Final Environmental Noise Report

Good Things Festival
Centennial Parklands
2nd December 2023

Prepared for

The Centennial Parklands & Moore Park Trust
Mrs Macquarie's Rd
Sydney NSW. 2000

Prepared by

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A. Introduction

The P.A. People were engaged by The Centannial Parklands & Moore Park Trust (CPMP Trust) to provide Environmental Noise Management and Monitoring Services for The Good Things Festival.

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 Centannial Parklands & Moore Park Trust to comply with 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 PA People provided a networked, real time sound pressure level monitoring system based on SPL*net*.

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 additional mobile sound pressure level monitoring engineers supplemented the noise monitoring system. These mobile monitors were used to patrol the perimeter, verify SPL measurements collected by the system 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

In our opinion Good Things Festival has not complied with the noise conditions of the Trust's prevention Notice, No 1002139, File number SR125, dated February 26 2001, and the Variations of Prevention Notice, No 1521549, File number EF13/8821, dated February 18 2015.

The location of perimeter noise loggers is at the direction of the CPMP Trust. In addition, guidelines on the position of stages and the type and direction of sound amplification were 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 CPMP Trust 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, The P.A. People, and the event organiser. The Centennial Parklands and Moore Park Trust representatives and The P.A. People complement this further with the review of the Noise Management Plan for each event 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) exceedances of the 65dB(A) limit were identified at the perimeter monitoring locations.
Zero (0) exceedances of the 85dB(C) limit were identified at the perimeter monitoring locations.

B.1.2 Main Event

Eleven (13) exceedances of the 65dB(A) limit were identified at the perimeter monitoring locations. Ten (13) exceedances of the 85dB(C) limit were identified at the perimeter monitoring locations.

In response to condition 17(f) of the Prevention Notice a list of all limit breeches as measured on the perimeter of the Centennial Parklands while the event sound system was in use is shown below.

December 2, 2023

Time	Location	Levels	Duration	Exemption
1301	Cnr Lang & Mitchell Rd	74dBA & 93dBC	11-sec	No
1331	Cnr Lang & Mitchell Rd	76dbA & 94dBC	less than 10-sec	No
1337	Cnr Lang & Mitchell Rd	78dBA & 94dBC	4-min 19-sec	No
1426	Cnr Lang & Mitchell Rd	70dBA	28-sec	No
1430	Cnr Lang & Mitchell Rd	68dBA	12-sec	No
1536	Cnr Lang & Mitchell Rd	76dBA & 96dBC	23-sec	No
1607	Cnr Lang & Mitchell Rd	67dBA & 90dBC	2-min 8-sec	No
1712	Cnr Lang & Mitchell Rd	71dBA & 88dBC	42-sec	No
1728	Cnr Lang & Mitchell Rd	66dBA	less than 10-sec	Yes. Cond.15
1737	Cnr Lang & Mitchell Rd	66dBA	less than 10-sec	Yes. Cond 15
1752	Cnr Lang & Mitchell Rd	67dbA & 88dBC	1-min 11-sec	Yes. Cond 15
1803	Cnr Lang & Mitchell Rd	86dBC	less than 10-sec	No
1815	Cnr Lang & Mitchell Rd	86dBC	less than 10-sec	No
1838	Cnr Lang & Mitchell Rd	86dBC	12-sec	Yes. Cond 15
1901	Cnr Lang & Mitchell Rd	66dBA	less than 10-sec	No
2016	Cnr Lang & Mitchell Rd	71dBA & 92dBC	less than 10-sec	Yes. Cond 15
2032	Cnr Lang & Mitchell Rd	87dBC	less than 10-sec	Yes. Cond 15
2041	Cnr Lang & Mitchell Rd	88dBC	less than 10-sec	No

On each occasion a limit breech was noted to have occurred the sound system operators and the production manager for the event were informed. Requests were made to reduce levels. In addition to the requests for level decreases, frequency information was also provided so spectrum adjustments could be made. When feasible a mobile monitoring engineer was sent to logger locations to further verify the source of noise.

B.2 Complaints

As confirmed by the CPMP Trust, there were twelve (12) sound-related complaints to the telephone hotline during the sound tests and day of the event.

One of these was received during sound checks on Friday December 1st. The remaining 11 complaints came on the day of the event.

Mobile monitoring engineers were available on the day of the sound tests and the event day to respond as required to all telephone hotline complaints. Real time and spot measurement investigations of each complaint site attended were conducted and the results reported back to the Trust.

A full list of the complaints, with details as to the complainant, times and responses is available from the Trust.

B.3 Hours of Operation

Good Things took place within the nominated hours as detailed for this event.

C. Event Details

C.1 Dates and Times

Good Things was a multistage music concert held at The Brazilian Field, Centennial Park, Sydney from 12pm – 8.50pm on Saturday 2nd December 2023. Sound system checks and rehearsals were held on both Friday 1st December from 5:30pm–6:15pm and Saturday 2nd December from 10:00am-11:00am.

The Trust reports that 29,748 people attended the event.

Music concluded earlier than scheduled at 8.45pm due to a weather event causing a full site evacuation.

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

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, the closest weather station to the event site, as it appears on the Bureau of Meteorology website,

It is noted that temperatures ranged between 21-24°C.
Humidity was from 76-89%
Winds was from a SE direction at speeds of between 7-20km/h.

D. Environmental Noise Management Approach

D.1 Mitigation before the Event

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.

The client's Noise Management Plan forms the basis for sound monitoring for Good Things.

D.2 Mitigation during the Event

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

The system engineer on site 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 monitoring system, or the mobile monitoring engineers caused by external factors were identified. Any potential exceedances caused by Good Things sound reinforcement systems were identified and immediately actioned by event control.

The noise monitoring system 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 Good Things 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 Good Things, The PA 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 noise monitoring system is focused on proactively preventing perimeter sound pressure level exceedance.

Sound pressure levels for Good Things 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 event two additional mobile sound pressure level monitors supplemented the networked system. The mobile monitors were used to patrol the perimeter and verify the SPL*net* measurements and to conduct location specific measurements in response to any received complaints.

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

The system continuously recorded data that was visible in real time. The system engineer was able to use this data, in combination with the subjective analysis of the mobile monitoring engineers, to identify the source of potential, and real, sound pressure level exceedances at the event perimeter. Any perimeter exceedances detected by the SPL monitoring 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 engineer at event control.

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 event control. 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 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.
- Cnr Lang & Mitchell Roads, Centennial Park.
- Paddington Gate Centennial Park (opposite 44 Oxford St).
- 85 Darley Road, Centennial Park.
- 59 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 locations. 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 (2) mobile monitoring personnel were also available to patrol the perimeter, corroborate the perimeter data logger 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 either Bruel and Kjaer 4230 calibrator or a 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 monitoring 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 Centannial 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 complaint locations personally.

F. Results

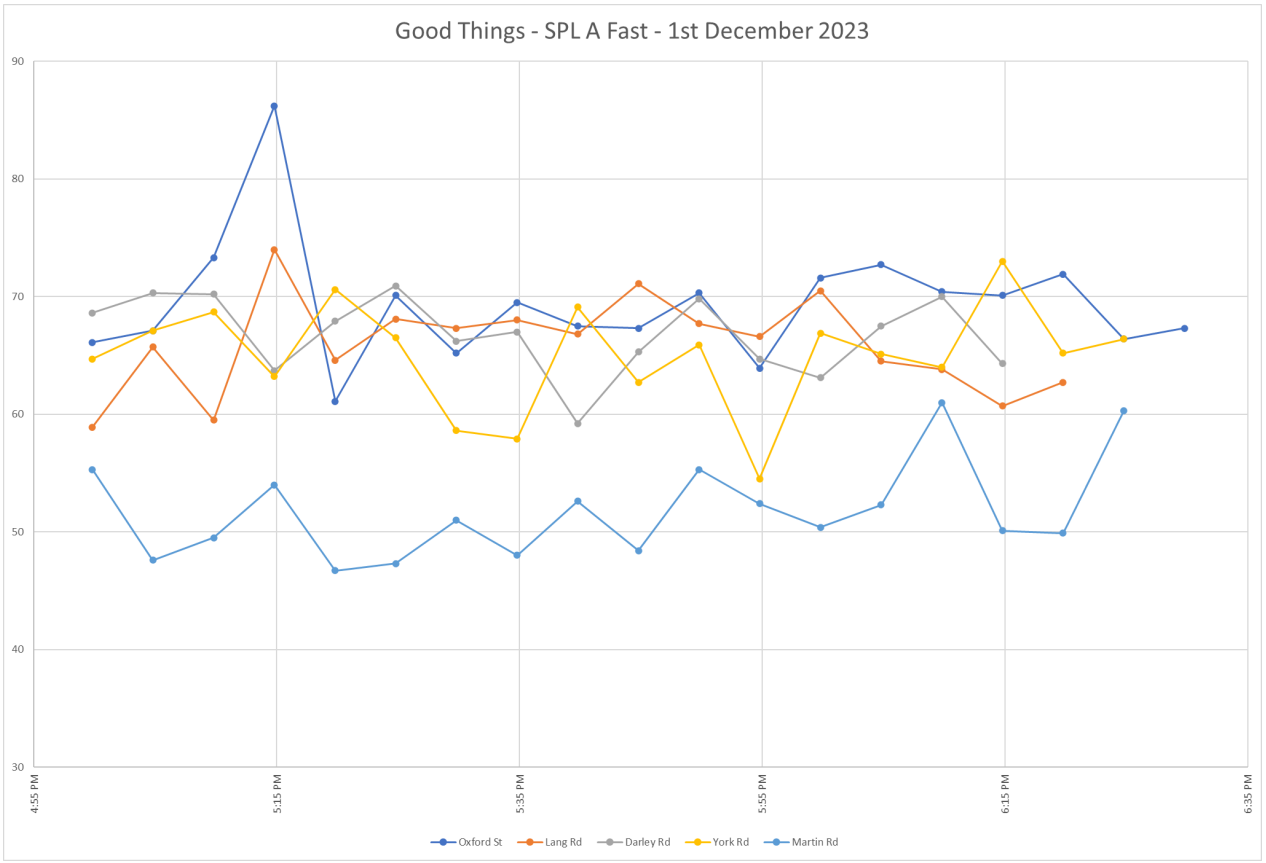
F.1 Perimeter Results

A significant amount of data was collected by system during the sound tests and the event.

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 the Good Things stages.

Each plot represents samples taken at 5-minute intervals of a total some 3600 points per hour at each measurement location.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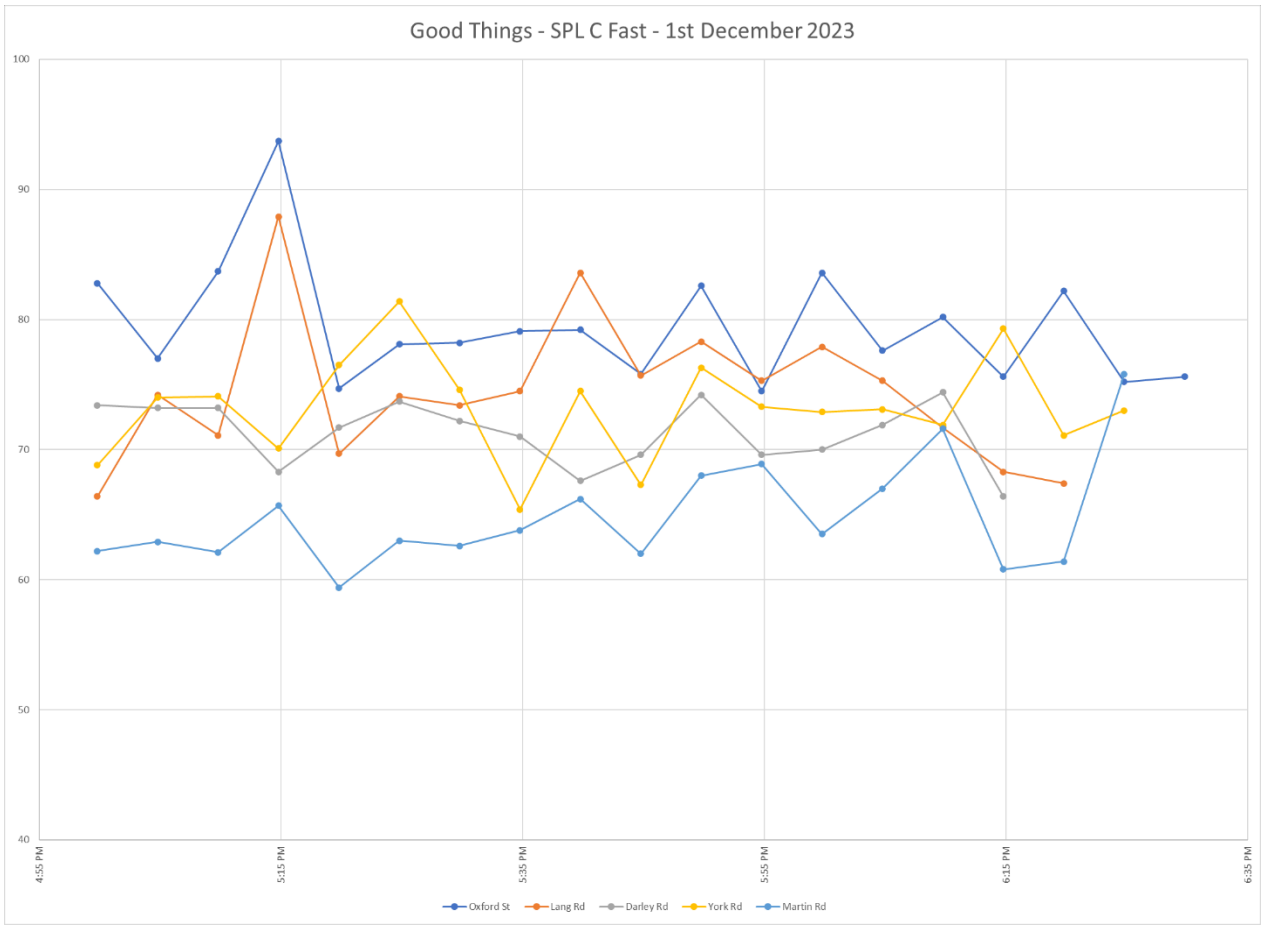
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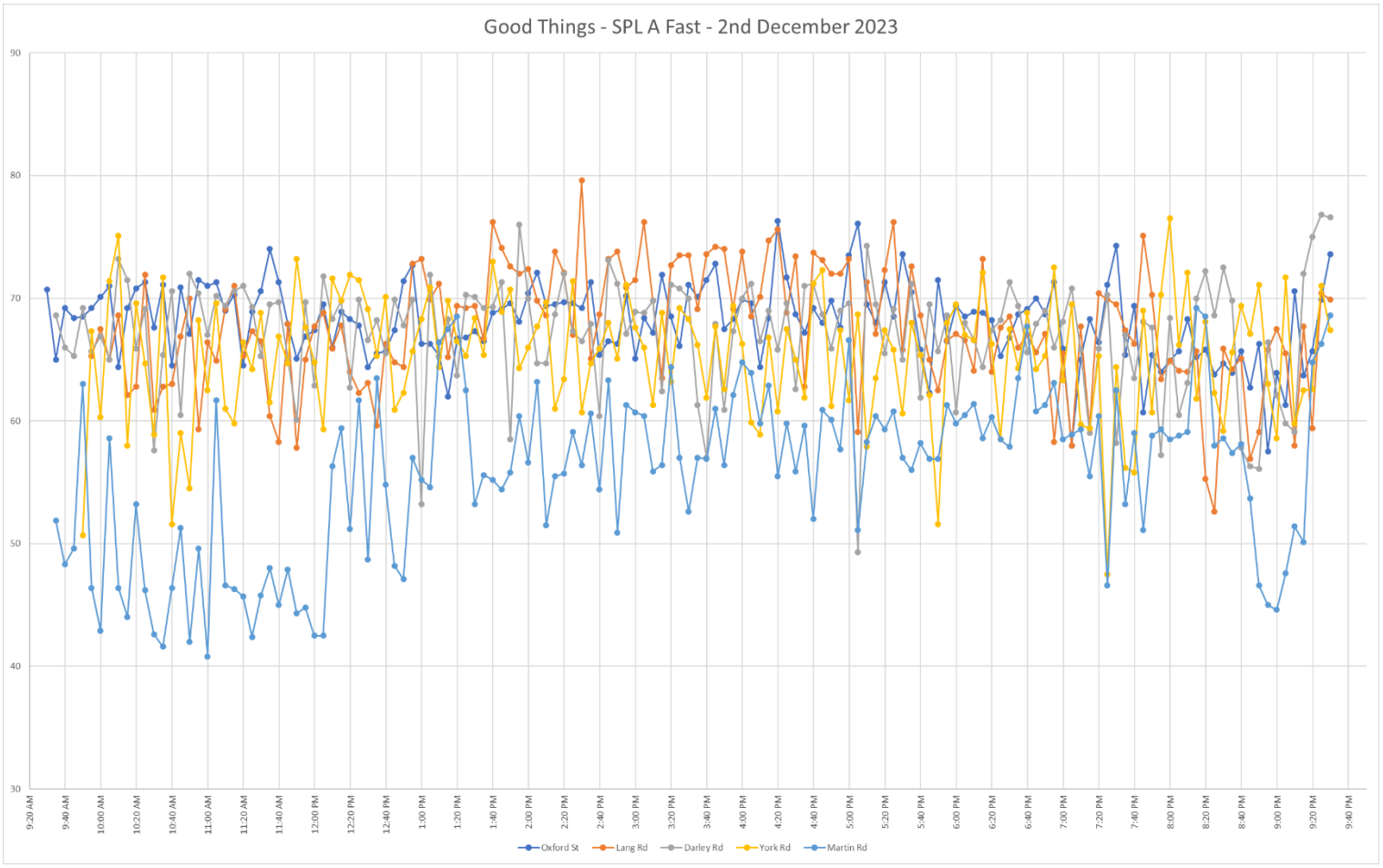
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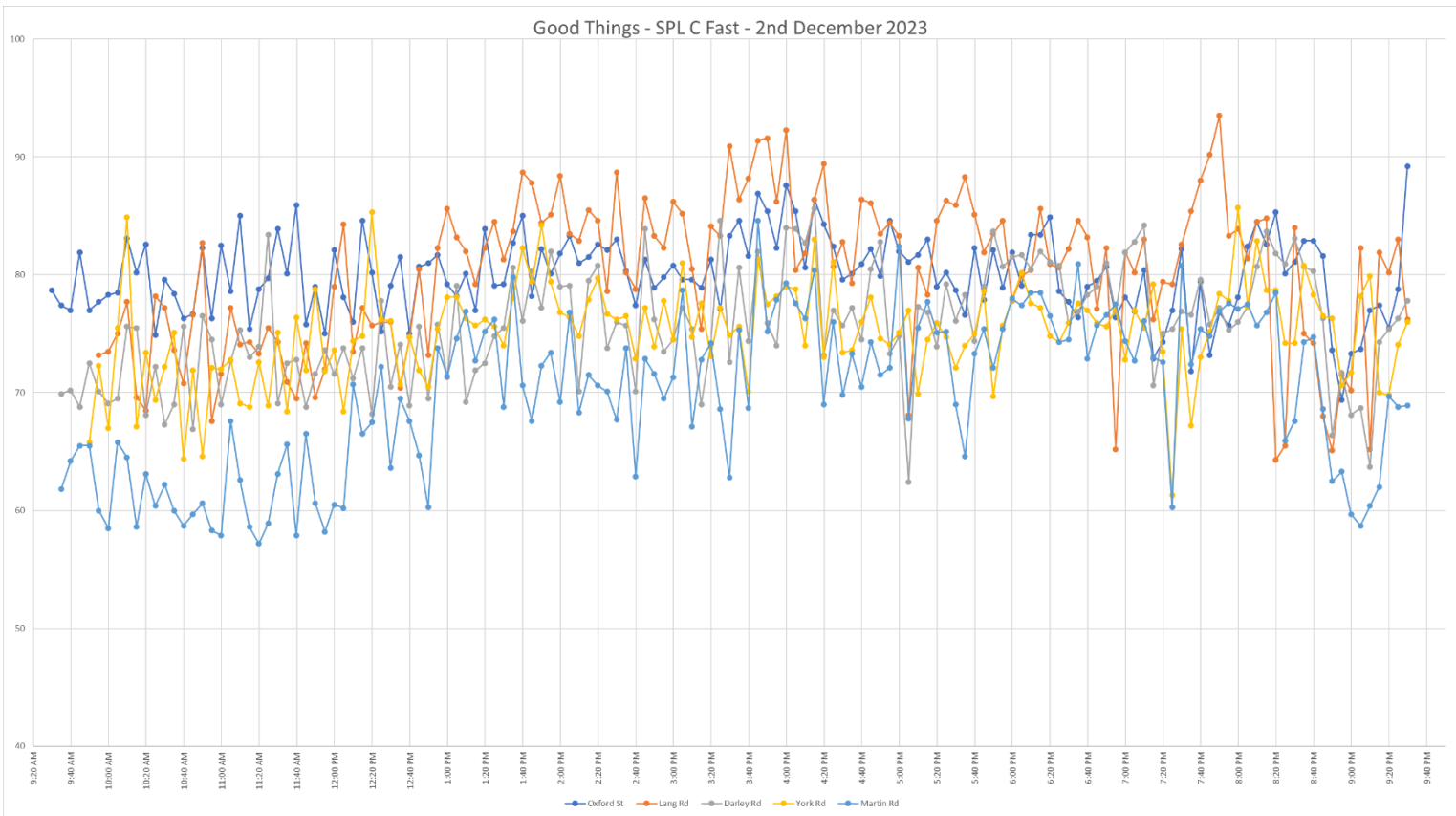
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F.2 Management Process for Exceedances

SPL levels at all perimeter points were centrally monitored in real time from event control. The system is designed so that upon the detection of a perimeter exceedance deemed to be the result of the Good Things reinforcement systems, event control would immediately contact the front of house sound control position and, or the event organiser to request a level decrease.

In general, communications between event control and the stages were prompt and effective in preventing and correcting any perimeter exceedances.

The dynamic sound pressure level thresholds set for the stage were effective in preventing perimeter exceedances.