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# ANYTIME FITNESS

# UNIT 9, 4-8 INMAN ROAD, CROMER

## DEVELOPMENT APPLICATION ACOUSTIC REPORT

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8 Nov. 2023

ABN: 18626172361

Doc. Rev. 1

figtree PROJECT MANAGEMENT

Dear Huy,

**Re: Anytime Fitness Cromer DA Acoustic Report**

Thank you for organising the acoustic logging on site between Monday 9th October 2023 and Monday 16th October 2023, as well as the detailed site survey and hand-held analysis performed on site.

This report presents the acoustic logging and hand-held measurements results, our acoustic assessment of the adjacent properties and existing noise levels, and provides a discussion and recommendations regarding compliance with the project criteria and applicable acoustics regulations.

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Yours faithfully,

**Claudiu Pop**
Director Australasia
BEng (Struct), MSc (Acoustics), PhD Cand. (Architecture)

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# Document Control Sheet

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|---|---|
| Title | **DEVELOPMENT APPLICATION ACOUSTIC REPORT** |
| Project | **ANYTIME FITNESS CROMER**<br>**UNIT 9, 4-8 INMAN ROAD, CROMER** |
| Description | Acoustic assessment and noise impact study |
| Key Contact | Dr.Riduan Osman B.E.(Hons.)(NSWIT), PhD(Syd) |

**Prepared By**



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| Checked | CP |
| Authorised | CP |



**Revision History**

| Issued To | Revision and Date | | |
|---|---|---|---|
| Huy Huynh | **REV** | 0 | 1 |
| Figtree Project Management | **DATE** | 24/10/2023 | 08/11/2023 |

# 1. Introduction

Norrebro have been engaged by Figtree Project Management and Anytime Fitness Cromer to prepare the acoustic review and documentation for the development application for proposed fitness centre at Unit 9, 4-8 Inman Road, Cromer, NSW.

This report quantifies the existing noise environment and provides the noise criteria for the proposed development and at the boundaries of potential neighbouring properties that could be impacted by the proposed development in accordance with the Northern Beaches Council requirements. This plan has been prepared by a suitably qualified person, who possesses qualifications to render them eligible for membership of the Australian Acoustic Society and Institution of Engineers Australia.

The proposed development relates to a warehouse building within a larger approved industrial development, known as former Roche Industries site. The proposed Anytime Fitness is to be located in Warehouse Unit 9 and the proposed works entail internal alterations.

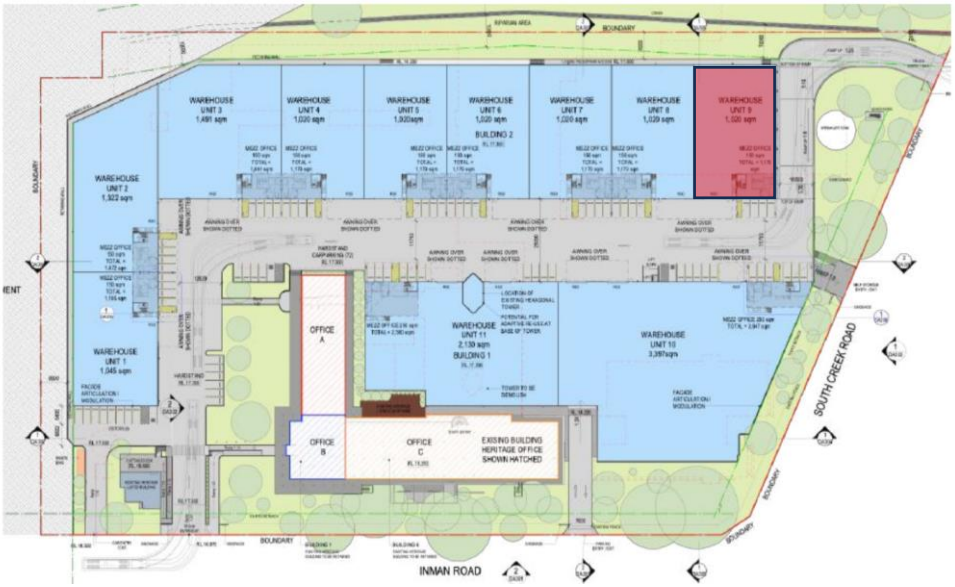


***Figure 1: Extract from approved site plan (DA2019/1346), showing the location of "Warehouse Unit 9" in red***

## 2. Site Location

The site is within the Cromer industrial area and is adjacent to educational, recreational and commercial areas.

To the north, there is a vacant property that is the subject of planning for its future potential for industrial development. To the east of the subject site is 100 South Creek Road which contains warehouse buildings and is the subject of future planning for industrial redevelopment.

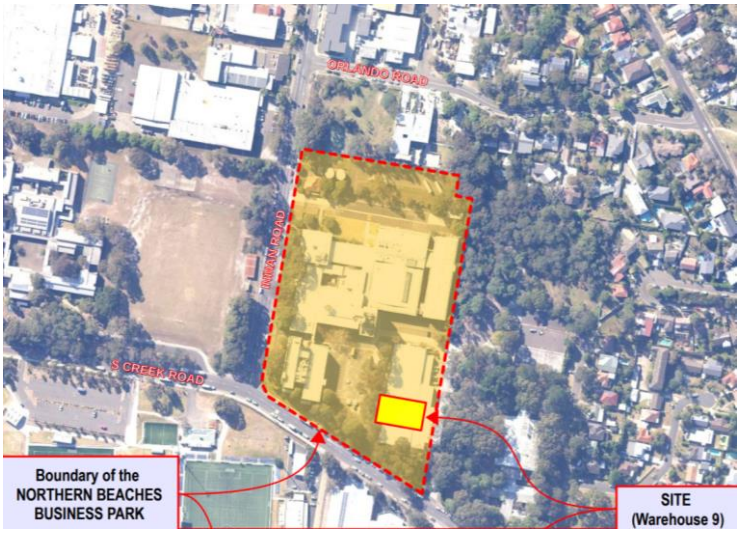


***Figure 2: Extract from key plan showing the location of the Anytime Fitness*** *(Courtesy of TEF Consulting)*

On the opposite side of Inman Road to the subject site is an open area, fenced off from the road, that is part of the Northern Beaches Secondary College Cromer Campus. The site is also in the vicinity of Cromer Park, containing a sporting field and stadium for football, being on the southern side of South Creek Road.


***Figure 3: Location of the Anytime Fitness relative to adjacent residential receivers*** *(Sourced from Google Maps)*

The nearest residential receivers are located at approximately 140m behind existing and proposed industrial buildings. Due to the large distance and shielding effect of the structures, as well as masking from higher localised noise levels, there is no acoustic impact on any residential receivers from the typical expected gymnasium sound output.

The nearest affected tenancy, is the adjacent warehouse at Unit 8 in the same building, in accordance with the NSW INP amenity criteria shall have a noise level not exceeding 65 dB(A).

When the proposed development is in operation, the noise emitted from Anytime Fitness will not have an adverse impact on the amenity of the surrounding residences.

# 2. Project Acoustic Criteria

Noise emissions from the project site will be assessed against the requirements of the following:

• Northern Beaches Council – 'Warringah Development Control Plan 2011

• Northern Beaches Council – 'Warringah Local Environment Plan 2011

• NSW EPA – 'Noise Policy for Industry (NPfI) 2017

## 2.1. Development Control Plans

A review of the Warringah Development Control Plan (DCP) 2011 was conducted and the references to the acoustic requirements and relevant noise criteria are reproduced below:

***D3 Noise***

***Applies to Land***

This control applies to land to which Warringah Local Environmental Plan 2011 applies.

***Objectives***

• To encourage innovative design solutions to improve the urban environment.

• To ensure that noise emission does not unreasonably diminish the amenity of the area or result in noise intrusion which would be unreasonable for occupants, users or visitors.

***Requirements***

1. Noise from combined operation of all mechanical plant and equipment must not generate noise levels that exceed the ambient background noise by more than 5dB(A) when measured in accordance with the NSW Industrial Noise Policy at the receiving boundary of residential and other noise sensitive land uses. See also NSW Industrial Noise Policy Appendices.

2. Development near existing noise generating activities, such as industry and roads, is to be designed to mitigate the effect of that noise.

3. Waste collection and delivery vehicles are not to operate in the vicinity of residential uses between 10pm and 6am.

4. Where possible, locate noise sensitive rooms such as bedrooms and private open space away from noise sources. For example, locate kitchens or service areas closer to busy road frontages and bedrooms away from road frontages.

5. Where possible, locate noise sources away from the bedroom areas of adjoining dwellings/properties to minimise impact.

## 2.2. EPA Noise Policy for Industry (NPfI)

The EPA NPfI provides guidelines for assessing noise impacts from developments. The recommended assessment objectives vary depending on the potentially affected receivers, the time of day, and the type of noise source. The NPfI has two requirements which must both be complied with, namely an amenity criterion and an intrusiveness criterion.

**2.3.1 Intrusiveness Criterion**: The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the Leq descriptor not exceed the background noise level by more than 5 dB(A). This criterion is not applicable for the commercial receivers.

**2.3.2 Amenity Criterion**:

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment (e.g. cumulative noise from project site and other developments). The EPA's NPI sets out acceptable noise levels for different residential areas, being rural, suburban and urban. When determining types of residential receiver, the NPI considers the land zoning, existing noise levels and environmental noise characteristics of the area being assessed. Based on the measured noise levels and environmental noise characteristics, the 'Suburban' classification is most appropriate and has been selected. The NPI requires project amenity noise levels to be calculated in the following manner;

*Project Amenity Noise Level dB(A) Leq(15min) = Recommended Amenity Noise Level – 5 dB(A) + 3 dB(A)*

| Receiver | Time of Day | Recommended Amenity Noise Level dB(A)Leq(15min) | Project Amenity Noise Level dB(A)Leq(15min) |
|---|---|---|---|
| Commercial Receivers | When in use | 65 | 63 |

*Table 1: NPfI Project Amenity Criteria*

**2.3.3 Sleep Disturbance Criterion:**

The NPfI sleep disturbance criterion does not apply to the adjacent warehouse, as it is intended for residential receivers.

### 2.3. Summarised Noise Emission Criteria

| Receiver | Time of Day | Project Intrusiveness dB(A)Leq(15 min) | Project Amenity dB(A)Leq(15 min) | Sleep Disturbance |
|---|---|---|---|---|
| Commercial Receivers (Warehouse 8) | When in use | N/A | **63** | N/A |

*Table 2: Summary of Noise Emissions Criteria*

## 3. Site Acoustic Survey, Identification of Noise Sensitive Receivers and Noise Logging Details

### 3.1. Noise Sensitive Receivers Locations Relative to the Site

The commercial most affected receivers are located adjacent to the Anytime Fitness (Warehouse 8) and across South Creek Road (National Storage Dee Why) as marked below:


*Figure 4: Most affected external commercial receivers*

The commercial receiver across the road is located at approximately 50m distance, and the Warehouse 8 receiver is separated by a common wall.

*Figure 5: Most affected commercial receivers across South Creek Road (National Storage Dee Why)*

*Figure 6: Warehouse external walls are concrete panels with small windows*

It is expected that the external warehouse construction achieves a sound insulation in excess of Rw40-43 conservatively, which will provide good sound attenuation.

Acoustic logging and operator attended measurements have been performed to document the existing background noise levels at the locations below:


***Figure 7: Measurement locations*** *(Mark-up on image courtesy of Google Maps)*

## 3.2. Documented Existing Noise Levels at Receivers

The existing noise levels were measured at the identified nearest receivers.

The survey was conducted with the following instruments:

| Equipment | Make | Model No. |
|---|---|---|
| Type 1 Sound Calibrator | Bruel & Kjaer - Denmark | 4231 |
| Hand Held Analyser | Bruel & Kjaer- Denmark | 2250 |

***Table 3: Equipment Used in the Survey***

The equipment was calibrated before and after the measurements and no deviations were recorded. The following figures illustrate the measurement locations and a full 1/3 octave analysis of the measurements at each location to identify the spectral component of the typical traffic (i.e., passenger car traffic, trucks, busses and other sources).

*Figure 8: Measurement location 2 – operator attended*

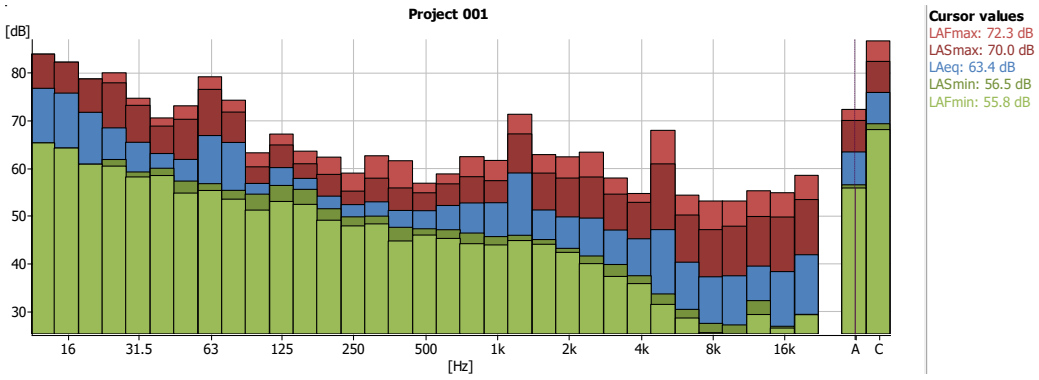


*Figure 9: Measurement location 2 results*

*Figure 10: Measurement location 3 – operator attended*

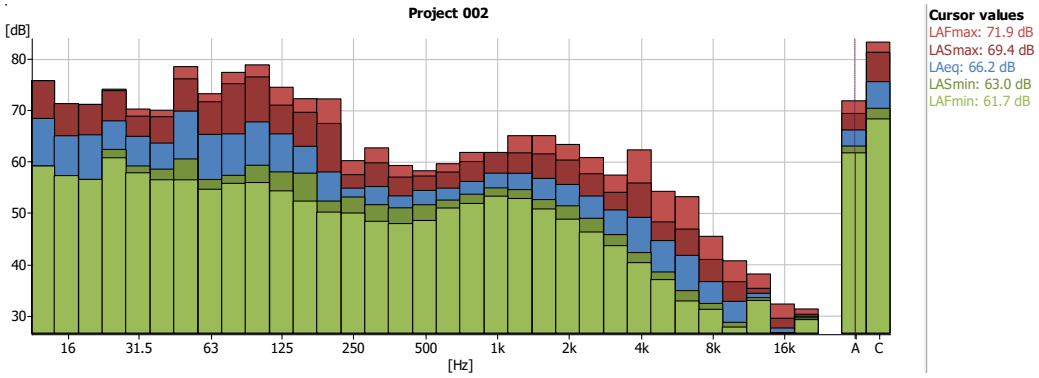


*Figure 11: Measurement location 3 results*

*Figure 12: Measurement location 4 – operator attended*

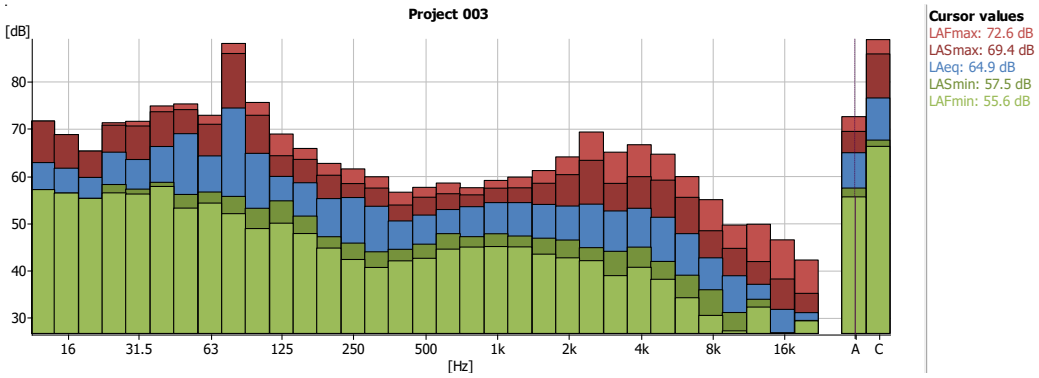


*Figure 13: Measurement location 4 results*

The results of the measurements are tabulated below:

| Measurement location and time | LAeq (dBA) 15min | L90 (dBA) 15min | Remarks |
|---|---|---|---|
| Location 2<br>1PM-1:15PM | 63.4 | 56.7 | Noise dominated by traffic on South Creek Road |
| Location 3<br>1:15PM-1:30PM | 66.2 | 62.8 | Noise dominated by traffic on South Creek Road. Some school students sound. |
| Location 4<br>1:30PM-12:45PM | 64.9 | 60.1 | Noise dominated by adjacent warehouses sound. |

*Table 4: Hand Held Measurements Results*

The results indicate that the acoustic environment was generally dominated by passing traffic on South Creek Road, as well as some components from the adjacent warehouses, which could not be avoided during operator attended measurements.

## 3.3. Long term monitoring results

Automated noise logging measurements to document the existing acoustic environment were performed on site with Rion NL-52 noise logging kit. The measurements were conducted between Monday 9th October 2023 and Monday 16th October 2023 at Location 1. The sound logger was calibrated before and after the measurements using a Bruel & Kjaer Acoustic Calibrator. No calibration deviations were recorded.

**Sound Pressure Level $LA_{eq}$** is the "equivalent noise level" is the summation of noise events integrated over a selected period of time. This noise metric is commonly used to correlate noise exposure and human annoyance. $LA_{eq}$ is measured in dB(A) (A weighted sound pressure level) due to the fact that the ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched in is denoted as dB(A). Practically all noise is measured using the A weighting.

The sound monitoring location is presented below:

*Figure 14: Measurement location 1 – sound logger*

Rainfall events and windspeeds >5m/s were excluded from the data set, as required by the NSW EPA, based upon data obtained from the Bureau of Meteorology Weather Data.

The summary of the logger measurements is tabulated below:

| Location & Survey Period | LAeq Ambient Noise Levels | | | LA90 Rating Background Level | | |
|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night |
| Adjacent to Warehouse 9<br>9/10/23 - 16/10/23 | 57 dB(A) | 53 dB(A) | 47 dB(A) | 50 dB(A) | 46 dB(A) | 41 dB(A) |

The detailed statistical plots are presented below:

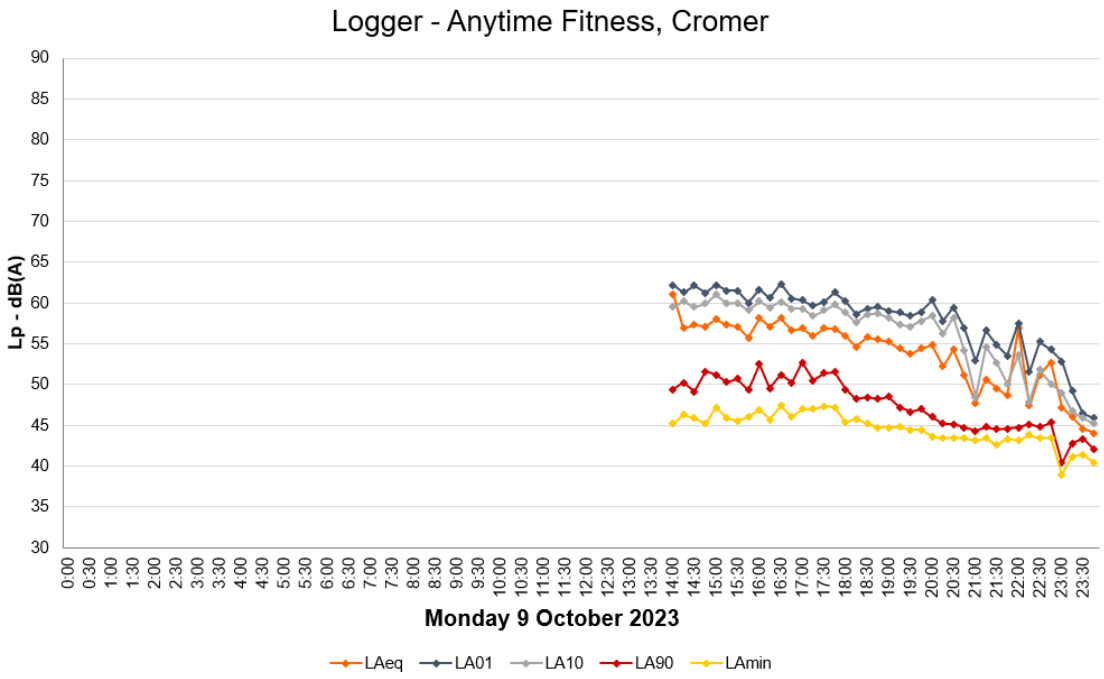


*Figure 15: Logger day 1 data*

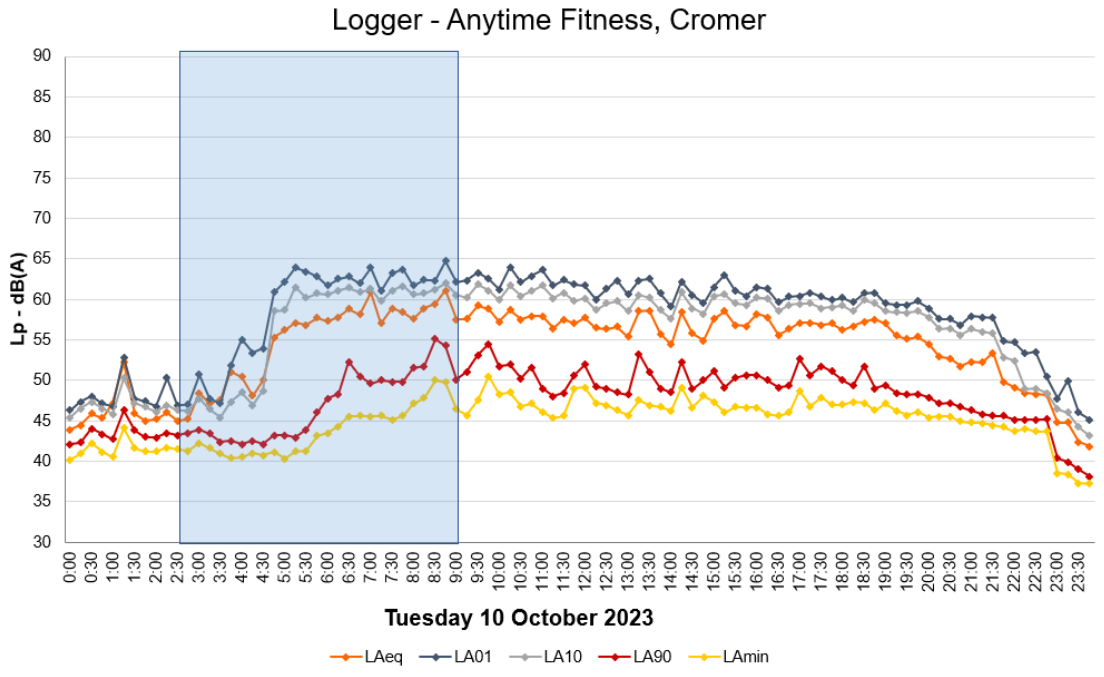


*Figure 16: Logger day 2 data*

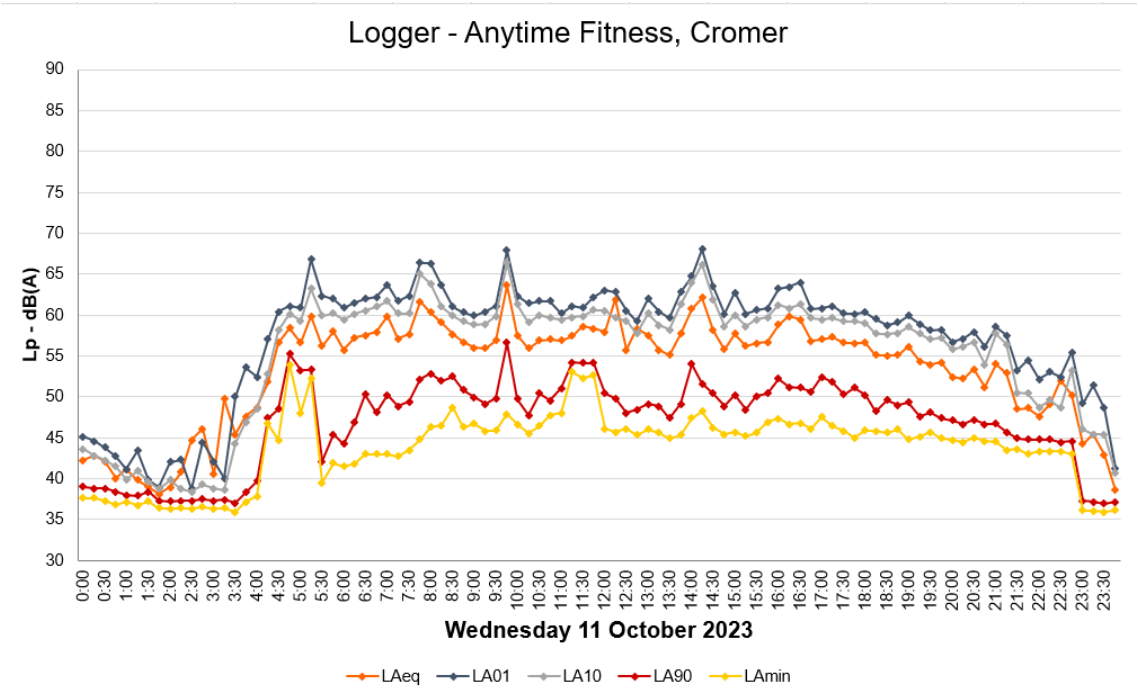


*Figure 17: Logger day 3 data*

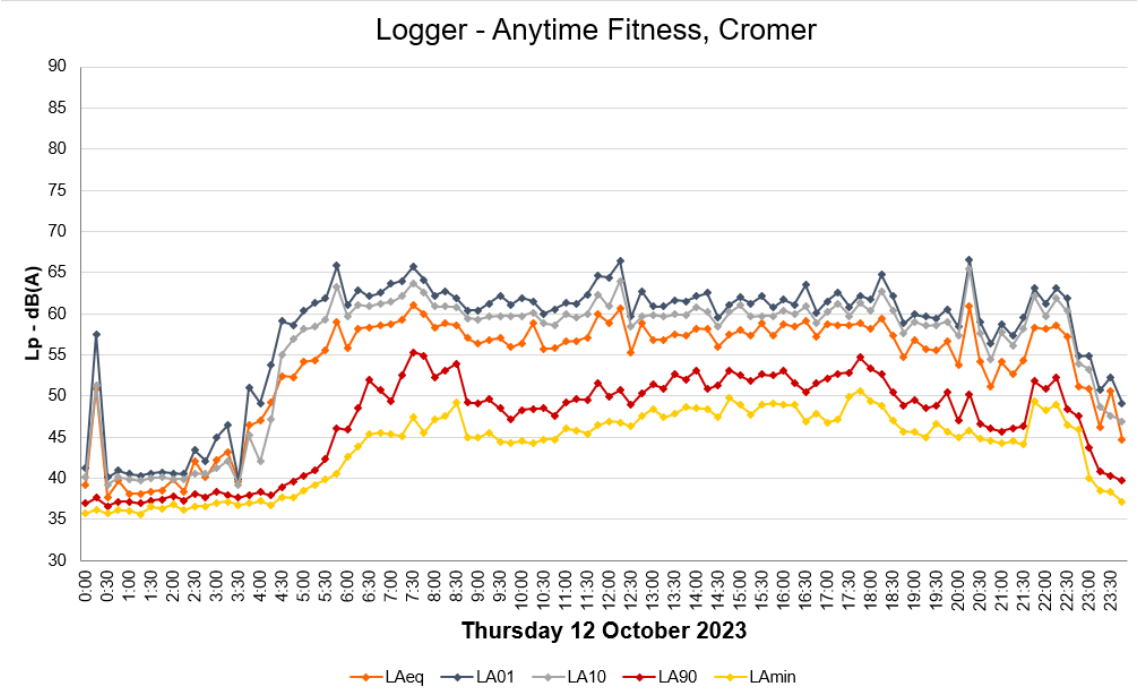


*Figure 18: Logger day 4 data*

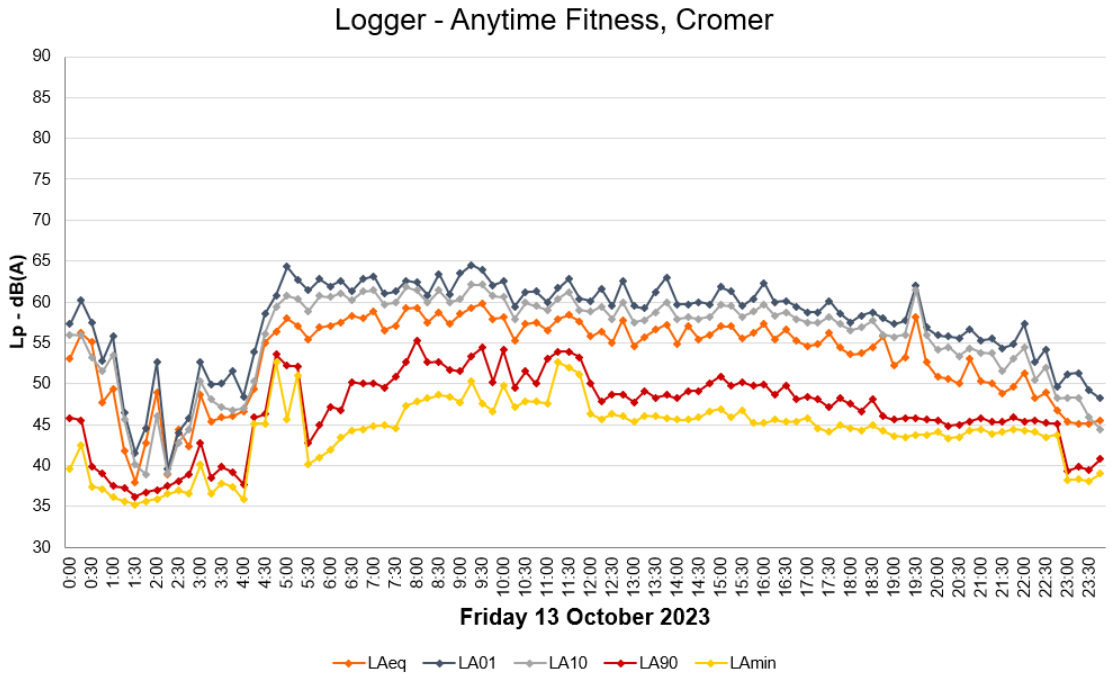


*Figure 19: Logger day 5 data*

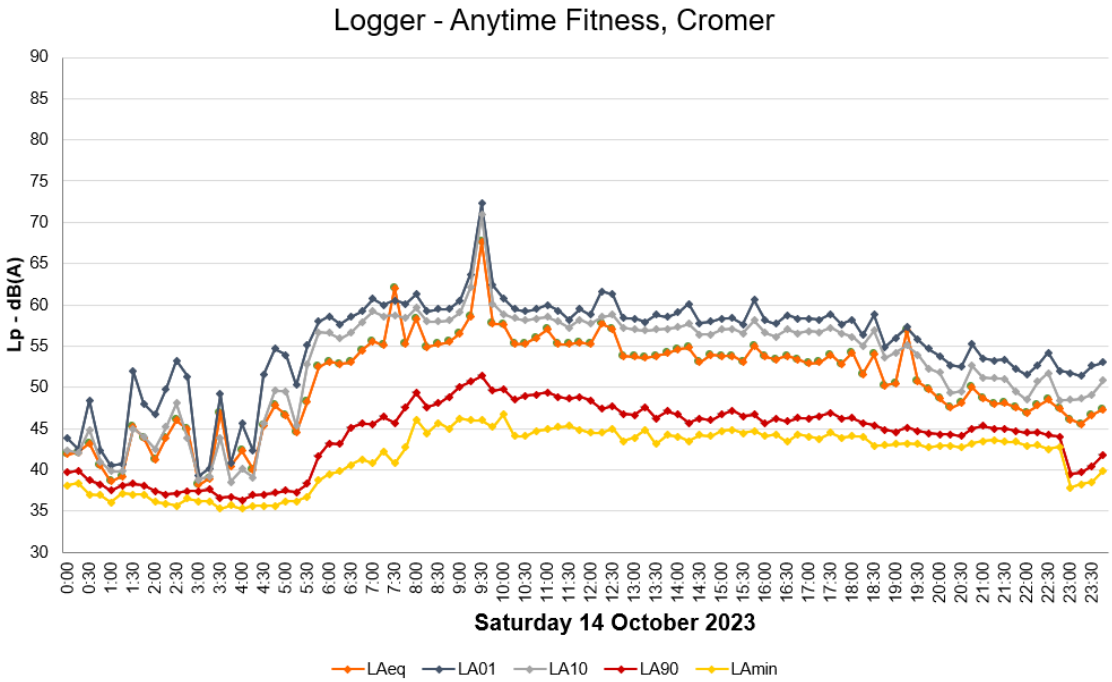


*Figure 20: Logger day 6 data*

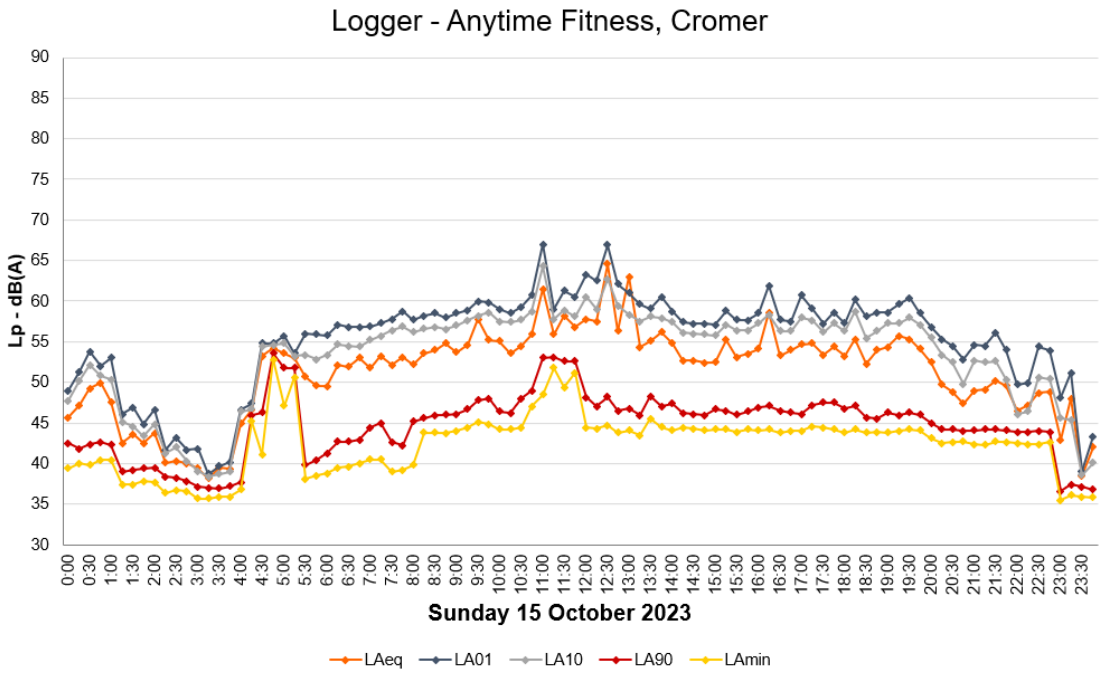


*Figure 21: Logger day 7 data*

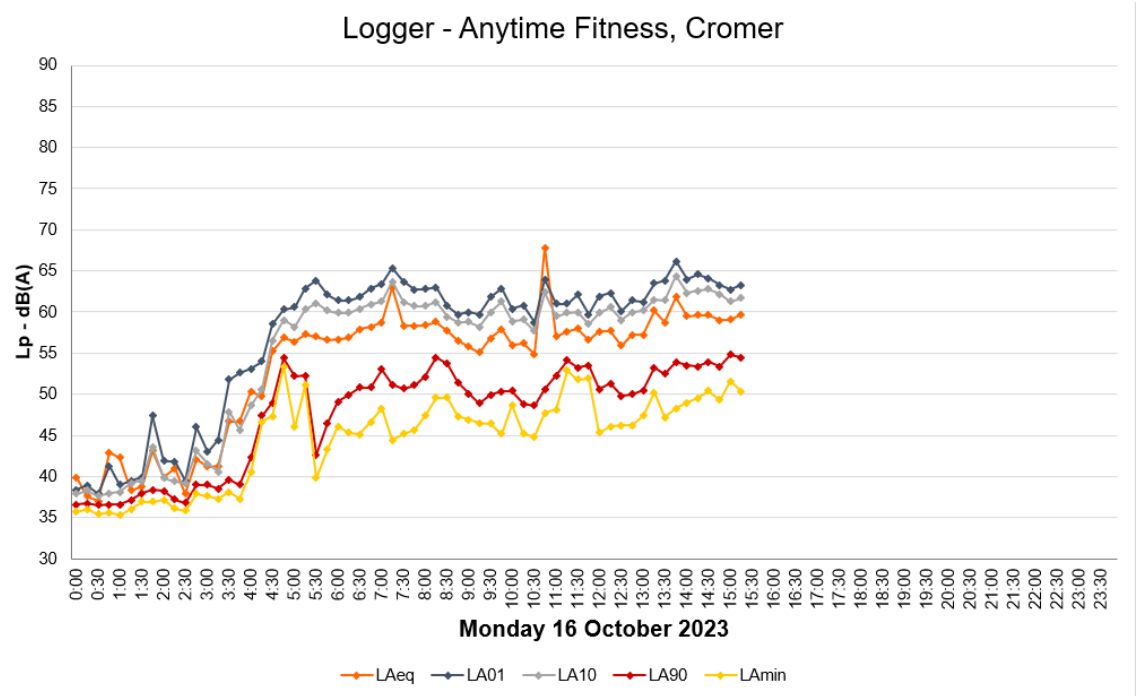


*Figure 22: Logger day 8 data*

# 4. Anytime Fitness Noise Emissions Analysis

Calculations were undertaken taking into account the location of measurements, orientation of windows, barrier effects (where applicable), proposed gymnasium areas and distance sound attenuation from the warehouse.

Noise emissions from the operation have been predicted based on the following assumptions and information available to this office:

## 4.1. Sound levels assumptions

| Gym activities | Sound Pressure Levels |
|---|---|
| Training, music and instructors' guidance | 85-90 dB(A) |

***Table 5: Effective Sound Pressure Levels for Anytime Fitness***

Norrebro assumes operational sound levels between 85-90 dB(A), which is conservative for this type of operation in the experience of this office.

## 4.2. Predicted Maximum Commercial Noise Levels

The following table presents the maximum external noise levels for the commercial development (adjacent warehouse and across South Creek Road) based upon the assumed operations presented above.

| Assessment location | Time period | Predicted Maximum External Noise Level dB(A) Leq(15min) | Project Trigger Noise Level dB(A) Leq(15min) | Complies |
|---|---|---|---|---|
| Warehouse 8 | When in use | Less than 50 dB(A) | 63 dB(A) | **Yes** |
| National Storage Dee Why | When in use | Less than 30dB(A)<br>(inaudible at any time) | 63 dB(A) | **Yes** |

***Table 6: Predicted External Noise Levels***

## 4.3. Detailed Design Review and Final Acoustic Verification

An acoustic consultant shall be engaged during detail design and final stages to ensure compliance with the project criteria, including internal acoustics and mechanical services noise control. This is particularly important for the design and review of **impact isolation and reverberation control** for Anytime Fitness Cromer.

The current DA acoustic assessment based on the current scheme and proposed location and interior layout indicate that compliance can be achieved.

# 5. Conclusion

Norrebro has been engaged to provide a Noise Assessment for the development application for a proposed Anytime Fitness Centre at Unit 9, 4-8 Inman Road, Cromer, NSW.

It is our opinion that the acoustic criteria stipulated for the project are met and the acoustic impact on the adjacent properties will be minimal, due to a good location with moderate existing noise levels, lack of immediate residential receivers and structural design of the building.

Please do not hesitate to contact the undersigned directly for acoustic matters relating to this project.

Yours faithfully,

**Claudiu Pop**
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BEng (Struct), MSc (Acoustics), PhD Cand. (Architecture)

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