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ACOUSTICAL REPORT

PROPOSED CYCLING FITNESS CENTRE

UNIT 8 No.318 SYDNEY ROAD, BALGOWLAH NSW

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ACOUSTICAL REPORT
PROPOSED CYCLING FITNESS CENTRE
UNIT 8 No.318 SYDNEY ROAD, BALGOWLAH NSW

CONTENTS

1.0	INTRODUCTION	4
2.0	THE DEVELOPMENT	5
3.0	ATTENDED NOISE MONITORING	6
4.0	NOISE CRITERIA	7
4.1	EPA NOISE POLICY FOR INDUSTRY	7
5.0	ANALYSIS	8
5.1	MEASURED NOISE LEVELS	8
6.0	RECOMMENDATIONS	9
6.1	MUSIC.....	9
6.2	INTERNAL CONSTRUCTIONS	9
6.3	COMPLAINTS HANDLING	10
7.0	CONCLUSION	11



1.0 INTRODUCTION

Koikas Acoustics Pty Ltd was engaged to prepare a noise impact assessment for the proposed cycling fitness centre at 318 Sydney Road, Balgowlah.

This assessment aims to ascertain the type and extent of noise mitigation measures required to improve the acoustic performance of any noise equipment/activities.

This assessment considers the following:

- Measurements of the operational noise levels from the proposed gymnasium to the adjoining commercial and residential units;
- Discussion of the noise criteria applying to the surrounding premises, and
- Provide recommendations where necessary.

This report presents the results and findings of an acoustical assessment for the subject proposal.

In-principle acoustic treatments and noise control recommendations are included (where required) so that the premises may operate in compliance with the nominated acoustic planning levels.



2.0 THE DEVELOPMENT

The proposed cycling fitness centre is proposed to occupy the site at 318 Sydney Road, Balgowlah NSW.

The development location is situated in a primarily urban area. The subject site is surrounded by mixed commercial and residential apartments.

Furthermore, the proposed cycling fitness centre is located on the lower ground floor, with commercial tenancies directly above. Koikas Acoustics has conducted noise measurements inside adjoining commercial premises outlined in Section 3.0 of this report.

Prevailing ambient noise conditions on-site and in the local area are generally the result of road traffic and localised domestic/commercial noise sources.

The cycling fitness centre is proposed to operate between 6:00 am – 7:00 pm daily.

The most dominant noise sources associated with typical operational activities of the proposed cycle fitness centre are background music from the cycle centres speaker system, with the instructor's voice over a microphone.



3.0 ATTENDED NOISE MONITORING

Measurements were conducted inside;

- The commercial beauty centre directly above/adjacent;
- The post-office directly above, and
- Outside the rear door of the subject premises at 1 metre;

to identify the proposed gymnasium activities impact on the adjoining premises.

The noise surveys were conducted between 10:30 am and 11:30 am on Wednesday 23rd June 2021.

Each survey was conducted with an Nti XL2 sound level meter set to A-frequency weighting and Fast-time response. Surveys were conducted for durations deemed sufficient to represent the underlying ambient and background noise environment without the influence of extraneous noise or noise from the subject development. Inclement weather conditions did not adversely impact the noise survey.

Koikas Acoustic has previously conducted long-term noise monitoring at a similar location along Sydney Road, Balgowlah, and these background noise levels have been adopted for the use of this assessment. The most stringent nighttime period has been assessed (6:00 am to 7:00 am), compliance with the nighttime period implies compliance with other less stringent day and evening periods.

A summary of the ambient noise levels excluding the proposed gymnasium activities is provided in Table 1.

Table 1. Summary of criteria noise survey results [dB]		
Period	LAeq	LA90
Day	68	57
Evening	67	53
Night	62	39



4.0 NOISE CRITERIA

4.1 EPA NOISE POLICY FOR INDUSTRY

Noise emission design targets have been referenced from the NSW Environmental Protection Authority Noise Policy (EPA) for Industry (NPfI)

The NPfI is designed to assess environmental noise impacts associated with scheduled activities prescribed within the Protection of the Environment Operations Act 1997, Schedule 1. It is also commonly used as a reference tool for establishing suitable planning levels for noise generated by mechanical plant and equipment and noise emission from commercial operations.

The guideline applies limits on the short-term intrusive nature of a noise or noise-generating development (project intrusive noise level), as well as applying an upper limit on cumulative industrial noise emissions from all surrounding development/industry (project amenity noise level).

The most stringent of the project intrusive noise level and project amenity noise level is applied as the **project noise trigger level**. The project noise trigger level is the point, above which noise emission from a source or development site would trigger a management response.

To be able to define the more stringent the intrusive and amenity noise levels, the underlying noise metrics must be the same. As the intrusive noise level is defined in terms of an L_{Aeq} 15 minutes and the amenity noise level is defined in terms of an L_{Aeq} Period, a correction +3dB correction is applied to the project amenity noise level to equate the L_{Aeq} Period to L_{Aeq} 15 minutes.

Surrounding commercial properties must also not be exposed to noise that exceeds L_{Aeq} Period (business hours) 63 dB during business hours.



5.0 ANALYSIS

5.1 MEASURED NOISE LEVELS

All noise activity events were identified with a software program called XL2 Data Explorer which allows for the analysis and play-back of recorded sound files.

Noise level measurements of the following activities were undertaken to the identified spaces above in Section 3.0:

- **Test 01:** Music played off a portable speaker to the commercial beauty centre directly above/adjacent at 318 Sydney Road, Balgowlah (Spatial L_{Aeq} 90 dB).
- **Test 02:** Music played off a portable speaker to the post office directly above at 318 Sydney Road, Balgowlah (Spatial L_{Aeq} 90 dB).
- **Test 03:** Music played off a portable speaker outside the rear door at 1-metre, at 318 Sydney Road, Balgowlah (Spatial L_{Aeq} 90 dB).

A summary of the measured noise levels is presented in Table 2 for the measurements identified above.

Table 2. Summary of Attended Noise Survey Results – Physio Athletica			
Test Number	Measured Noise Levels L_{Amax} [dB]	Noise Criterion L_{Amax} [dB]	Compliance Achieved?
Test 01	51	63	Yes
Test 02	53		Yes
Test 03	59	--	Yes

Compliance with the adjoining commercial premises implies compliance with all other adjoining commercial premises.

Using the EPA NPfI, the adopted nighttime criteria for nearby residential properties is $L_{Aeq\ 15\ minutes}$ 44 dB, therefore a 15 dB noise reduction is required to the nearby residential apartments at the rear of the building.

With a noise reduction over a balustrade and through an open window with a non-direct line of sight to be conservatively 5 dB, in addition to the recommendations implemented in Section 6.0 of this report, compliance is expected at the nearby residential apartments.



6.0 RECOMMENDATIONS

It is the opinion of Koikas Acoustics that compliance with the nominated acoustic criteria will be achieved, provided the following recommendations are implemented in the cycling fitness centre.

6.1 MUSIC

Music is expected to be played at a level where people can hear the instructors voice clearly over the top of the music. Koikas Acoustics measured internal music levels within the proposed cycling fitness centre to be L_{Aeq} 90 dB (spatial average) and found this to be compliant with the adjoining premises.

A spatial average of L_{Aeq} 90 dB is considered extremely conservative for the proposed activities at the subject premise, and the operational noise levels of the proposed cycling fitness centre are expected to be lower.

6.2 INTERNAL CONSTRUCTIONS

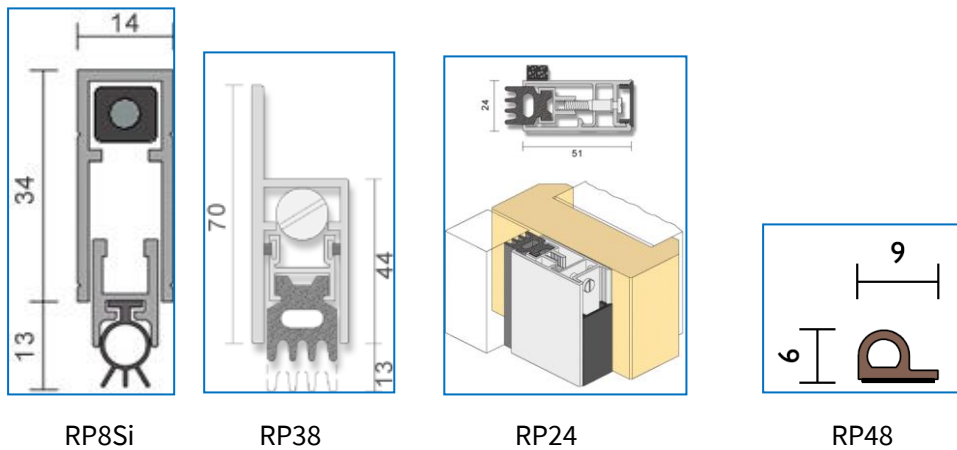
As per the architectural plans prepared by Green Design Sydney Pty Ltd, dated 20/04/2021, an internal wall is to be constructed between the cycling room and the waiting/reception area. This wall should be constructed using the following materials:

- One layer of 13 mm soundcheck plasterboard
- 90 mm timber stud OR 64 mm steel stud
- 50 mm - 75 mm Earthwool glass wool insulation (14 kg/m³)
- One layer of 13 mm standard plasterboard

This wall type is expected to have an R_w rating of 44 dB. The internal wall should have no air gaps.

The internal doors into the cycling room should use acoustical perimeter and door bottom seals. Suitable acoustic seals could include Raven type RP10/RP10si door frame/perimeter seals and RP8si door bottom seals, or an approved equivalent from another manufacturer.





The Schlegel type equivalent is also recommended as an alternative door seal.

With the addition of the internal wall and the sealed internal doors, the noise reduction required to achieve compliance to the nearby residential apartments is expected to be achieved.

6.3 COMPLAINTS HANDLING

A site contact and phone number should be distributed to all surrounding premises and displayed on the site noticeboard for any complaints arising due to noise and/or vibration generated during the proposed gymnasium operation. The site should have clear complaints handling procedures and staff who are well-versed in the complaints handling procedures.

A register of all complaints must be kept on-site and be readily available. Details within the complaints register should include, but not be limited to:

- Date and time of the complaint,
- The person receiving a complaint,
- Complainant phone number,
- Site contact who the complaint was referred to for action,
- Description of the complaint,
- Action to be taken,
- The time frame for action to be implemented.

All complaints should be given a fair hearing and adequately investigated. This may involve scheduling a relevant consultant to substantiate or refute any received complaint, and/or verifying any remedial action taken by the site manager by way of on-site testing.

7.0 CONCLUSION

Koikas Acoustics was requested to prepare a noise impact assessment for the proposed cycling fitness centre at 318 Sydney Road, Balgowlah.

Approval of the development is subject to conditions of consent imposed by the Council to ensure the development complies with all relevant statutory requirements and is consistent with the development standards required in the respective Local Government Area.

Noise measurements were conducted inside adjoining commercial premises outlined in Section 3.0 of this report, to identify the proposed gymnasium activities impact to the adjoining premises. The noise surveys were conducted between 10:30 am and 11:30 am on Wednesday 23rd June 2021.

When the recommendations provided in Section 6.0 of this report are implemented (if necessary), it is in Koikas Acoustics opinion that operational noise emanating from the operation of the proposed cycling fitness centre will be compliant with the nominated noise criteria outlined in the EPA's Noise Policy for Industry.

