



Blackett Acoustics

Noise & Vibration Consultants

17 June 2019

Project Number: BA190321

Ref: CB170619JA eltr

Mr Andrei Gudas
City of Canada Bay Council
c/o Milestone (Aust) Pty Ltd
93 Norton Street
Leichhardt, NSW 2040

Dear Andrei,

Re: Majors Bay Reserve Sir Richards Playing Field - Half Size Synthetic Field Noise Assessment

1. Introduction

City of Canada Bay Council is proposing to build a half size synthetic field near to Field 3 as shown in Figure 1-1.

Figure 1-1 Aerial of Project Site



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Blackett Acoustics has been engaged by the City of Canada Bay Council to conduct a noise assessment for the new half size synthetic field at the Majors Bay Reserve Sir Richard Playing Field.

This report provides an assessment based on the potential noise impact (if any) associated with the new half size synthetic field to the surrounding residential receivers.

2. Site Description

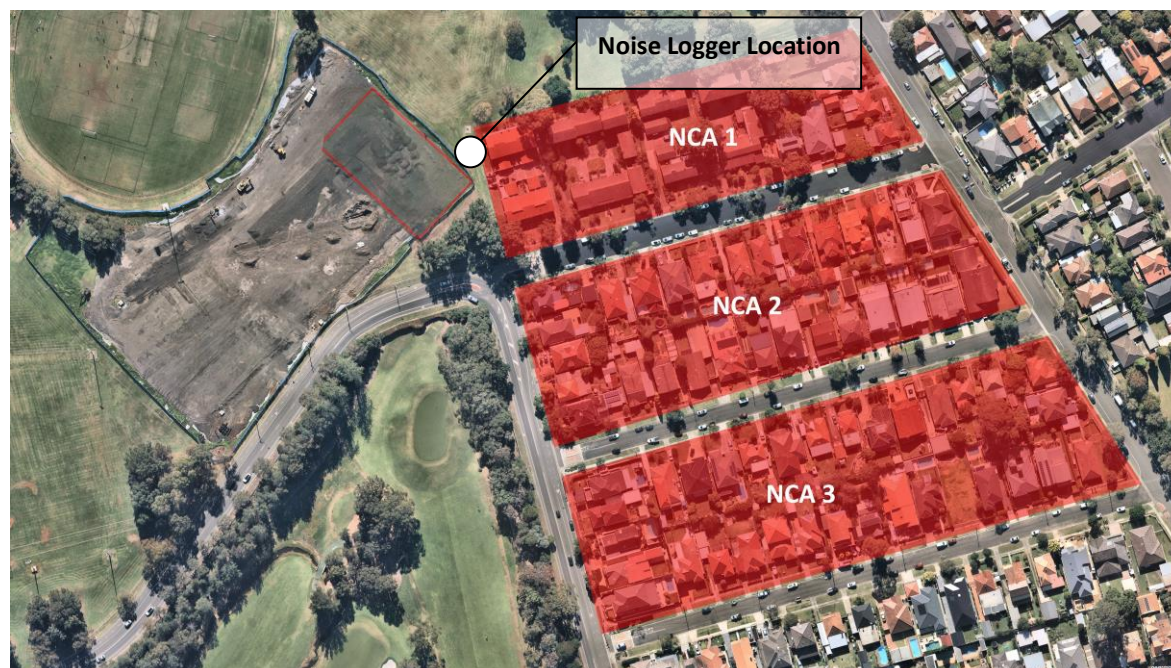
The Majors Bay Reserve consists of Sir Richards Playing Field, Ron Routley Oval and Concord RSL & Community Club. Sir Richards Playing Field is bounded by Norman Street to the south, Ron Routley Oval and Concord RSL to the north and consists of three existing playing fields – Field 1, Field 2 and Field 3 which are used for soccer and baseball games. The typical usage of the new synthetic field will usually end before 10.00pm.

As there are a substantial number of existing residential receivers to the east of Majors Bay Reserve, for ease of reference, the existing residential receivers have been grouped into different noise catchment areas (NCAs).

The three NCAs are as follows:

- **NCA 1** - Identified residential receivers located to the east of proposed synthetic field (next to field 3) and north of Norman Street;
- **NCA 2** - Identified residential receivers located south of Norman Street and Health Street; and
- **NCA3**- Identified residential receivers located south of Health Street and Augusta Street.

The NCAs are further illustrated in Figure 2-1. The unattended noise monitoring location is also outlined in the figure.

Figure 2-1 Aerial Outlining NCAs and Noise Monitoring Location

3. Existing Acoustic Environment

Unattended noise monitoring equipment consisted of an Environmental Noise Logger. This was deployed by Blackett Acoustics in a free-field position along the eastern the Majors Bay Reserve site to establish the existing background noise level. The noise monitoring location is also outlined in Figure 2-1.

The monitoring period was from Friday, 6 to Saturday, 7 August 2015. The calibration of the logger was checked prior to and following the measurement period and the variation in calibration was found not to exceed 0.5 dB. The noise logger was set to record statistical noise descriptors in continuous 15-minute sampling periods for the duration of its deployment.

Table 3-1 presents the relevant time period background noise levels recorded during survey period.

Table 3-1 Measured Background Noise Levels (dBA)

| Monitoring Location | Measured Background Levels | | |
|-------------------------------------|----------------------------|---------|------------|
| | Daytime | Evening | Night Time |
| Eastern boundary Majors Bay Reserve | 46 | 46 | 41 |

Note: Daytime (7.00am-6.00pm), Evening (6.00pm-10.00pm) and Night time (10.00pm-7.00am).

4. Noise Goals

There are no specific noise goals for assessing sporting facilities in the NSW Environment Protection Authority document entitled Noise Guide for Local Government. In lieu of any existing guidelines, Blackett Acoustics will take reference from the now superseded EPA's document Environmental Noise Control Manual (ENCM) for guidance in establishing a noise criterion regarding noise from public places and sporting activities.

The following noise criteria for assessing the level of impact from a sporting facility is extracted from the ENCM:

- For existing activities, a criterion of the intrusive noise level L_{A10} not exceeding the background noise level L_{A90} by more than 10dBA; and
- For new events, a criterion of the intrusive noise level L_{A10} not exceeding the background noise level L_{A90} by more than 5dBA.

For the purpose of this assessment, Blackett Acoustics will adopt the background plus 10dBA criterion as the two additional soccer fields are considered to be part of an existing sporting facility.

Based on the established background noise level in Section 3, the $L_{A10,15min}$ noise goals for sporting events are summarised in Table 4-1.

Table 4-1 Summary of Established L_{A10} Noise Goals (dBA)

| Established L_{A10} Noise Goals | | |
|-----------------------------------|---------|------------|
| Daytime | Evening | Night Time |
| 56 | 56 | 51 |

Note: Daytime (7.00am-6.00pm), Evening (6.00pm-10.00pm) and Night time (10.00pm-7.00am).

5. Assessment of Sporting Noise

Based on Blackett Acoustics database and attended noise measurements at similar projects, Table 5-1 presents the noise emission levels during typical soccer games.

Table 5-1 Summary of Noise Emission Levels Associated with Soccer Activities

| Description | Distance Measured | Overall Measured (dBA) | |
|---|-------------------|------------------------|-----------|
| | | L_{Aeq} | L_{A10} |
| General noise from a soccer game with occasional shout outs and whistle | 15 | 58-68 | 60-70 |

For noise modelling and assessment purposes, only the typical worst-case scenario during any 15 minutes period will be considered. In order to assess the likely worst-case impact from the additional soccer field, the following assumptions have been made.

Typical Worst-Case Scenario: The assumptions are as below -

- Soccer field with noise emission level of L_{A10} 70dBA at 15m is used in calculations

Noise emissions were modeled using the CONCAWE algorithms implemented in the “CadnaA” acoustic noise prediction software. Factors that are addressed in the noise modeling are:

- Sound level emissions and location;
- Screening effects from buildings (if any);
- Receiver locations;
- Ground topography;
- Noise attenuation due to geometric spreading;
- Ground Absorption;
- Atmospheric absorption; and
- Meteorological Condition.

Figure 5-1 presents an aerial indicating the noise emission point for the purpose of noise modelling. Figure 5-2 presents a 3D view of the noise emission point to the surrounds.

Figure 5-1 Noise Emission Points

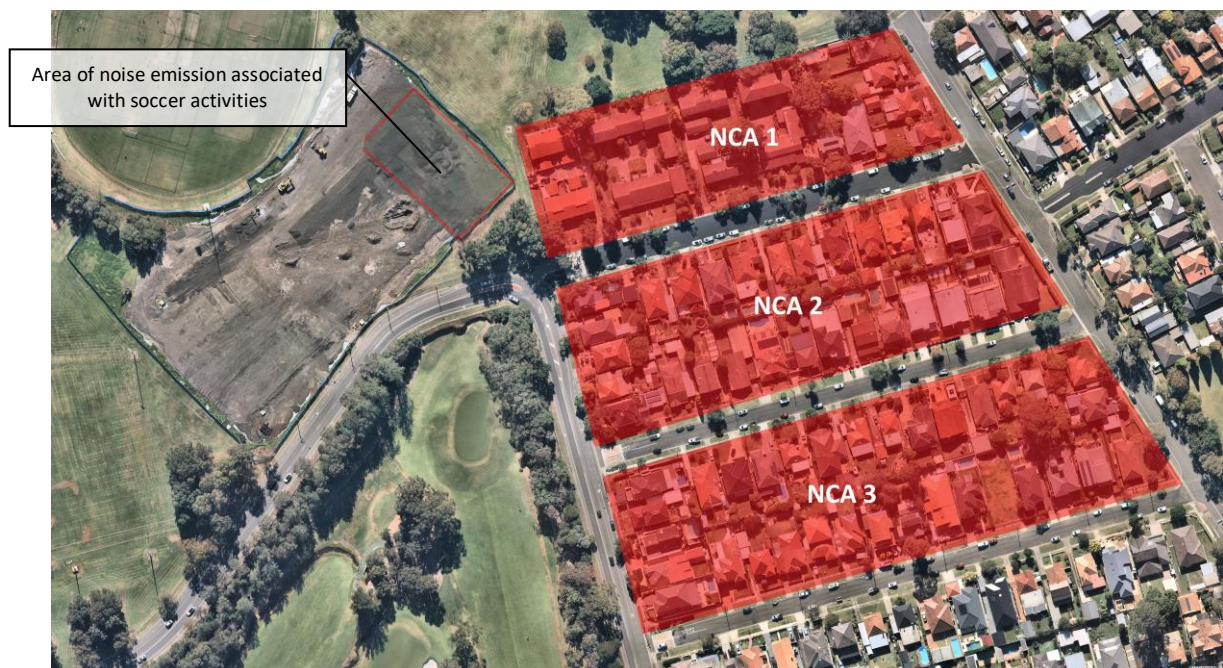


Figure 5-2 3D View of Noise Emission Point to the Surroundings



Table 5-1 present a summary of the predicted range of L_{A10} noise levels that may be expected at each NCAs (without the implementation of any special noise mitigation).

Table 5-1 Predicted $L_{A10,15min}$ Noise Levels (dBA) - Without Mitigation

| NCA | Most Stringent $L_{A10,15min}$ Intrusiveness Noise Criteria | Predicted Range of $L_{A10,15mins}$ Levels |
|-------|--|--|
| NCA 1 | 56 | 41-56 |
| NCA 2 | | 40-50 |
| NCA 3 | | 38-44 |

Based on the predicted noise levels presented in Table 5-1, it can be established that compliance with the daytime and evening period noise criteria is predicted at all NCAs.

6. Conclusion

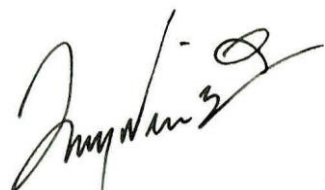
Blackett Acoustics has now conducted a noise assessment which considers the potential noise impacts associated with the proposed additional half size synthetic field at Majors Bay Reserve.

The assessment has identified the nearest surrounding residential receiver locations potentially most affected by noise emanating from the use of the half size synthetic field and considers the likely worst-case noise emission scenario.

Based on the predicted noise levels resulting from the worst-case activities considered, compliance is predicted at all the surrounding residential receivers located to the east of the Major Bay Reserve site.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully



Jimi Ang

Principal | B.Eng (Aeronautical) | M.A.A.S