monitoring report as required by The Centennial Parklands & Moore Park Trust to comply with Centennial Park EPA Notice details - Clause 17 (a) through (h) of the Trusts Prevention Notice No 1002139, file No SR125 dated 26-Feb-2001. And Variations of Prevention Notice No 1521549 File No EF13/8821 dated 18-Feb-2015

To proactively prevent perimeter sound pressure levels exceeding the levels set by the regulator, The P.A. People provided SPL*net* - a networked, real time sound pressure level monitoring system.

Sound pressure levels from five (5) fixed SPL data collectors located at key perimeter locations along with three (3) fixed SPL monitors at the FOH audio control mix positions were centrally monitored in real time. During the event two (2) mobile sound pressure level monitoring engineers supplemented the SPL*net* system. These mobile monitors were used to patrol the perimeter, verify SPL*net* measurements and to conduct location specific measurements in response to any received complaints.

This report comprises:

- An introduction
- Event Details
- Environmental Noise management approach
- Monitoring Details
- Results
- Appendices

The P.A. People prepared the report for this event, under the guidance of Chris Dodds M.A.A.S (Managing Director).

The report also draws extensively on our experience in other similar venues and our understanding of event operational requirements, coupled with our strong understanding of environmental noise issues as they relate to outdoor venues and live entertainment.

Please do not hesitate to contact us should you require clarification of any part of this report.

B. Compliance with the Prevention Notice

Electric Gardens 2020 complied with the noise monitoring conditions of the Trusts Prevention Notice No 1002139, file number SR125, dated 26 February 2001. And Variations of Prevention Notice No 1521549 File No EF13/8821 dated 18-Feb-2015

The location of perimeter noise loggers is based on historical data of resident complaint locations as directed by the BGCP Trust. In addition, guidelines on the position of stages and the type and direction of sound amplification are designed to minimise noise spill to residential areas, and noise loggers are generally positioned at the most sensitive perimeter areas. This provides consistency in approach to noise management and is reviewed for continuous improvement. An independent review of sound management for events on BGCP land provided further investigation of the most sensitive perimeter areas and provided recommendations that have been implemented for the 2018/19 season onwards to concentrate noise loggers on sensitive areas that provide data that corresponds to the event levels.

The above procedures are implemented for each event in consultation between the Centennial Parklands and Moore Park Trust representatives, and the event organiser. The Centennial Parklands and Moore Park Trust representatives and The P.A. People complement this further with the review of each event Noise Management Plan, providing feedback and recommendations to further mitigate noise impact.

B.1 Exceedances

The P.A. People have collected a substantial amount of data pertaining to the noise levels at the perimeter during this event.

B.1.1 Rehearsals and Sound Tests

Zero (0) exceedance of the 65dB(A) limit were identified at the perimeter monitoring locations
Zero (0) exceedance of the 85dB(C) limit were identified at the perimeter monitoring locations

B.1.2 Main Event

Zero (0) exceedance of the 65dB(A) limit were identified at the perimeter monitoring locations.
Zero (0) exceedance of the 85dB(C) limit were identified at the perimeter monitoring locations.

B.2 Complaints

The P.A. People are instructed, by the Trust, that there were two (2) sound-related complaints to the telephone hotline during the sound tests and day of the event. Mobile monitors were available during sound tests and on the event day to respond to all telephone hotline complaints.

One (1) complainant was from a residential address in Lang Road. The calls were received at 1630 and 1941 on February 22. A mobile monitoring engineer was sent to the address given by the complainant and sound pressure measurements taken. The engineer reported that frequencies 40, 50 & 63Hz were metering over the 85dBC limits set out in the Preventative Action Notice. The SPLnet engineer notified all stages that these frequencies should be reduced by 4dB. A second measurement was taken to confirm the levels were reduced and the limits set were no longer being breeched.

One (1) complainant was from a residential address in Cook Road. The call was received at 1917 on February 22. A mobile engineer attended the address provided. The engineer reported that the audio

system/s were audible but below the limits of 65dBA & 85dBC. A secondary measurement was taken at the rear of the address, in Centennial Lane, which is closer to the perimeter of Centennial Park. Levels reported here were also below the limits of 65dBA & 85dBC.

B.3 Hours of Operation

The event, rehearsals and sound tests were all held within the licensed hours nominated and contained in the venue licence.

C. Event Details

C.1 Dates and Times

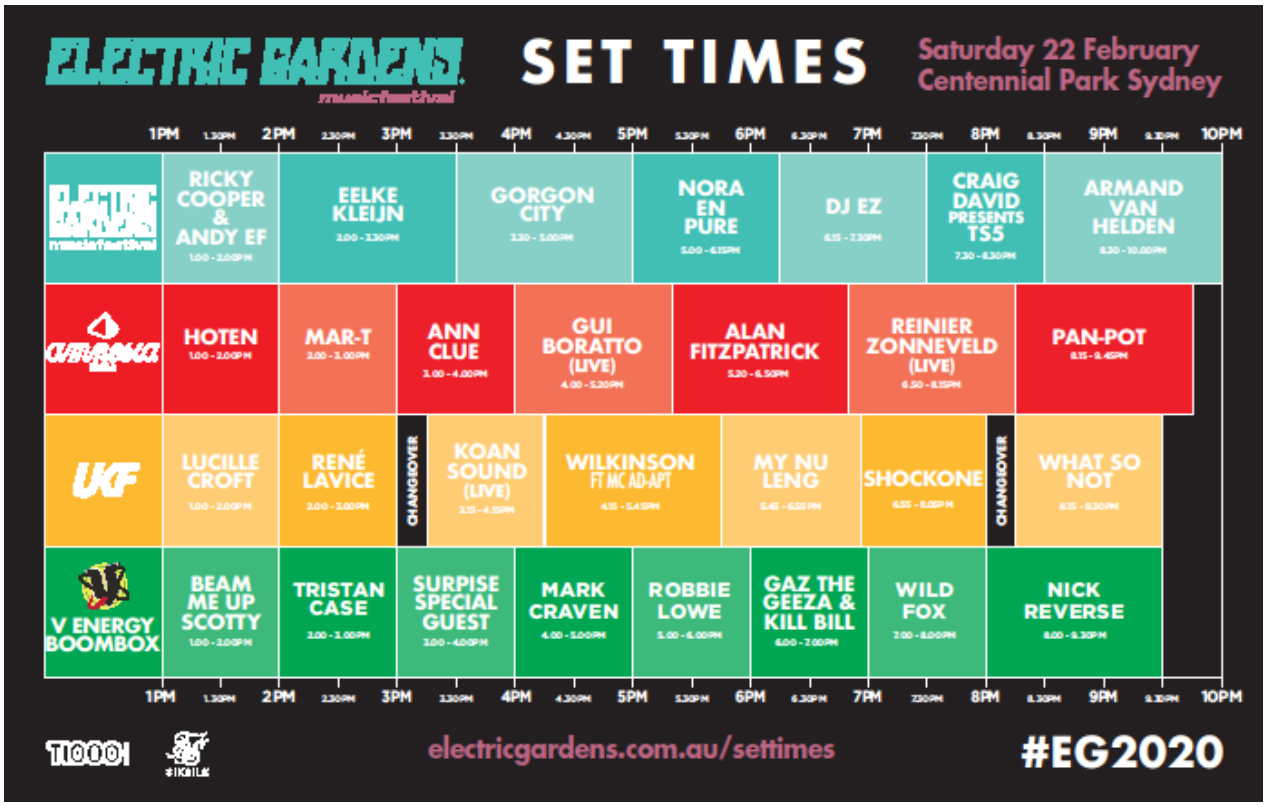
Electric Gardens 2020 was a multi-stage music festival held at The Brazilian Field, Centennial Park, Sydney from 1300 – 2200 on Saturday 22nd February 2020. Sound system checks and rehearsals were held on both Friday 21st February from 1500 - 1700 and Saturday 22nd February from 1200 -1300.

The Trust reports that 9,170 people attended the event this year.

The Trust confirms that music concluded at 2200 on the event day, as scheduled.

C.2 Schedule of Acts

A complete schedule of acts can be seen below. In general, all acts conformed to this schedule.



C.3 Weather Conditions

During the times when noise monitoring was carried out for this event information pertaining to weather conditions around the event site were obtained from the Sydney Airport Weather Station, as it appears on the Bureau of Meteorology website,

Conditions on Friday 21st February could be described as mild.
It is noted that the temperature did not range beyond 1°C. and the temperature whilst sound testing was conducted was 24°C. Humidity only varied slightly during the sound test period and was between 54-56%.
Winds was from ESE direction at speeds of between 19-22km/h.
No rainfall was recorded.

Conditions on Saturday 22nd February were also mild.
It is noted that the temperature ranged between 20-24°C.
Humidity on the 22nd ranged between 61-85%.
Winds in the early afternoon were predominantly from a southerly direction. In the early evening and night, the wind was from a more east, north-easterly direction at speeds of between 9-15 km/h.
Less than 1mm of rainfall was recorded during the event times. This occurred between 2000-2130.

D. Environmental Noise Management Approach

D.1 Mitigation before the Event

T1000, the event organisers for Electric Gardens 2020 are a well-established organisation with a good history of managing its noise emissions on event sites.

Audio system design has historically been carried out by the sound system contractors with the dual goal of reducing emissions, whilst maintaining acceptable performance for the artist's requirements. On this occasion we are satisfied that the systems provided for event was of an appropriate professional standard and level of performance.

The P.A. People also reviewed the site layout plan prior to the event.

Our client's Noise Management Plan forms the basis for sound monitoring for Electric Gardens 2020.

D.2 Mitigation during the Event

The SPL*net* system was used to continuously monitor and log nose levels at the event site.

The SPL*net* engineer was able to use this data, in combination with the subjective analysis of the information received from the mobile monitoring engineers, to identify the source of any sound pressure level exceedances at the event perimeter. Any perimeter exceedances detected by SPL*net* or the mobile monitoring engineers caused by external factors were identified. Any potential exceedances caused by Electric Gardens 2020 sound reinforcement systems were identified and immediately actioned by event control.

The SPL*net* engineer set dynamic SPL thresholds and exceedance indicators for the FOH positions. These thresholds were based on the stage's effect on perimeter SPL conditions. Therefore, the sound engineer was able to proactively adjust the sound pressure level produced by the stage based on its' effect on perimeter conditions at any given time.

D.3 Mitigation after the Event

The Trust, the P.A. People and the organisers of Electric Gardens 2020 regard the management of environmental noise for this event to be appropriate and in compliance with the venue License and the EPA Prevention Notice. It is proposed that this level of sound management and monitoring is implemented for future events of this nature in Centennial Park.

E. Monitoring Details

E.1 Details of Measurement System

To monitor perimeter sound pressure levels for Electric Gardens 2020, The P.A. People provided a networked, real time sound pressure level monitoring system based on SPL*net*.

Key features of this system include:

- The centralised logging of SPL data includes information as to when stages are notified of exceedances or, to the best of our knowledge, impending exceedances, to ensure immediate action from the stages otherwise penalties are implemented from the sound bond.
- When notified of a complaint, sound control can immediately identify readings at the perimeter so there is an immediate measurement in the vicinity at the time of the complaint before the roving sound monitor arrives at the complaint location. This allows more accurate and immediate response to the complainant, and if there is an exceedance this can be immediately rectified centrally while the mobile sound monitor is being dispatched to the residence.
- The communication lines between identifying an exceedance and notifying the offending stage are more streamlined.
- All logging meters work in all weather conditions. Most logging meters currently employed for event monitoring in Australia are affected by wet weather or cannot be used at all.

As noted previously, the SPL*net* system is focused on proactively preventing perimeter sound pressure level exceedance.

Sound pressure levels for the Electric Gardens 2020 event were centrally monitored and recorded from fixed SPL meters located at five (5) key perimeter locations, and centrally monitored from three (3) FOH mixing positions in real time. During the sound tests and the event, two (2) mobile sound pressure level monitors supplemented the SPL*net* system. The mobile monitors were used to move between stages and patrol the perimeter and verify the SPL*net* measurements and to conduct location specific measurements in response to any received complaints.

The SPL*net* system was used to continuously monitor and log noise levels at the event site. The SPL*net* system continuously recorded data from each of the five (5) SPL*net* perimeter monitors for the duration of the event.

The SPL*net* engineer at event control was able to use this data, in combination with the subjective analysis of the mobile monitoring engineers, to identify the source of sound pressure level exceedances at the event perimeter. Any perimeter exceedances detected by the SPL*net* system or the mobile monitoring engineers caused by external factors (i.e. not due to sound emanating from the event) were identified. Similarly, exceedances caused by the event sound reinforcement system could be identified and immediately actioned by event control.

Fast dB(A) and dB(C) SPL measurements for all SPL*net* meters were simultaneously monitored by the SPL*net* engineer.

Fast dB(A) and dB(C) SPL results for the stages were also monitored at the FOH mixing position by the sound engineers. Dynamic SPL thresholds and exceedance indicators were set for the FOH positions by the SPL*net* engineer. These thresholds were based on the stage's effect on perimeter SPL conditions. Therefore, the sound engineer was able to proactively adjust the sound system outputs to maintain predetermined sound pressure levels based on their effect on perimeter conditions at any given time.

E.2 Site Plan and Measurement Locations

The P.A. People reviewed The Centannial Parklands & Moore Park Trust prevention notice and noise management plan. This information assisted us in formulating the event monitoring strategy that was implemented for this event.

E.2.1 Perimeter Monitoring

As per the requirements outlined in The Centannial Parklands & Moore Park Trust prevention notice for this category of event. Five (5) perimeter locations were used for the installation of a fixed sound pressure level monitoring instruments. At these locations the instrument was attached to a light pole at a height of approximately three (3) metres.

The instrument cabinet comprises the following items:

- SPL*net* M100 analyser complete with third octave analysis software
- SPL*net* M121 Type 1 measurement microphone fitted in a weatherproof enclosure
- Battery, 4G mobile broadband modem

The five (5) fixed locations were near the following locations:

- 12 Martin Road, Moore Park
- 30 Lang Road, Centennial Park
- 60 Oxford St, Centennial Park
- 85 Darley Road, Centennial Park
- 60 York Road, Queens Park

To proactively manage levels at the perimeter of the event site, the engineer uses the fixed location data collection units If the engineer detects any exceedance of the limits set out in the prevention notice a roving monitor is dispatched to the location to conduct location specific measurements and determine if the exceedance is a result of the amplified sound from the event.

These measurements are conducted using a class one portable analyser mounted on a tripod stand at a height between 1.2m-1.6m above ground, this meter when practical would be placed within 1m of the boundary of the nearest affected premises in relation to the fixed monitoring location.

E.2.2 Stage Monitoring

Three (3) systems were also located within the event boundary, at the FOH mixing location/s. At these locations an instrument was attached to the supporting structure of the platform.

The instrument cabinet comprises the following items:

- SPL*net* M100 analyser complete with third octave analysis software
- SPL*net* M121 Type 1 measurement microphone fitted in a weatherproof enclosure

E.2.3 Mobile Monitor

Two mobile monitoring personnel were also available to patrol the perimeter, corroborate the SPL*net* measurements and to conduct location specific measurements in response to any received complaints or exceedances noted by the engineer.

The remote monitoring engineers were provided with a Type1 sound analyser complete with calibrator.

E.2.4 Site Plan

Below is a plan showing the relative position of the monitoring locations used for this event. It also shows the event site location.

E.2.5 Calibration

Each instrument was calibrated using a Bruel and Kjaer 4230 calibrator or BWSA Type CA111 calibrator prior to and after use.

No significant variations were noted between pre and post use measurements.

E.3 Use of Third Octave information

A feature of the SPL*net* system is the capability for third octave analysis at all measurement locations, again in real time.

This capability is significant in that it allows the audio operators of each system to tailor the response of their system to maximise the perceived level of their system by adjusting spectral content of the music, rather than relying on level only.

This also reduces the annoyance factor of the noise by reducing dominant frequencies and smoothing the resultant frequency response.

E.4 Complaints Management

The Centennial Parklands & Moore Park Trust has adopted a comprehensive sound management program, which includes a detailed complaints management procedure.

The focus of The P.A. People and The Centennial Parklands & Moore Park Trust for this event was to proactively minimise complaints by monitoring perimeter sound pressure levels continuously in real time. In addition to continuous static perimeter monitoring two (2) mobile monitoring engineers were available to attend complainant locations personally.

F. Results

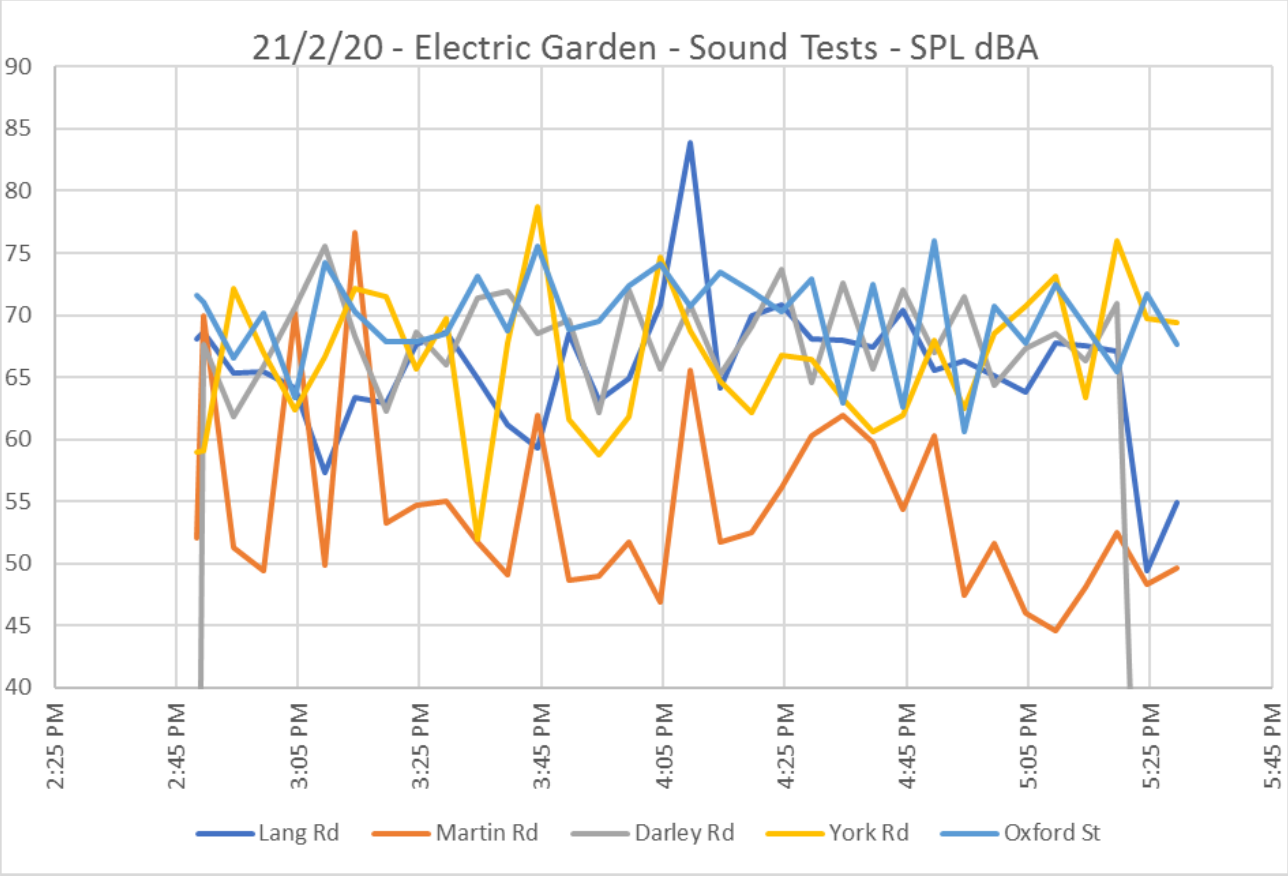
F.1 Perimeter Results

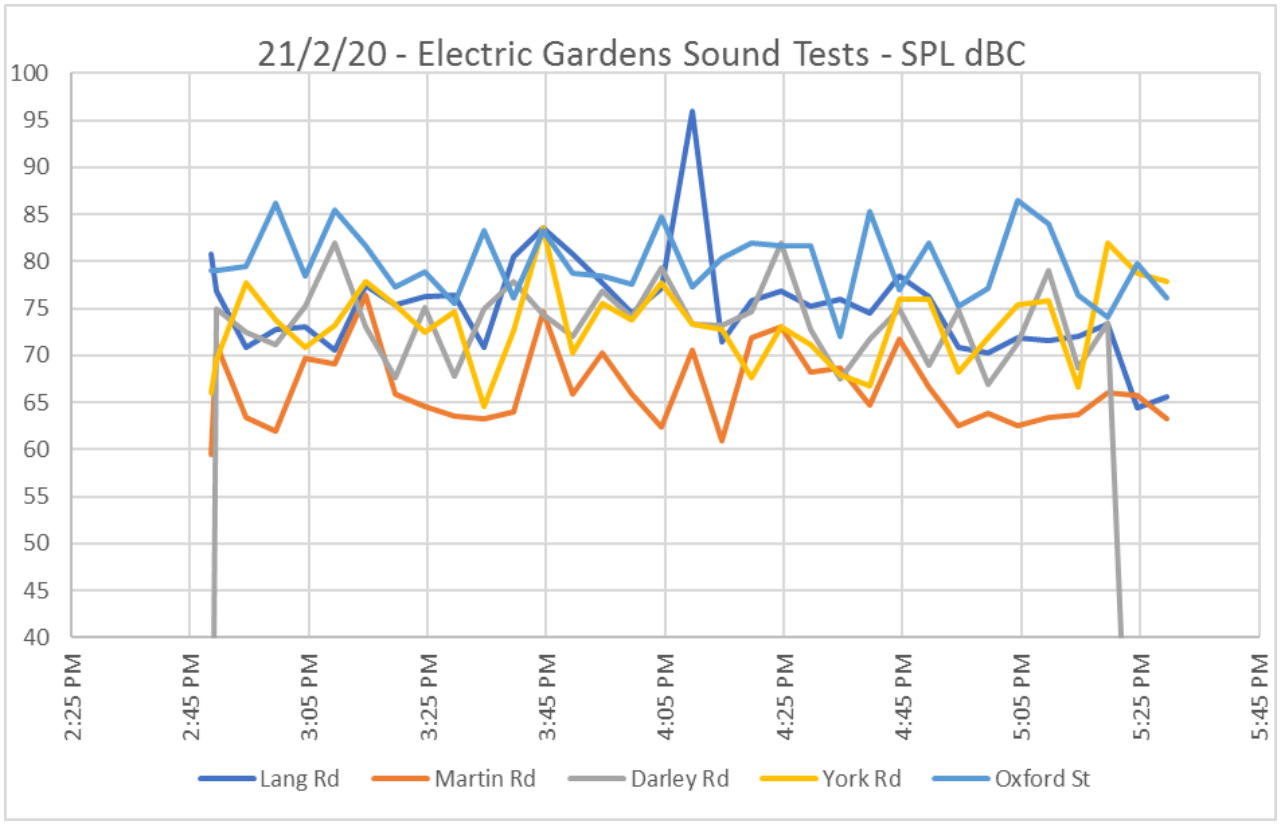
The SPL*net* system employed for this event provided a significant amount of data.

One would expect that continuous monitoring of all perimeter sensors might reveal a significant increase in the number of exceedances identified. This has not proven to be the case, due mostly to the proactive approach of using this same information to adjust the exceedance thresholds provided to each stage.

Below are four (4) graphs outlining the levels at each perimeter location over the duration of the event, please note that these graphs are of limited use in and of themselves as they record absolute levels due to all environmental factors, not only levels that are associated with the sound generated by Electric Gardens 2020 stages.

Each plot represents samples taken at 5-minute intervals of a total some 3600 points per hour at each measurement location.




21/2/20 - Electric Gardens Sound Tests - SPL dBC
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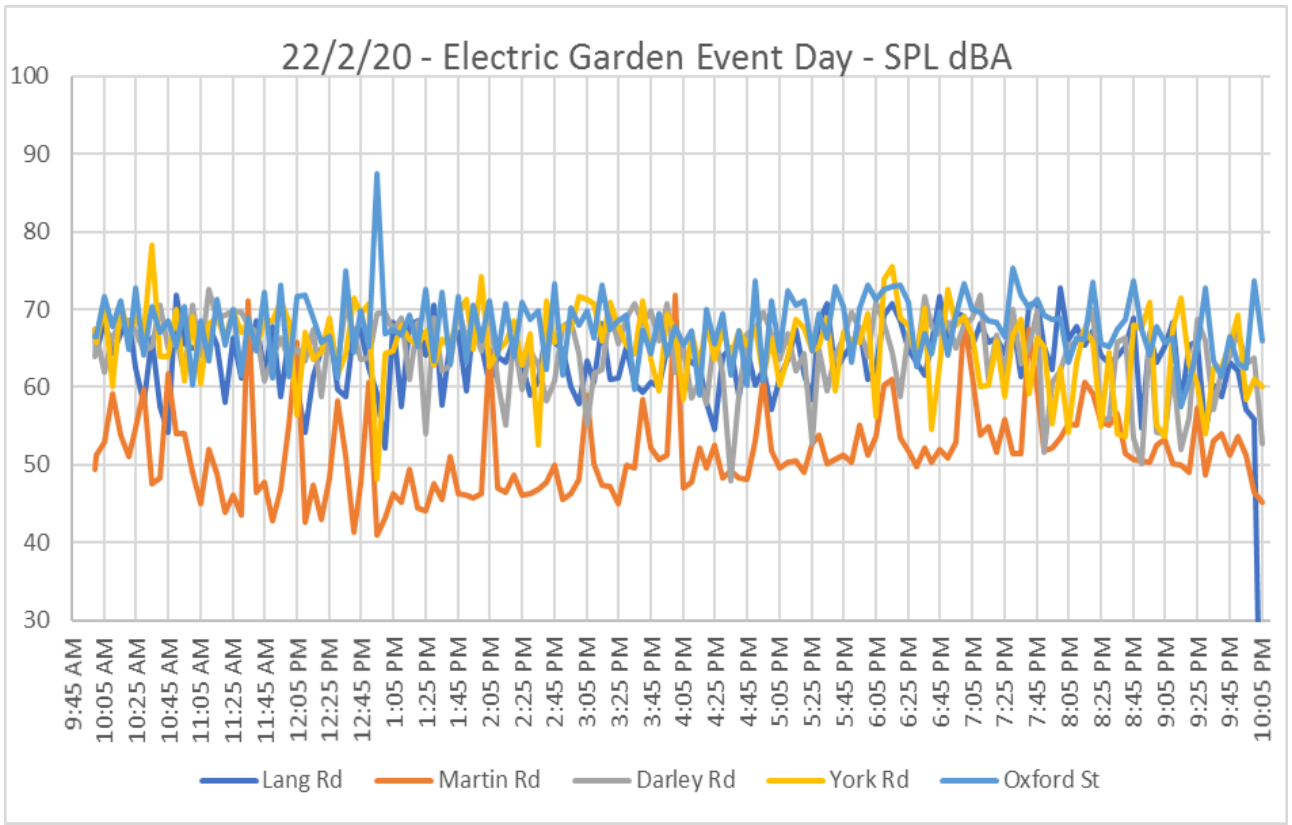
Lang Rd
Martin Rd
Darley Rd
York Rd
Oxford St


22/2/20 - Electric Garden Event Day - SPL dBA
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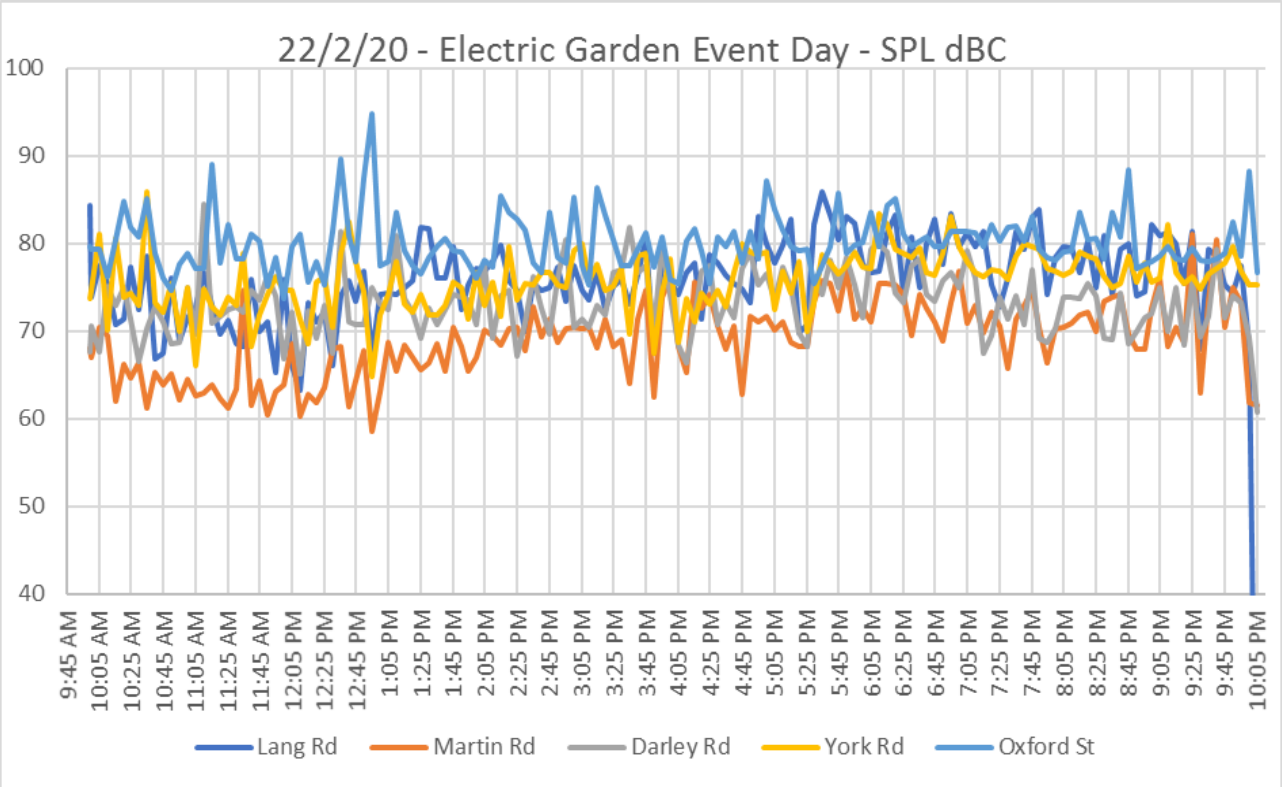

F.2 Management Process for Exceedances

With the SPL*net* system SPL levels at all perimeter locations were centrally monitored in real time from the SPLnet control location. The system is designed so that upon the detection of a perimeter exceedance deemed to be the result of the Electric Gardens 2020 reinforcement systems, the SPLnet engineer would immediately contact the front of house sound control position and, or the event organiser to request a level decrease.

In general, communications between the SPLnet engineer, event control, and the stages were prompt and effective. The indicative dynamic sound pressure level thresholds set for the stages were effective in preventing perimeter exceedances.

G. Summary

Overall, we believe that the implementation of the SPL*net* system as part of the environmental noise management plan for Electric Gardens 2020 has improved the quality of noise management for the event and ensured overall compliance with the EPA Prevention Notice.