



Noise Management Plan for Royal Botanic Garden Sydney and The Domain Sydney



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Botanic Gardens of Sydney Noise Management Plan – July 2024

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1. INTRODUCTION

Botanic Gardens of Sydney are the stewards of three world-leading botanic gardens (Royal Botanic Garden Sydney, Australian Botanic Garden Mount Annan and Blue Mountains Botanic Garden Mount Tomah), Australia's premier botanical research institute (Australian Institute of Botanical Science) and one of the country's most loved urban parklands (The Domain Sydney).

Botanic Gardens of Sydney is the organisation working on behalf of the Royal Botanic Gardens and Domain Trust, which is established under the *Royal Botanic Gardens and Domain Trust Act 1980*.

Established in 1816, the Royal Botanic Garden Sydney (Royal Botanic Garden) is Australia's oldest botanic garden and oldest scientific institution. Situated across 30 hectares on the edge of the iconic Sydney Harbour, the Royal Botanic Garden Sydney is home to an outstanding collection of more than 27,000 plants from around the world.

Wrapped around the Royal Botanic Garden, The Domain Sydney (The Domain) encompasses 34 hectares of urban parkland endowed with significant natural and historical values. The primary role of The Domain has been and continues to be one of recreation and celebration. As such it is Sydney's oldest event site, and it continues to be a premier event site for the City.

This Noise Management Plan (NMP) focuses on the entertainment use of the Royal Botanic Garden and The Domain. Applying event sound planning to concerts, music festivals, cinematic screenings, theatrical performances and any other outdoor events with sound amplification held at venues managed by the Botanic Garden of Sydney (Botanic Gardens). Venues used for this purpose are various sites within The Domain and Royal Botanic Garden.

1.1. Summary and recommended steps

This Noise Management Plan covers all event categories as outlined in the Environment Protection Authority (EPA) Prevention Notice that is used as the main regulatory document for events held within the Royal Botanic Garden and The Domain. As such, it is not necessary to understand the entire document. e.g. if your event is category 1, you do not need to review category 2 or category 3.

In order to stage a successful event and understand the requirements and obligations for a third-party hirer in terms of noise impacts and sound management, the following steps are suggested to understand the minimum requirements:

1. Review the roll of different agencies as included in section [2.1](#).
2. Review event approval processes in section [2.2](#).
3. Identify land where event will take place as included in section [3](#).
4. Identify noise sensitive receivers for event based on event location as shown in section [4](#).
5. Understand the Event Category as outlined in section [5.1](#).
6. Based on Event Category, understand noise, time limits and additional conditions as outlined in section [6](#).
7. Understand monitoring requirements as outlined in section [7](#) and based on Event Category.
8. Review sections [8](#) and [9](#) to understand sound management practices.
9. Understand noise reporting as outlined in section [7.2](#).
10. Understand noise handling procedures as outlined in section [11](#).

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2. NOISE MANAGEMENT OBJECTIVES

The Botanic Gardens' objective in creating a Noise Management Plan for the Sydney site is to minimise noise impacts beyond event boundaries. It aims to do this by:

- Ensuring its event licensees meet the noise limits and time limits set out in the Noise Management Plan.
- Working with its noise monitoring company and event organisers to develop and implement noise management plans as required by the Trust event licence agreements which outline procedures to reduce noise impacts on the local community.
- Monitoring and reporting on the effectiveness of event sound plans and their compliance with the Noise Management Plan at the end of each event.
- Reviewing the Noise Management Plan and implementing additional or alternative strategies if necessary to ensure it remains effective.

2.1. Land and Event Responsibilities

The Botanic Gardens is an agency within the Department of Planning, Housing and Infrastructure (DPHI) portfolio. It is managed by a Chief Executive who reports to a Board of Trustees and the Deputy Secretary, Crown Lands and Public Spaces.

There are three sites under the auspices of the Botanic Gardens which include the Royal Botanic Garden, The Domain, Australian Botanic Garden Mount Annan and Blue Mountains Botanic Garden Mount Tomah. This Noise Management Plan covers the operation of the first and largest of these sites.

The Head of Events and Venues is responsible for the management of events, functions and booked activities within the Royal Botanic Garden and The Domain and as such is responsible for the implementation of the Noise Management Plan, its maintenance and any future reviews. This document will be reviewed as required. The managers of Major Events, Signature Events and Venue Bookings report to the Head of Events and Venues and are responsible for delegating events to Venue Coordinators and Events and Venues Officers within their teams.

Venue Coordinators work closely with event organisers who hire bookable sites and their suppliers such as sound management companies and monitor all stages of the planning of an event. They examine the client's sound management plans in detail and input to the management of such plans to ensure the plan meets EPA requirements.

Venue Coordinators arrange the sound monitoring for an event, as required; provide notification for an event and report after an event to EPA. They work on site during an event as the main contact for sound issues including complaints. They are responsible for following up on complaints during and/or after the event and implementing any actions required as a result.

2.2. Event Approval and Development Process

Prior to 2008, the Botanic Gardens was its own consent authority for approving events on its land. Since changes to legislation governing temporary structures for events in 2008, the Botanic Gardens works under a development application (DA) from the City of Sydney. This

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development application allowed for local community and other stakeholders to comment on impacts of events including the noise impacts.

The noise conditions placed on the Botanic Gardens by the DA are transferred by licence conditions from the Botanic Gardens to the event organiser. No other consents or agreements for sound issues associated with an event are required.

The following provides a brief summary of the Event Approval and Development Process conducted by the Botanic Gardens.

- 1. Initial event enquiries are reviewed by the Events and Venues team. If an event is deemed suitable, a more detailed written proposal is requested.
- 2. In order to provide diversity across seasonal programming, all event proposals are measured for suitability against an event framework and for compliance with the EPA Prevention Notice.
- 3. Once the Botanic Gardens has approved an event a venue licence agreement is sent to the event organiser. Event organisers are required to develop a set of fourteen management plans including a Sound Management Plan (SMP) specific to the event.

2.3. Risk Assessment

The Trust has many years of data from sound complaints, which it uses as a guide for suitability of event types referenced to event locations. Risk assessments on bookings begin as clients request sites at the initial phase of enquiry. Trust staff determine the suitability of events for specific sites for a range of issues including sound impacts and provide feedback to clients. For example, the Trust does not allow events with loud music such as dance parties to take place at Bennelong Lawn due to its proximity to residents.

Later, during the assessment for approval, issues such as sound are considered and further recommendations or conditions are made to the client if they want the event to proceed. These conditions are noted in licence agreements.

Formal risk assessments for sound of each site on Botanic Gardens land are not made by the Botanic Gardens. There are too many event and sound layout configurations for the effects to be determined in advance. However, once an event organiser begins planning an event, it is their responsibility within the context of their preferred site configuration to do a risk assessment for the location and determine the impact of sound on the surrounds. They are provided with historical data from previous years to assist with such an assessment.

In addition, the Botanic Gardens procures an acoustic monitoring company to act on its behalf and carry out the sound monitoring at each event.

3. Venues

The Domain is a large open outdoor space which completely surrounds the Royal Botanic Garden, from the Sydney Opera House in the north-west to Mrs Macquaries Point in the north-east and Woolloomooloo in the east. No areas have permanent amplification equipment. All equipment, including that for sound, is installed on a temporary basis. It has several commonly used areas for events, which are outlined below. The sites are versatile and can be used for a variety of event types.

Botanic Gardens sites, being historic outdoor parks and garden settings, have no equipment as part of their venue hire. Different events at different sites will require specific event equipment. This document does not anticipate what equipment might be used at an event. However, each event is required to deliver a sound plan which outlines what equipment will be used and how it will be configured to ensure that minimal sound escapes the site.

3.1. The Phillip Precinct

The Phillip Precinct area is commonly referred to as The Domain and is a large space of approximately seven hectares. It can hold approximately 28,000 people for fenced sites and 35,000 people for unfenced sites. It is used most commonly for free public events, ticketed concert events, music festivals, sporting events, lunchtime sporting games and protests, public gatherings and rallies.

It has some infrastructure such as pathways, power, water and data infrastructure at the southern end which encourages the setup of stages at that end of the site with sound being directed towards the north. The Cahill Expressway, then the Royal Botanic Garden lie in the area immediately to the north, beyond which is Sydney Harbour. This greatly ameliorates sound impact to residents to the north. Sydney Eye Hospital, NSW Parliament House and the State Library of NSW back onto the precinct to the west and the Registrar-General's Building and St Mary's Cathedral are adjacent and back on to it in the south. Immediately to the east there are built apartment blocks most of which are below the ridge on which Art Gallery Road is built and further afield, approximately a kilometre away on a high ridge, there is a residential area at Potts Point.

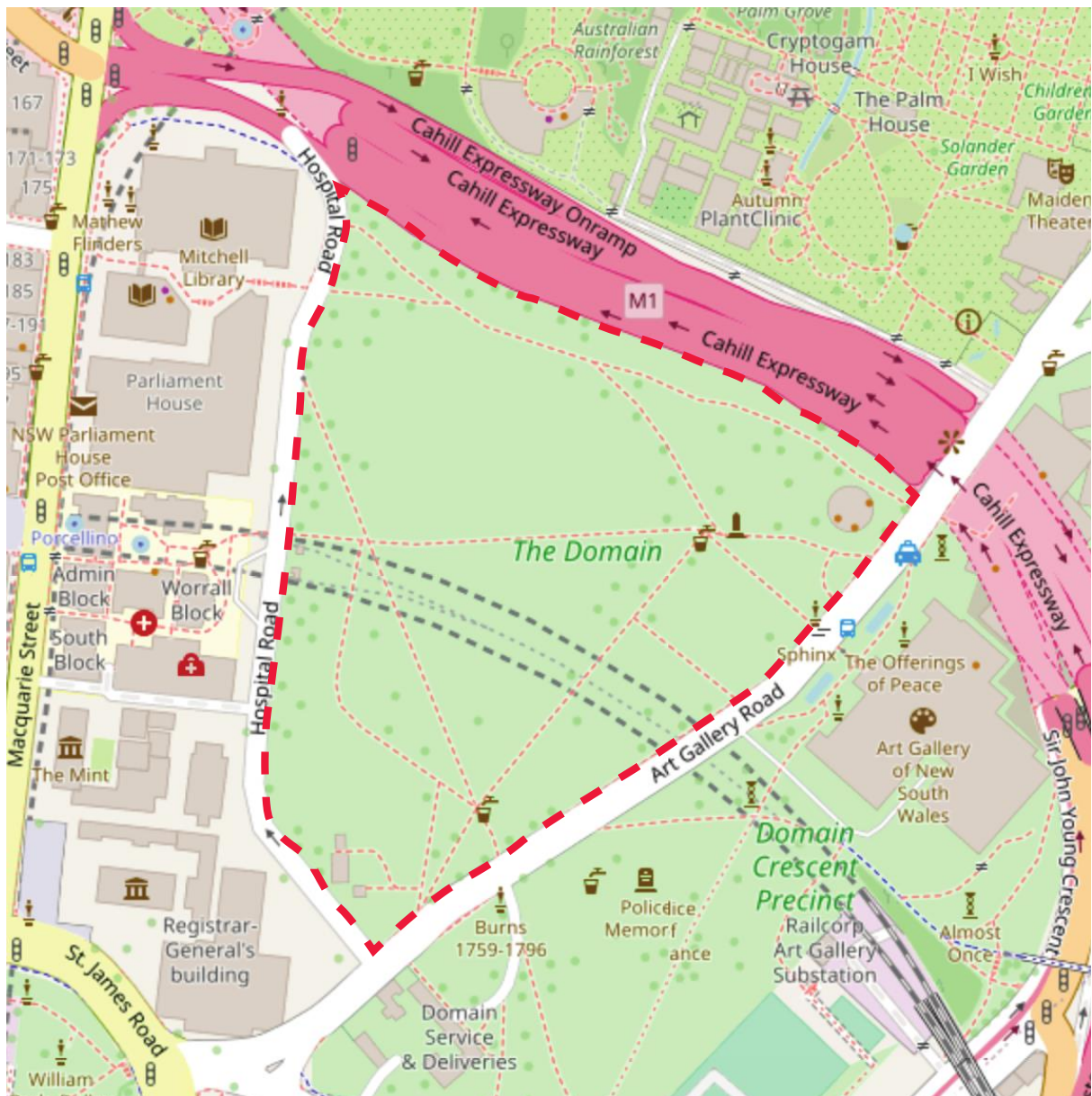


Figure 1. Phillip Precinct (© OpenStreetMap)

3.2. The Crescent Precinct

The Crescent Precinct is commonly referred to as The Domain Car Park roof. It is a large space similar in size to the Phillip Precinct and half of which is completely flat. The area is adjacent to Sir John Young Crescent across from which are several apartment blocks. The area slopes upward in the west towards Art Gallery Road. It has few pathways or facilities for events but is an ideal location for sports fields which is its main use. The Trust discourages its use as an event site because of the difficulty in setting up the site for event purposes and also because of noise issues for nearby residents associated with its use. However, in the past it has hosted events such as Tropfest Junior – a short film festival; small community events and Police memorial events.



Figure 2. Crescent Precinct (© OpenStreetMap)

3.3. Fleet Steps

Fleet Steps Lawn is a flat piece of land at the bottom of the historic Fleet Steps on the western side of the Mrs Macquaries Road ridge. It faces the Sydney Opera House and Government House and is commonly used for private events which are held inside marquees and for long-standing annual events such as OpenAir Cinema and Handa Opera on Sydney Harbour.

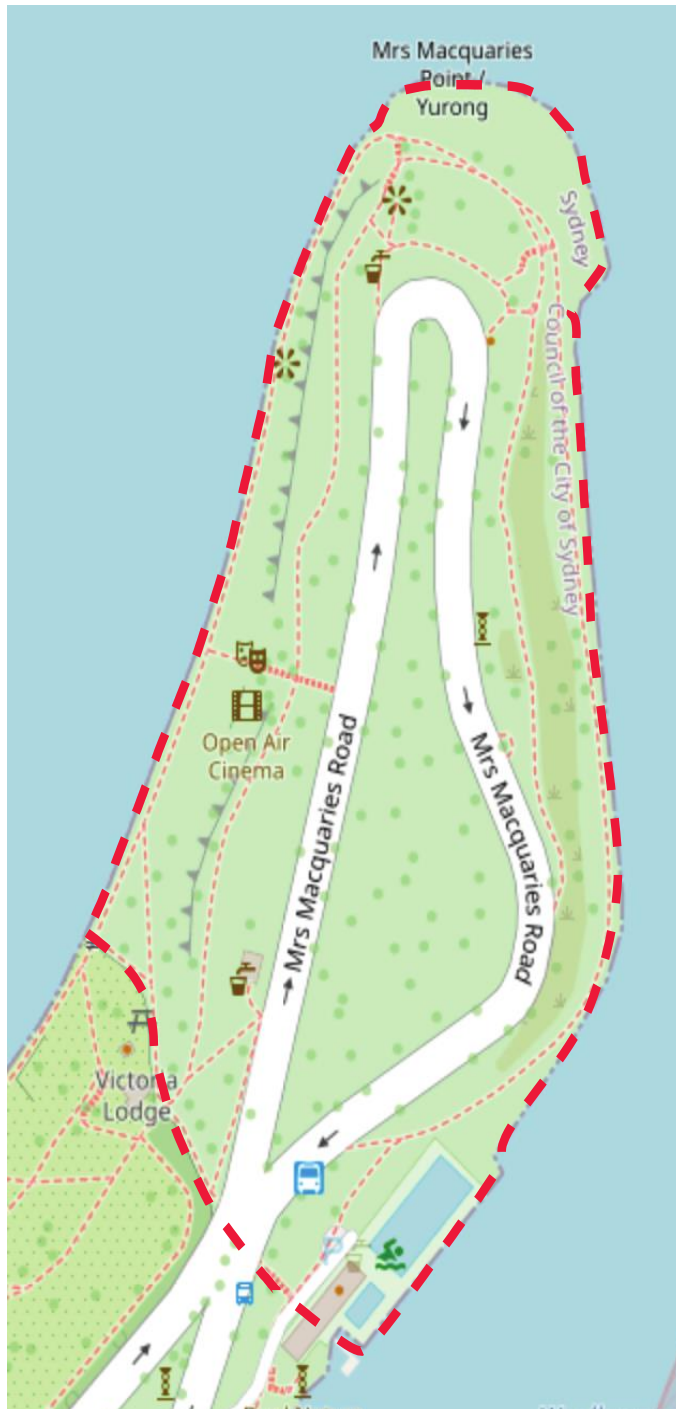


Figure 3. Fleet Steps (© OpenStreetMap)

Tarpeian Precinct and Bennelong Lawn are the areas south of and approximately 30 metres above the Sydney Opera House, immediately west and adjacent to Government House and fifty metres across the roadway of Macquarie Street to the east of the residential building at 1 Macquarie Street. It is an area of land which slopes gradually to the west until the edge of the cliff dropping to Macquarie Street 20 metres below. It has few event facilities and, due to the close proximity to residential areas, the Botanic Gardens is sensitive about what kinds of events and activities it allows at this location. Primarily, it is used for viewing the NYE fireworks and the start or end of city-wide sporting events and picnics. Additionally, it hosts smaller private parties and marquee weddings.



Figure 4. Tarpeian Precinct and Bennelong Lawn (© OpenStreetMap)

3.5. Parade Ground

The Parade Ground is an area north of the Phillip Precinct. The area is a large mostly flat area capable of holding larger structures and infrastructure if required but not capable to hold larger events as the Phillip Precinct. The area is adjacent to Government House and to the east of the residences along Macquarie Street. The area can house markets, smaller events and private functions.



Figure 5. Parade Ground (© OpenStreetMap)

3.6. Location Map



Figure 6. Location Map

4. IDENTIFICATION OF NOISE SENSITIVE RECEIVERS

Nearby potential noise sensitive receivers include a combination of areas with residential, commercial, public service, etc. areas. It should be noted that there is a large amount of nearby receiver areas whose hours of operations do not overlap significantly with larger events in the areas outlined above. The analysis of potential noise sensitive receivers in this section takes into account the receiver uses and typical hours of operation to categorise their potential to noise impacts. Historically, residential properties are the most sensitive receivers regarding noise emanating at all sites.

The Botanic Gardens, through its sound management practices, aims to reduce the impact of noise to nearby sensitive receivers. Some of the most effective instruments to reduce noise impacts are limiting the number of events that can occur during the year based on their capacity, limiting the permissible sound output and in turn sound level at the residents, and limiting the hours of operation. These are further expanded below.

One of the main indicators of successful sound limiting practices and annoyance is the complaints record. The Botanic Gardens has kept a detailed and extensive record of noise complaints from at least the last 15 years of events. This has allowed greater understanding of the areas that are mostly affected by noise and the PA (Public Address) system configurations that typically result in higher number of complaints.

Event Operators are required to submit documentation that supports their understanding of the relevant sound management practices for the site as well as showing an understanding of the best methods for PA system design to reduce impacts to nearby residents. The Botanic Gardens reviews these submitted plans and proposes changes if deemed required or beneficial. It is also important to note that the audience experience needs to be at the forefront in any discussion of effectivity of PA system design.

The Trust has over a thousand bookings a year on its land including many weddings, corporate events, etc. besides the major events. On weekends, it may have up to a dozen bookings on any one day. Management of these bookings can be complex but paramount to the operations of the Trust. If there is a possibility of sound from a major event impacting a client of a smaller event, the situation is discussed at the time of booking prior to confirmation.

Nearby sensitive receivers are not common to all venues or sites. The identification of these is done venue by venue to ensure clarity in the preparation of sound management documents.

4.1. The Phillip Precinct

4.1.1 Commercial and Public Use

The Sydney Hospital is immediately adjacent to the west of the Phillip Precinct and the nearest noise sensitive receiver to the site. The building nearest to the site is the one housing the Sydney Eye Hospital. In some instances, main elements of the PA system can be as close to this building as 80 metres. While this institution has generated no complaints in the past, protecting its amenity is paramount due to the noise sensitive activities occurring within these buildings.

Also, to the west, the site is adjacent to the Parliament House buildings adjacent to Hospital Road. On the same side of the site and further north the Mitchell Library is found. These sites can be as close as 70m and 100m respectively from major PA system elements in some configurations.

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To the East of the site, the primary public use location is the Art Gallery of New South Wales (approx. 180 m). To the South of the site, the Registrar General’s building is located (approx. 150 m) and further away St Mary’s Cathedral (approx. 280 m). Finally, to the north, the Conservatorium School of Music (approx. 420 m) and Government House (approx. 800 m) are located at a further distance.

Please note that there are additional commercial premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

It should be noted that these locations generally generate no complaints during events, including major events.

4.1.2 Residential Use

The nearest residential area of concern are the residences located near the intersection of Bent Street and Macquarie Street (approx. 300 m). Additionally, there are residences further along Macquarie Street, all the way to the roundabout at the Sydney Opera House (from 300 m to 950 m). This is generally where the majority of the complaints have been generated for major events over the most recent years.

Additionally, there are residences to the east past the Art Gallery of NSW. The nearest residences are the block of terraces on Lincoln Crescent called the Wharf Terraces (approx. 400 m). South of this, the suburb of Woolloomooloo extends, with the nearest border being Sir John Young Crescent. Over the years, lesser complaints are generated in this area, which are very weather dependent and sometimes hard to pinpoint to major events (rather than local sources).

Please note that there are additional residential premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.



1. Sydney Hospital and Eye Hospital
2. Parliament House
3. Mitchell Library
4. Art Gallery of New South Wales
5. Registrar General's Building
6. St. Mary's Cathedral
7. Conservatorium School of Music
8. Government House
9. Bent Street and Macquarie Street
10. Macquarie Street Area
11. Wharf Terraces
12. Woolloomooloo

Figure 7. Phillip Precinct nearest potentially affected receivers (© OpenStreetMap)

4.2. The Crescent Precinct

4.2.1 Commercial and Public Use

The nearest sensitive receiver to the Crescent Precinct is St Mary's Cathedral (approx. 200 m to the centre of the site) to the west of the site. Also to the west of the site is the Registrar General's building (approx. 250 m) and Sydney Hospital (approx. 350 m). The Art Gallery of New South Wales is located to the northeast of the site (approx. 200 m).

Please note that there are additional commercial premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

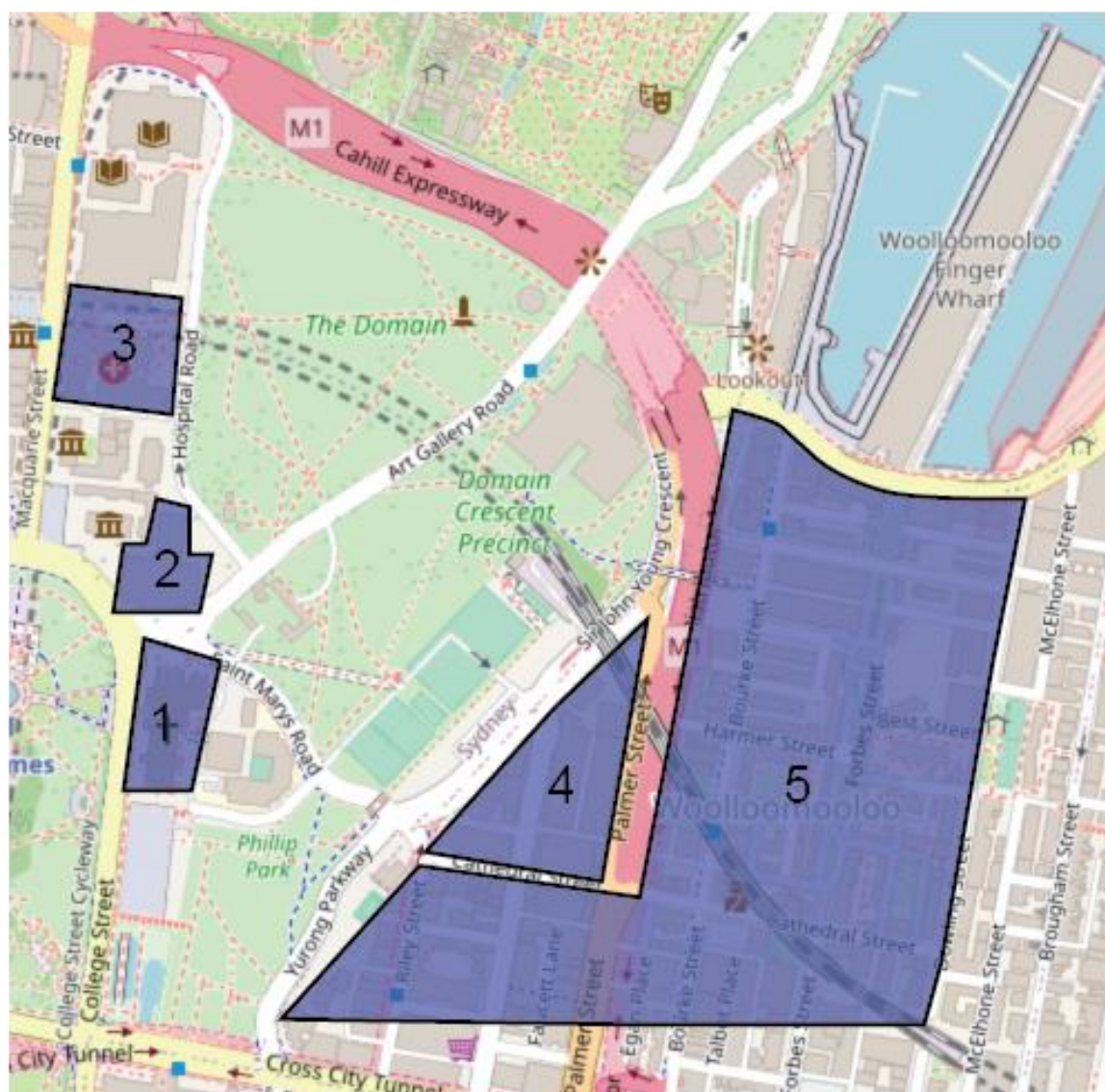
Please note that this location is seldom used for large events as the distance to residential areas in Woolloomooloo are too close to provide a good audience experience and reasonable impacts to nearby sensitive receivers.

4.2.2 Residential Use

The nearest residential area of concern are the residences located directly opposite the site to the east and across Sir John Young Crescent (approx. 80 m). Further to that, the Woolloomooloo area extends to the east and north (approx. 200 m).

Please note that there are additional residential premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

Please note that this location is seldom used for large events as the distance to residential areas in Woolloomooloo are too close to provide a good audience experience and reasonable impacts to nearby sensitive receivers.



1. St. Mary's Cathedral
2. Registrar General's Building
3. Sydney Hospital and Eye Hospital
4. Residences directly adjacent to site
5. Larger Woolloomooloo area

Figure 8. Crescent Precinct nearest potentially affected receivers (© OpenStreetMap)

4.3. Fleet Steps

4.3.1 Commercial and Public Use

The nearest sensitive receiver to the Fleet Steps is the Sydney Opera House (approx. 620 m) located to the west of the site. Government House sits also to the east and approximately 630 m from the site. The Conservatorium of Music is to the southwest (approx. 800 m) and the Art Gallery of New South Wales is to the south (approx. 1 km).

Please note that there are additional commercial premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

4.3.2 Residential Use

The nearest residential area of concern are the residences on the Finger Wharf and Wharf Terraces in Woolloomooloo (approx. 560 m) to the south of the site. Additional residences are located in the Kirribilli area (approx. 930 m) to the north and near Beulah Street Wharf. Furthermore, residences can be found to the west of the site along Macquarie Street (approx. 760 m).

Please note that there are additional residential premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.



1. Sydney Opera House
2. Government House
3. Conservatorium School of Music
4. Art Gallery of New South Wales
5. Finger Wharf
6. Wharf Terraces
7. Kirribili
8. Macquarie Street

Figure 9. Fleet Steps nearest potentially affected receivers (© OpenStreetMap)

4.4. Tarpeian Precinct and Bennelong Lawn

4.4.1. Commercial and Public Use

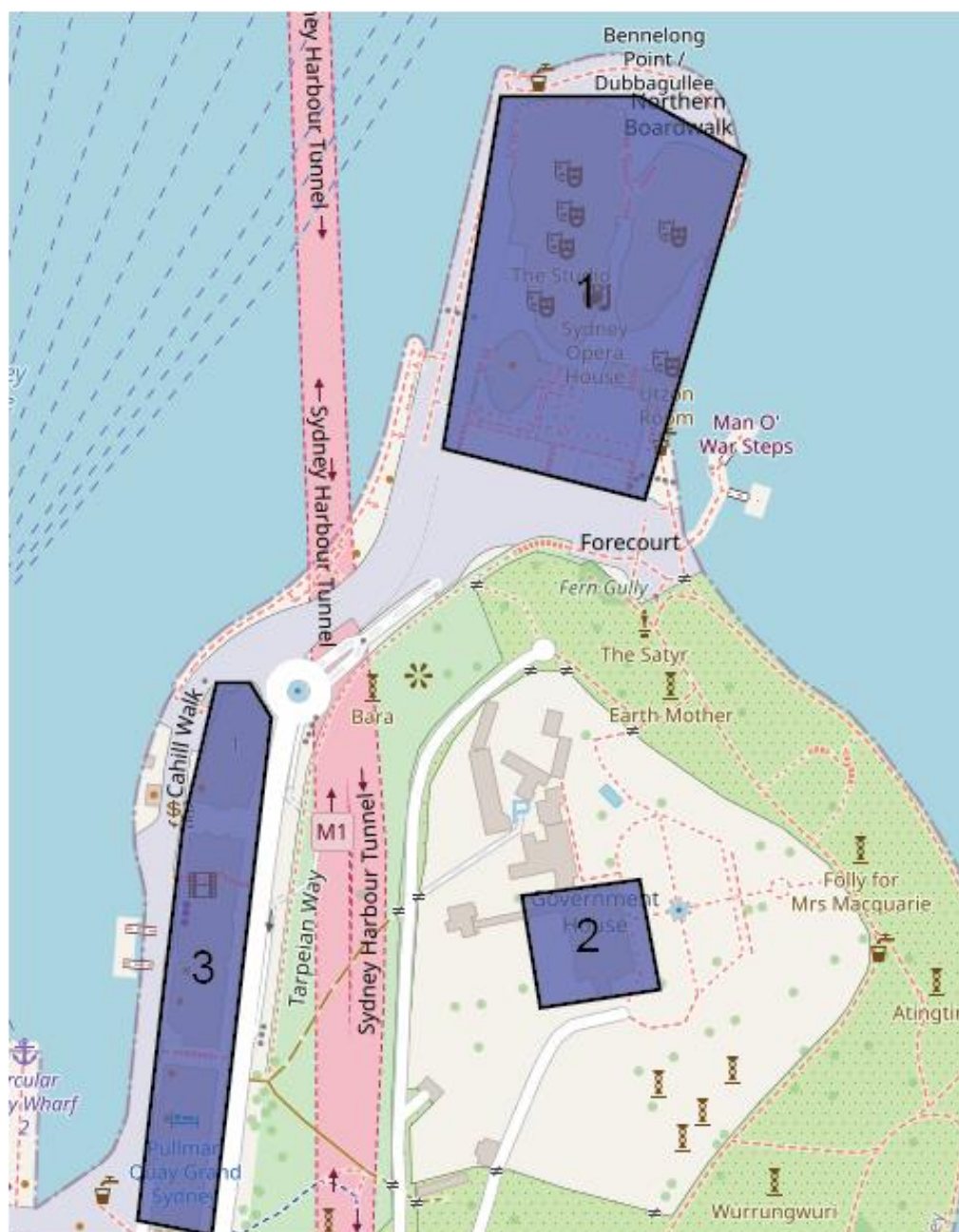
The nearest sensitive receiver to the Tarpeian Precinct and Bennelong Lawn is the Sydney Opera House (approx. 100 m) located to the north of the site. Government House sits to the south and approximately 100 m from the site.

Please note that there are additional commercial premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

4.4.2. Residential Use

The nearest residential area of concern are the residences on Macquarie Street, located across the street and approximately 50 m from the site.

Please note that there are additional residential premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.



1. Sydney Opera House
2. Government House
3. Macquarie Street

Figure 10. Tarpeian Precinct and Bennelong Lawn nearest potentially affected receivers (© OpenStreetMap)

4.5. Parade Ground

4.5.1 Commercial and Public Use

The nearest sensitive receiver to the Parade Ground is Government House to the north 150 m from the site.

Please note that there are additional commercial premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.

4.5.2 Residential Use

The nearest residential area of concern are the residences on Macquarie Street, located across the street and approximately 150 m from the site.

Please note that there are additional residential premises in the surrounding areas, but only the nearest ones or the ones that have traditionally generated complaints are highlighted.



Figure 11. Parade Ground nearest potentially affected receivers (© OpenStreetMap)

5 APPROPRIATE REGULATING AUTHORITY AND REGULATION INSTRUMENTS

As outlined in the Protection of the Environment Operations (General) Regulation 2021, the EPA is the appropriate regulatory authority (ARA) for activities carried on the lands managed by the Botanic Gardens and with the potential to cause noise issues. The EPA issued the first Noise Prevention Notice (Notice No. 1006659) in 2003 in order to regulate noise pollution from the venue.

The current notice (Notice No. 3501235) was issued in 2022 and includes conditions as originally stated in Notice No. 1006659 and its revisions and incorporates newer measurement methodologies as well as streamlining the classification of different event types.

5.1 Important definitions – Event Category

One of the most important definitions included in the Prevention Notice is the categorisation of events. From the Prevention Notice, the following classification and definitions for events are presented:

- **Category 1 Event** – Any cinematic outdoor entertainment activity involving the showing of feature films, and with a crowd capacity of greater than 200 and up to 2,000 people.
- **Category 2 Event** – Any outdoor entertainment activity with a crowd capacity of greater than 200 people, including any associated sound test or rehearsal (excluding Category 1 and 3 events).
- **Category 3 Event** – Any outdoor entertainment activity with a crowd capacity of greater than 200 people held at the Phillip Precinct (including any associated sound test or rehearsal) that is subject to higher Category 3 noise limits.

Based on the classifications above, different noise and time limits will apply to different events as outlined below.

6 NOISE AND TIME LIMITS AND ADDITIONAL CONDITIONS

This section includes noise and time limits for different event Categories.

Please note that the Botanic Gardens retains ultimate control of levels and that directions from the Botanic Gardens to reduce levels are to be enacted by any event representatives and personnel.

6.1 Noise Level Limits

The following noise limits apply to the different event categories:

- **Category 1** – L_{Amax} to not exceed 55 dB(A) at the nominated monitoring locations.
- **Category 2** – L_{Amax} to not exceed 55 dB(A) and L_{Cmax} to not exceed 70 dB(C) at the nominated monitoring locations.
- **Category 3** – $L_{Aeq,5min}$ to not exceed 77 dB(A) and $L_{Ceq,5min}$ to not exceed 97 dB(C) at the nominated monitoring location.

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Time Limits

The following time limits apply to the different event categories:

- **Category 1** – Events must not commence prior to 7pm and finish after 12am.
- **Category 2** – Events must not commence prior to 10am and finish after 11pm. The total length is restricted to 10 hours. An exemption exists for the New Year's Eve events where events must not finish after 1.30am on the 1st of January, excluding Sporting and Theatrical events.
- **Category 3** – Events must not commence prior to 10am and finish after 11pm. Rehearsals and sound tests must not commence prior to 10am or finish after 11pm.

6.2 Additional Conditions

The following additional conditions apply to the different event categories:

- **Category 1** – Events are to be only held at the Fleet Steps and only be held during the months of January and February.
- **Category 2** – None.
- **Category 3** – No more than sixteen (16) events are to be held per calendar year (excluding sound checks and rehearsals). Up to four (4) events can have a duration of twelve (12) hours. Up to - twelve (12) events can have a duration of ten (10) hours.
Category 3 events with a duration greater than four (4) hours can be run on consecutive days two (2) times per year. All other events exceeding four hours must be separated by a minimum of five (5) days.
The maximum duration of each individual rehearsal with the use of the main speaker system must not exceed two (2) hours. The maximum duration of individual sound checks is one (1) hour.
For Carols on the Domain, the maximum duration of individual rehearsals must not exceed four (4) hours. The maximum duration of individual sound checks is two (2) hours.

7 MONITORING REQUIREMENTS

Monitoring strategies are also outlined in the Prevention Notice. A detailed explanation with typical monitoring locations is included here.

All noise monitoring requires compliance with the requirements of typical noise monitoring equipment. This includes the following:

- Handheld sound level meters to be compliant with Class 1 specifications including the instrument and microphone as outlined in AS/NZS IEC 61672.1:2019.
- Permanent loggers to be compliant with Class 1 specifications including the instrument and microphone as outlined in AS/NZS IEC 61672.1:2019.
- Measurements for Max levels to be done using the fast time response.
- Measurements to be made as feasibly possible in the absence of other sources.
- Handheld measurements to be made at a height between 1.5 and 1.6 metres above the ground.
- Fixed logger measurements to be made at a height between 3.0 and 3.6 metres above the ground.
- Fixed measurements to have the ability to provide real time readings at the event control location as a minimum and, if possible, at the FOH location.

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- Records to be kept of all measurements whereas handheld or permanent loggers and to satisfy reporting requirements.

Depending on the event type, the Botanic Gardens can suggest a preferred company to provide monitoring services. The suggestion is based on a history of successful noise management as the experience of the noise monitoring company can have a great impact on the success of an event. The success of an event is highly tied to the levels that can be achieved on site and for patrons. A company with experience is better suited at understanding false exceedances and providing suggestions for noise management that will ensure the best experience for patrons.

Additionally, the EPA requires that any noise monitoring and reporting is done by a company or person that satisfies at least one of the following:

- Has the qualification or experience to fulfill the requirements of 'member' grad of the Australian Acoustical Society.
- Has a recognised tertiary qualification in a discipline pertinent to acoustics.
- Is able to demonstrate competence through professional experience and/or technical expertise to the satisfaction of the EPA.

7.1 Monitoring Methodology

7.1.1 Category 1

At least once on each calendar year, noise levels must be continuously monitored for the duration of one event. The preference is for this to occur at the start of a series of events if they form part of that. It is noted that the impacts for this Category are generally lower and well understood and the risk of impacts is geographically limited.

Monitoring and reporting are not required for activities undertaken as part of the Open Air Cinema at Fleet Steps and occurring between January and February.

Additionally, it is recommended that levels are calibrated during setup and sound checks to ensure that levels are within the established limits.

The prevention notice requires for the following monitoring locations:

- Beulah Street Wharf, Kirribilli if the event is held near the foreshore.
- At other locations nominated by the EPA or Trust.

For events at the Fleet Steps the recommended monitoring locations are shown in the figure below.



- 1. Beulah Street Wharf off Waruda Street, Kirribilli
- 2. Grantham Street, Potts Point
- 3. Any other locations that could be potentially affected.

Figure 12. Monitoring locations for Category 1 events held at the Foreshore (© OpenStreetMap)

7.1.2 Category 2

Category 2 events require continuous monitoring. Sporting and some theatrical events are excluded from this. Continuous monitoring constitutes a set of permanent loggers at the nominated locations with real time display at the event control location and, if possible, at the Front of House (FOH) location. Locations include the nominated locations (i.e., Beulah Street Wharf for events near the foreshore) and the recommendation is for a location within the grounds where the results from the impacts can be extrapolated and fulfill the requirements for low impact of sources not related to the event.

In addition to this, a manned roving handheld sound level meter should be available throughout any event to respond to noise complaints.

The prevention notice requires for the following monitoring locations:

- Beulah Street Wharf, Kirribilli if the event is held near the foreshore.
- At other locations nominated by the EPA or Trust.

For events at the Fleet Steps the recommended monitoring locations are shown in the figure below.



1. Beulah Street Wharf off Waruda Street, Kirribilli
2. FOH Location
3. Any other locations that could be potentially affected.

Figure 13. Monitoring locations for Category 2 events held at the Fleet Steps (© OpenStreetMap).

Please see section [4.3](#) for potential nearby sensitive receivers to Fleet Steps location.

For events at the Phillip Precinct, the recommended monitoring locations are shown in the figure below.

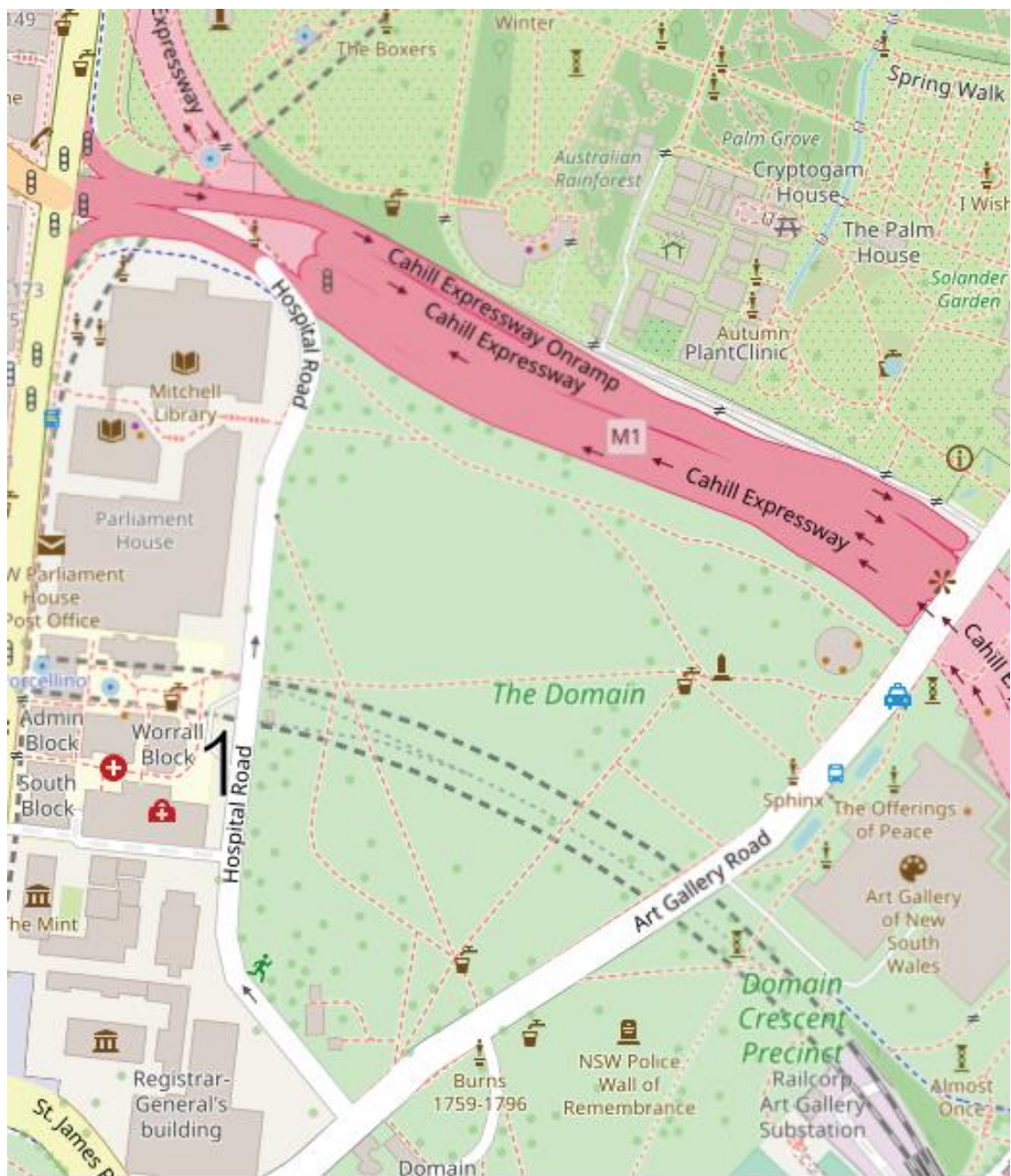


Figure 14. Monitoring locations for Category 2 events held at the Phillip Precinct (© OpenStreetMap).

Please see section 4.1 for potential nearby sensitive receivers to Phillip Precinct location.

7.1.2.1 FOH Calibration to Sensitive Receivers

An alternative to using a continuous monitoring logger at sensitive receivers, is to use a logger at FOH that has been calibrated with an offset to the nearest sensitive receiver. This has the advantage of additional certainty in knowing that the sound being predominantly captured by the logger is from the event itself rather than local sources if placed in proximity of a sensitive receiver. It is worth noting that, historically, the existing background noise level at most sensitive locations is close or higher than the prescribed limits which can lead to unnecessary reductions in the sound levels of the event for patrons.

This technique can be particularly useful for the Fleet Steps event scenario.

To calibrate a FOH reading to a sensitive receiver reading, noise monitoring systems need to be calibrated during sound checks to provide indicative levels. Pink noise or a broadband signal (e.g. IEC 60268-1) can be used to calibrate the system. Music can also be played as a final check. The test will aim to provide a level difference between the sound system as installed and the predicted levels at the nearest residences. Please note that high noise levels might be required for a very short period of time to determine the offset.

For example, and as a hypothetical case, based on the site conditions and PA system configuration we could encounter a situation in which the **measured** levels at the designated site location (FOH) are 15 dB higher than the **predicted** levels at the nearest resident. This would result in a maximum level for the operator which is the proposed maximum level at the residents plus 15 dB.

Please note that this is not mandatory according to the Prevention Notice but could lead to better monitoring and better level management.

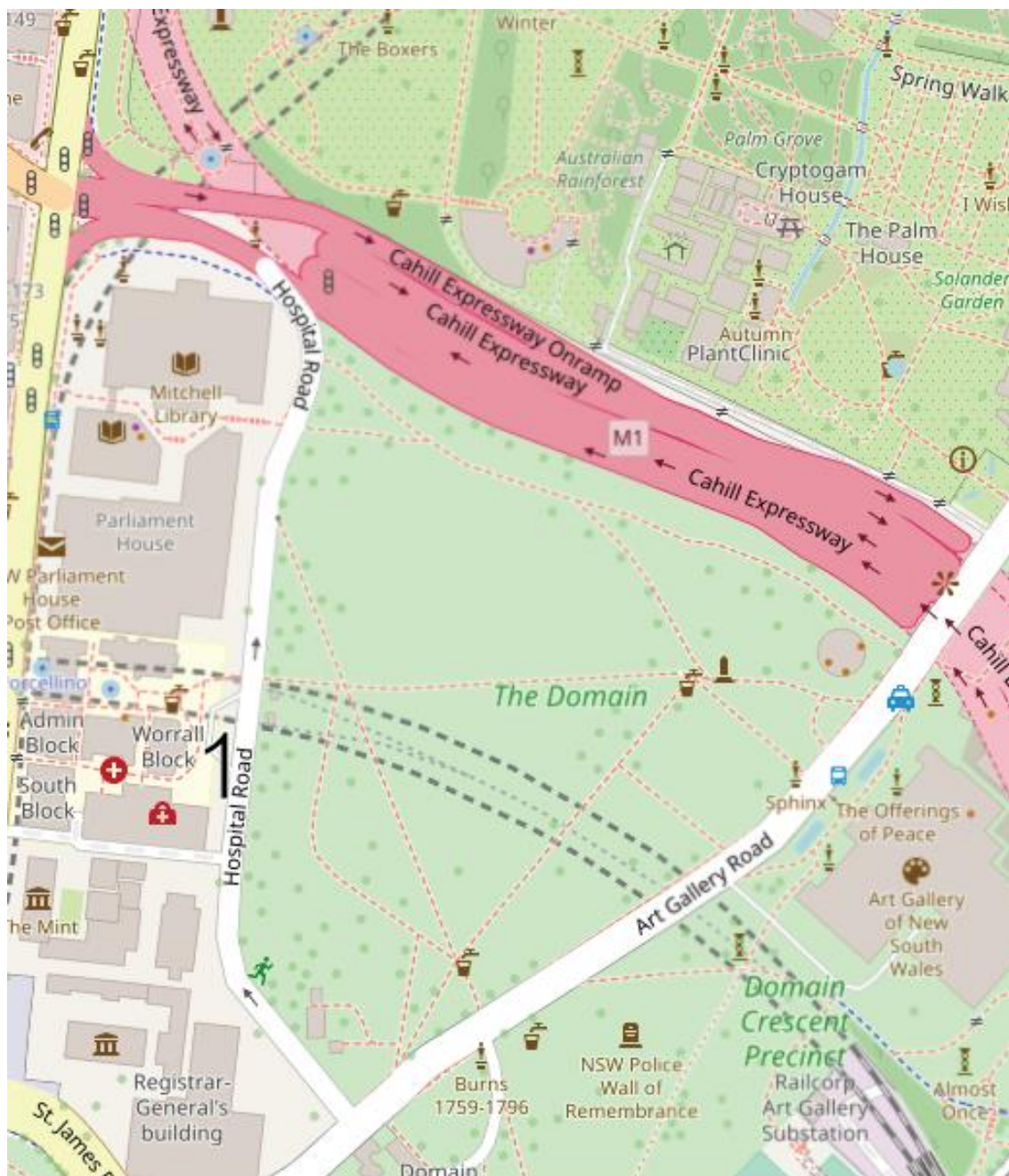
7.1.3 Category 3

Category 3 events require continuous monitoring. Carols in the Domain, Opera in the Domain, and New Year's Eve Events are excluded from this. Continuous monitoring constitutes a permanent logger at the nominated location with real time display at the event control location and, if possible, at FOH.

In addition to this, a manned roving handheld sound level meter should be available throughout any event to respond to noise complaints.

The Prevention Notice requires for the following monitoring locations:

1. At a point within one (1) metre of the Sydney Hospital and Sydney Eye Hospital boundary nearest to the Phillip Precinct, Domain Sydney at Hospital Road.
2. At other locations nominated by the EPA or Botanic Gardens.



1. Sydney Eye Hospital
2. Any other locations that could be potentially affected.

Figure 15. Monitoring locations for Category 3 events held at the Phillip Precinct (© OpenStreetMap).

7.2 Compliance Reports

Based on the monitoring and sound management activities, two reports are to be submitted to the Botanic Gardens and in turn to the EPA. When monitoring is not required as outlined above, a report is not necessary. These are outlined below.

7.2.1 Initial Compliance Report

Within five (5) working days following the completion of a Category 2 or Category 3 event a report in writing is to be submitted detailing:

- Whether the event was compliant or if any non-compliances were observed. The reasons for the non-compliances.
- The times and details of any exceedances in levels. The reason for the exceedances and actions taken to reduce the exceedances.
- A summary of number, times and locations of any complaints received.

7.2.2 Final Compliance Report

Within twenty-one (21) working days following the completion of a Category 2 or Category 3 event a report in writing is to be submitted. The report needs to be prepared by a suitably qualified person and including:

- Details of the person preparing the report.
- Details of the event including dates and start and end times.
- Details of the continuous monitoring locations.
- Details of any additional measurements.
- Details of the equipment used.
- Details of any exceedances that occurred including times, levels, duration and reasoning.
- Details of any actions taken to correct exceedances.
- Any additional information relevant to the report.

In addition to this, the Botanic Gardens provides the following information:

- Number of attendants.
- Details on any complaints received.
- Any additional information relevant to provide a path for sound management improvements.

8 ASSESSMENT AND PREDICTION OF EVENT NOISE

All Events requiring amplification which operate on Botanic Gardens land are required to understand and adhere to this Noise Management Plan. As part of the preparation process for an event, the Botanic Gardens can request that the promoter or venue hirer provides sound system details including the location, model and configuration of the sound system to be used in the event. Additionally, the Botanic Gardens can request predictive data of the proposed sound system to be included as part of the event.

The Botanic Gardens has an in-depth knowledge of the event site and also understands PA system configurations that provide better results in terms of level at the audience and levels at nearby sensitive receivers. The Botanic Gardens can use this knowledge to suggest alternative configurations if deemed that the experience for event goers and residents could be improved. It is expected that promoters and venue hirers should take this advice into consideration. Sound checks are also a great time to understand and refine the final site configuration. Please note

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that some changes might be useful at this time. Please note that the Botanic Gardens has the best intentions in mind when suggesting changes to PA system configurations. A successful event is one in which event goers are satisfied with the levels on site and residential impacts are minimised.

9 ADDITIONAL SOUND MANAGEMENT PRACTICES

9.1 Bump In and Bump Out Noise

Bump In and Bump Out activities are an additional source of noise that is not regulated by the Prevention Notice. It is recommended that, when possible, these activities are conducted within typical business hours and limited during weekends. It is understood this might not be possible due to typical event hours and to ensure that the sites are cleared for the public as soon as practically possible.

Noise from these activities will be minimised as reasonably and feasibly possible and include strategies to limit noisier activities to the suggested times above.

9.2 Sound System Practices

All sound systems are to be designed, installed and commissioned ensuring that break out to nearby sensitive receivers is minimised while ensuring that the best audience experience is achieved.

Some of the strategies to conform to these goals include:

- Utilise sources with controlled directivity such as line arrays and point sources with horn loaded drivers where feasible.
- Ensure that the coverage of the sources is optimised to the audience area. An example of this is ensuring that line arrays and other sources do not overshoot the audience. Another example is ensuring that all point source loudspeakers are aimed away from sensitive receivers or at a reasonable distance.
- Utilise sub-woofer arraying techniques that provide an even coverage across the audience area. This allows for predictable dispersion which in turn allows for a well-known and controlled dispersion and break out. This is of particular relevance to the stage area.
- Commissioning systems so that they produce the best results within the venue while minimising impacts beyond the footprint of the venue. An example of this is conducting external measurements to ensure that salient frequencies at residences are reduced.
- Optimisation of sub bass array. This includes array of elements in a line to produce a controlled beam and use of cardioid subs and other pattern control techniques to maximise coverage towards the audience and rejection towards sensitive receivers.

9.3 Control of Noise Sources Different to the Main Event Audio System

Whilst the main sound systems will contribute the majority of the levels at nearby receivers, there are other sources of noise which will contribute to the sound levels. These other sound sources include mechanical services, other show elements (e.g. drones when in use) and noise from the food and beverage stalls. Mechanical services such as generators are recommended to be housed in acoustically treated enclosures. Generators are the largest

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sources of noise and we do not envision other services to contribute to levels at residences above the existing background noise levels.

10 EVENT NOTIFICATION PROCEDURE

Most of the larger events that require amplification are widely publicised in the media through festival programs; brochures and websites including the Botanic Gardens' own; and social media. In addition, the Botanic Gardens requires that, for large events, signage is erected in visible locations to inform regular users of Botanic Gardens land of the impending event. Well-known nearby sensitive receivers are also informed of the event via email.

10.1 Neighbours & Stakeholders

The Botanic Gardens has a rolling annual event calendar which is used as a tool for both planning and notification. It is updated monthly and emailed to all businesses on Botanic Gardens land and the Botanic Gardens' neighbours (businesses) and stakeholder's database. This allows these groups to receive notification of events up to a year in advance. Such advanced notification allows those likely to be affected to plan around the event impacts. The notification outlines the name of the event, the date and times it will be held, sound impacts including the event noise such as rehearsals and sound checks and road closures among other information.

Ten to fourteen days prior to an event, a stakeholder event notice is sent to all those on the contact database to provide further details about the event. This notice does include nearby residents. It details the above information again and provides the contact details of the Trust staff member responsible for the event and the organisers' event details (e.g. website for the event). It specifically notes the hotline number to be used for sound complaints to speak directly with a Trust staff member who is able to address any noise issues arising from the event.

The contact database of neighbours and stakeholders to whom the above notifications are sent is regularly updated. Residents and/or the contact details for concierges of buildings are taken and added to the database to allow the Trust to notify them of events. Other private citizens not associated with apartment blocks are also on the database. In addition, other authorities who may be contacted by the general public on event impacts are on the list so that they can either pass on Trust contact details and hotline number to complainants or notify the Trust to follow up on the complaint. This includes contact details for The Rocks Police local area command.

10.2 EPA

At least twenty-one (21) days prior to the commencement date of any category 1, category 2 or category 3 events, the Botanic Gardens informs the EPA:

1. the times and dates of the proposed event;
2. the name and contact details of the Botanic Gardens staff for the purposes of communication with the EPA in connection with the event;
3. the name of a person appointed as the Botanic Gardens' representative specifically for the duration of the event and the hotline number;
4. proposed noise monitoring locations if different to the nominated locations;
5. the proposed measures for notification of residents and sensitive receivers about the event; and

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6. a plan for addressing complaints from members of the public and managing the emission of noise from the event.

It is also notified of any changes to the details outlined above, at least seven (7) days prior to the commencement date(s) of an event where noise is required to be monitored.

10.3 Other Trust Hirers

To ensure the needs of other Botanic Gardens clients (i.e. event hirers on smaller venues) are not impacted by the noise from larger events, the Botanic Gardens has a booking system on which event impacts and warnings are entered. If there is any possibility of sound impacting a client, the situation will be discussed at the time of booking before it is confirmed.

11 COMPLAINTS HANDLING PROCEDURE

The Botanic Gardens has a complaints handling procedure that has been in place for more than two decades. The complaints handling procedure in place aids to provide a quick reply and corrective measure for any complaints during events. Additionally, data collected during the handling of complaints aids in understanding complaint trends that help in improving sound management practices.

The primary method to collect and respond to complaints related to noise is through an event hotline that is deployed by the Botanic Gardens. This hotline responds to all event related queries, but is also the primary vehicle for noise complaints to be received. Any promoters and site hirers are provided with this service as part of the noise monitoring package. The hotline is staffed by a trained Trust representative. There is a direct line of communication between the hotline operator and the event representatives. It is expected that any recommendations from the hotline operator and noise monitoring engineer are followed.

Trust staff responsible for the hotline are trained in the complaints handling procedure and are responsible for following up on and recording all data related to complaints as outlined in the Prevention Notice.

The noise complaint data is recorded on a standard template which records the following:

1. the date and time of the complaint;
2. the method by which the complaint was made;
3. any personal details of the complainant which were provided by the complainant, in particular their location or, if no such details were provided, a note to that effect;
4. the nature of the complaint;
5. the action taken by the Botanic Gardens in relation to the complaint, including any follow-up contact with the complainant; and
6. if no action was taken by the Botanic Gardens, the reasons why no action was taken.

Monitoring is conducted at all times as required during event times, sound checks and rehearsals. All complaints are generally followed up by communicating to the noise monitoring engineers the nature and location of the complaint. All noise complaints are generally investigated and, if found to show exceedances, a direction will be made to reduce levels on site. Additionally, if it is found that no exceedances are occurring but that improvements can be made to reduce impacts, these are communicated to the Trust and in turn to the event personnel.

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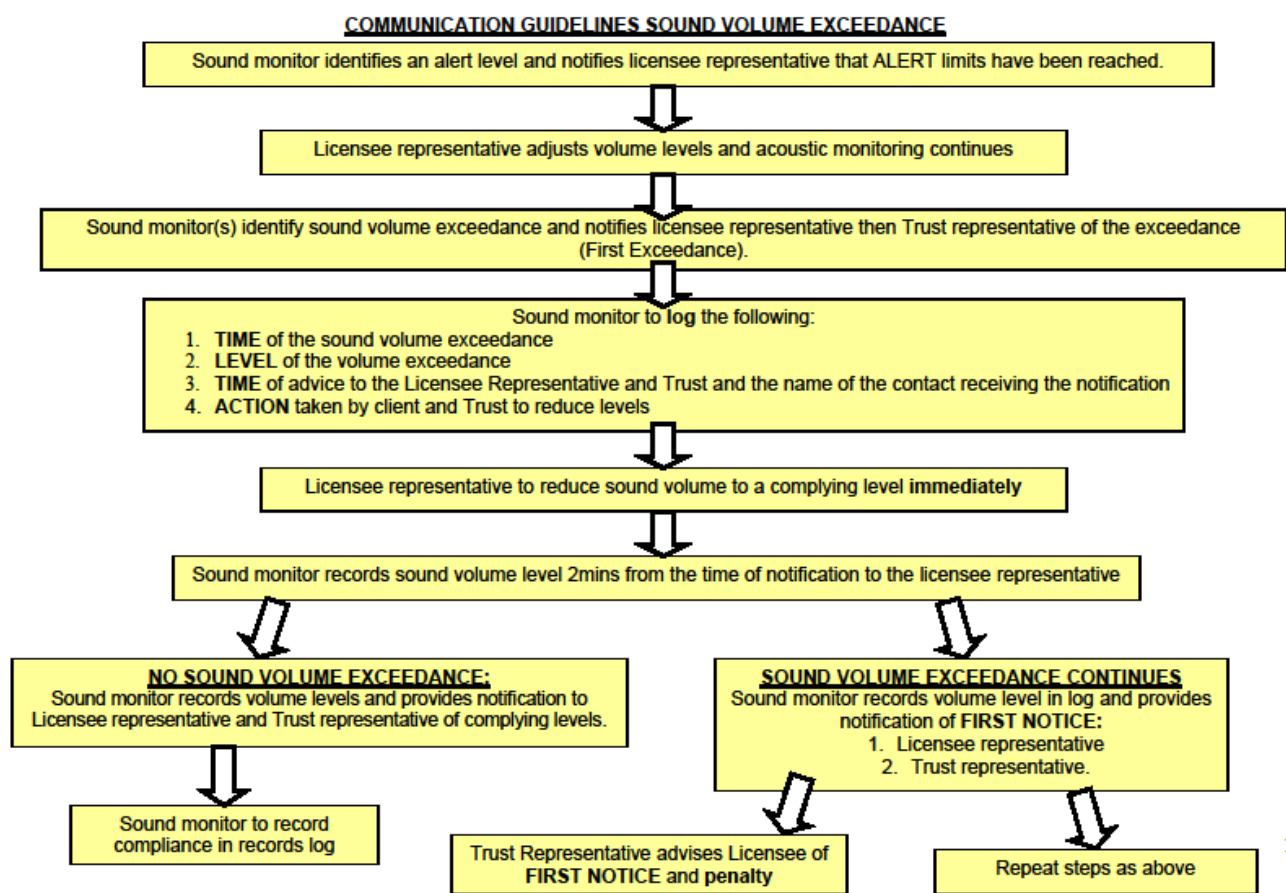
Some complaints are received by email or phone call after the event. The Botanic Gardens contact staff will contact all complainants to investigate the issues. Complainants may also contact other agencies such as local Police who forward these complaints to the Trust for follow up. These are included in the final report.

12 REVIEW AND SOUND PLAN EFFECTIVENESS

The Trust will review the Plan’s effectiveness as required. The following recommendations are made to ensure that the plan is achieving its purpose:

- Assessment of complaints received annually and understanding of areas of concern and PA system implementation.
- Review of the acoustical measurements including measuring position locations, number of measurement positions, measurement equipment, etc.
- Review of the sound system design strategies implemented.
- Review of the requests and concerns from the local community.

ATTACHMENT 1 – Communication Guidelines for Sound Volume Exceedance



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