

68A QUEENSCLIFF ROAD
QUEENSCLIFF
DA NOISE ASSESSMENT

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DA NOISE ASSESSMENT

REPORT NO. 0619
VERSION A

JUNE 2019

PREPARED FOR

COULTIS FAMILY
C/- CLASSIC PLANS
1 MAXWELL AVENUE
MAROUBRA BEACH



TABLE OF CONTENTS

	Page
1 INTRODUCTION	1
2 PROJECT DESCRIPTION	2
3 AMBIENT NOISE LEVELS AND NOISE CRITERIA	3
3.1 Noise Criteria	3
3.2 Mechanical Services Noise Emissions	4
4 ROOF TOP TERRACE AREAS	4
5 COMMERCIAL AREAS	5
5.1 Commercial Area 1	6
6 SOUND ISOLATION BETWEEN RESIDENCES	7
6-1 Project Quality Requirements	7
7 CONCLUSION	8
 APPENDIX A – Results of Noise Monitoring	

1 INTRODUCTION

It is proposed to construct a multi-level residential / commercial development at 68A Queenscliff Road, Queenscliff. Acoustica Pty Ltd has been commissioned by classic plans to undertake a DA noise assessment of the proposal. The development will comprise of basement car park, two ground level commercial areas and 2 levels of residential apartments.

This report provides an acoustic assessment of the project for the Development Application to be submitted to Northern Beaches Council. Aspects covered in this report include:

- noise emissions from the development to existing residences in the area, and,
- noise isolation between apartments within the development.

2 PROJECT DESCRIPTION

The site is located at 68A Queenscliff Road, Queenscliff. The site is currently consists of unoccupied residential flats.

The proposed development is for a 3-storey residential building which consists of:

- Basement and Lower Ground Car parking,
- 2 Commercial Tenancies on Ground Level,
- 3 apartments on Levels 1
- 2 apartments on Level 2 , and;
- Private and Communal Roof Terrace.

The site location is shown on Figure 2.1.

Figure 2.1 **Site Location**



The area is surrounded by residential properties. The nature of the area is a relatively quiet area near the ocean with remote traffic noise.

3 AMBIENT NOISE LEVELS AND NOISE CRITERIA

In order to quantify the existing noise environment, ambient noise levels were monitored on site at the western side of the site between Friday, 24th May and Monday, 27th May 2019.

The noise monitoring equipment used for the noise measurements consisted of an ARL Type EL-215 environmental noise loggers set to A-weighted, fast response, continuously monitoring over 15 minute sampling periods. This equipment is capable of remotely monitoring and storing noise level descriptors for later detailed analysis. The equipment calibration was checked before and after the survey and no significant drift was noted.

Detailed results at the monitoring location are shown in graphical form in Appendix A. The graphs show measured values of L_{Aeq} , L_{A90} , L_{A10} and L_{A1} for each 15-minute monitoring period.

The results of noise measurements were processed in accordance with the procedures of the NSW EPA's Noise Policy for Industry. The results are detailed in Table 3.1

Table 3-1 Measured Noise Levels at Site – dBA

Descriptor	Period		
	Day	Evening	Night
L_{Aeq}	54	50	52
Background RBL	44	42	37

3.1 Noise Criteria

Noise criteria is based on the NSW "Noise Guide for Local Government" (NGLG), dated October 2010 published by the Environmental Protection Authority (EPA) along with application notes published by the department.

To assist councils' in assessing smaller commercial activities EPA has prepared the *Noise Guide for Local Government (NGLG)*. Within this document, local councils are encouraged to develop noise policies which specify intrusive noise level criteria using appropriate noise level descriptors.

The NGLG recommends that council's develop intrusive criteria that limit the permissible level of L_{Aeq} noise emissions from commercial or industrial premises to no more than the background noise (RBL) plus 5dBA when measured over a 15-minute period. The background level is the Rating Background Noise Level (RBL) which is determined from measurement of L_{A90} noise levels, in the absence of noise from the source.

The time periods for which intrusive criteria are applied are;

- Daytime (7.00am-6.00pm),
- Evening (6.00pm-10.00pm); and,
- Night Time (10.00pm-7.00am).

The background level is the Rating Background Noise Level (RBL), which is determined from measurement of L_{A90} noise levels, in the absence of noise from the source. The site-specific noise criteria are presented in Table 3.2.

Table 3.2 Site Specific Noise Criteria, dBA

Receiver Location	Day 7am-6pm	Evening 6pm-10pm	Night 10pm-6am
RBL	44	42	37
Project Specific Noise Criteria, $L_{Aeq,15min}$	49	47	42

3.2 Mechanical Services Noise Emissions

The major mechanical noise sources associated with the development will be general fans and plant that will be located within a plant area or on the roof of the building.

Detailed specifications of mechanical services equipment that would otherwise allow an acoustic assessment of noise emissions from the site are not available at this stage of the project as selection and design is conducted after project approval. In line with the approvals for other developments, detailed assessment of operational noise emission should form a conditional requirement of the development, to be satisfied to the PCA prior to the issue of the construction certificate.

To mitigate noise from mechanical plant it is likely the some or all of the following noise control measures may need to be adopted at the design stage to meet noise objectives:

- Silencers on car park and other fans,
- Acoustic louvres,
- Noise barriers, and;
- Variable speed controls or carbon monoxide monitors.

The mechanical plant will be designed to meet the criteria presented in Table 3-4 at the identified nearby receivers.

4 ROOF TOP TERRACE AREAS

There is a section of the roof that is allocated as a common Terrace area. For much of the time there will be no one on the roof. However, at times there is the potential for groups of persons to utilise this common area.

Noise levels have been predicted to the residences to the South at 21A Bridge Street and Residences overlooking the site to the North at 53 Queenscliff Road for two Scenarios being:

- Normal Scenario - 4 persons on the roof with 2 people speaking in a raised voice (Sound Level of one person with a raised voice 68 dBA at 1 m)
- Typical Worst Case - 20 persons on the roof with 10 people speaking in a raised voice (Sound Level of one person with a raised voice 68 dBA at 1 m)

Resultant noise levels at these residences have been predicted based on number of people, distance attenuation and any shielding provided by the building. Table 4-1 presents the results of the predictions.

Table 4-1 Predicted Terrace Noise at Residences, dBA

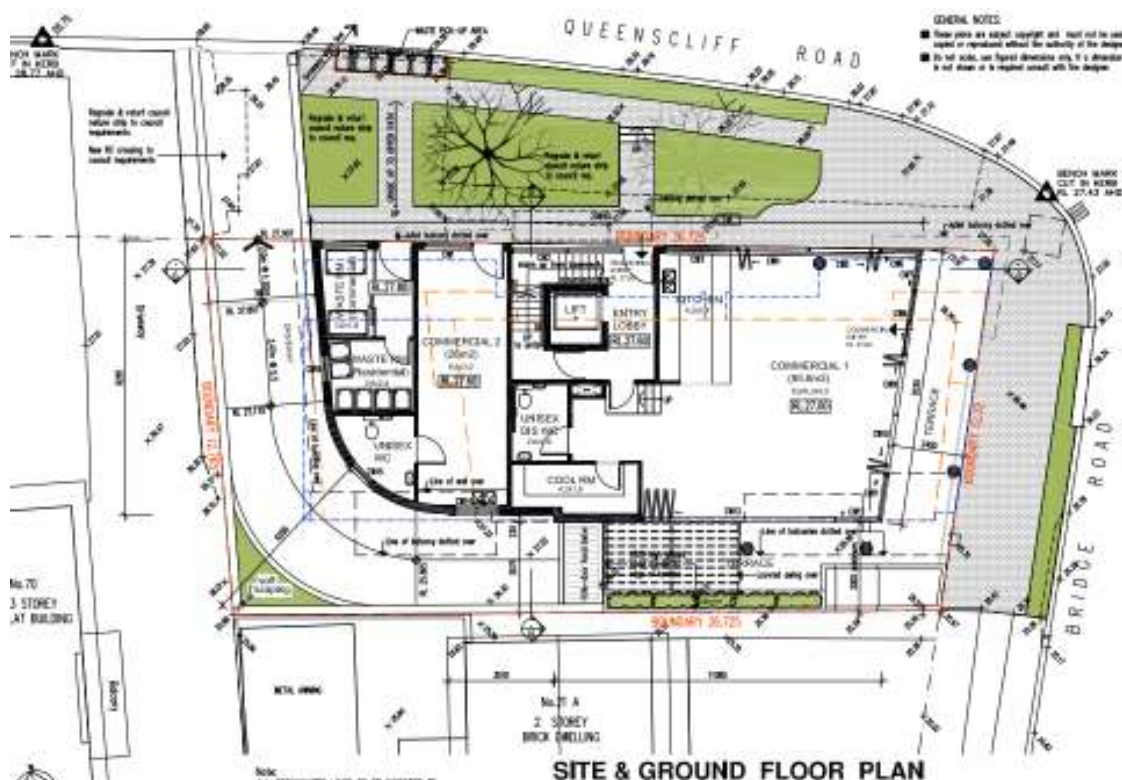
Receiver Location	Normal Scenario	Evening 6pm-10pm	Criteria Day / Evening / Night
21A Bridge Street	29	36	49 / 47 / 42
53 Queenscliff Road	40	47	49 / 47 / 42

A review of the results indicates that compliance is indicated for all times of the day when the terrace is in "normal" use. Should large groups use the common terrace they should be restricted to 10 pm in the evening to ensure that an exceedance of night criteria at Northern residences does not occur.

It is noted that there are also two private terrace areas on the roof associated with units 5 and 6. These areas will be no different from an acoustic perspective than outdoor areas of surrounding residences.

5 COMMERCIAL AREAS

Two commercial / Retail areas are proposed as shown in Figure 5-1.

Figure 5-1 Ground Floor Plan

It is noted that the use of these areas will be subject to separate Development Applications however a review of potential impact associated with the potential developments has been conducted as advised by council officers. A review of commercial area 2 indicates that there are no acoustically significant areas that have the potential to impact on the residences.

5.1 Commercial Area 1

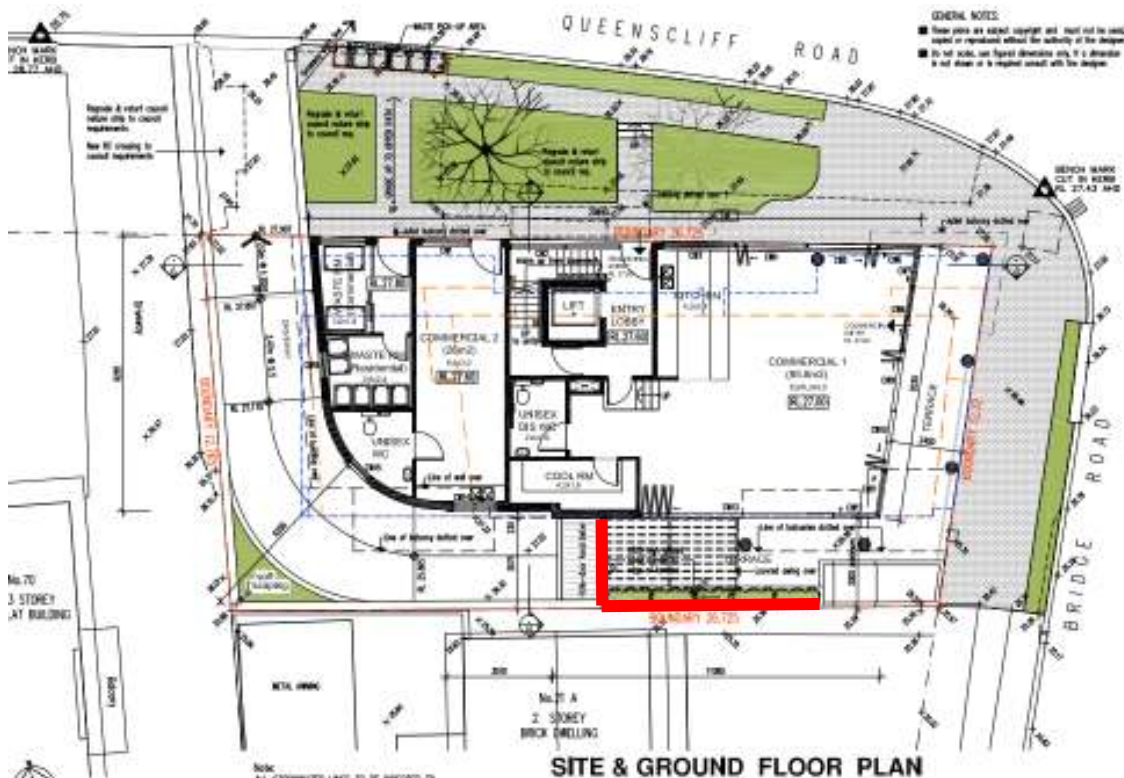
This area is likely to be a cafe or restaurant similar to that which was on site in the past. Two areas of potential noise are noise from mechanical plant and patron noise to the southern neighbour. In the case of mechanical plant, this can be addressed by standard engineering noise controls, where necessary, to meet site-specific noise criteria detailed in Table 3-2.

In the case of the southern terrace area, noise predictions at 21A Bridge Street of the terrace occupied with 8 persons with 4 speaking in a normal voice (Sound Level of one person with a raised voice 63 dBA at 1 m) have been conducted. A resultant noise level of 63 dBA can be expected at this residence which exceeds all site-specific noise criteria.

In addition, an operable wall is proposed on the southern facade that, when open and the commercial area are occupied, is likely to exceed site-specific noise criteria.

In order to address this issue a 1.8m transparent screen could be in on the terrace as indicted on the plans submitted and highlighted in red in the following figure 5-2.

Figure 5-2 Potential Noise Mitigation to Commercial Area 1



As the exact use and hours of operation of the commercial area are not known, it is recommended that provision for a transparent screen be made in the development so that if determined necessary in the subsequent DA it can be easily installed.

6 SOUND ISOLATION BETWEEN RESIDENCES

These sections detail the acoustic performance requirements for the control of airborne and impact noise transmission between apartments and other spaces.

6-1 Project Quality Requirements

The project quality requires compliance with the National Construction Code (NCC 2018) and. The requirements are listed in Table 6.1.

Table 6.1 Minimum Project Acoustic Performance Requirements

Item	Acoustic Descriptor	Criterion	Notes
Wall between units	$R_W + C_{tr}$	≥ 50 NCC	-
Wall between a bathroom, laundry or kitchen in one unit and a habitable room in an adjoining unit (other than kitchen)	$R_W + C_{tr}$	≥ 50 NCC	Must have $\geq 20\text{mm}$ cavity between two separate leaves. No mechanical fixing to opposing wall.
	R_W	≥ 55 Council	
Wall between a unit and a plant room, lift shaft, stairways or public corridor	R_W	≥ 50 NCC	
Door between a unit and a public corridor	R_W	≥ 30 NCC	-
	R_W	≥ 28 Council	
Floors between units (sound reduction index)	$R_W + C_{tr}$	≥ 50 NCC	-
Habitable Floors between units (impact sound level)	FIIC	≤ 55 Council	
Soil and waste pipes serving another unit	$R_W + C_{tr}$	≥ 25 NCC	Kitchens
		≥ 40 NCC	Other habitable rooms
Pumps	-	-	Flexible couplings required.

Note: . R_W is the weighted sound reduction index, C_{tr} is the spectrum adaptation term and IIC is impact isolation class.

Compliance with the above requirements will be achieved by the following constructions:

- Masonry or Drywall inter-tenancy walls.
- Concrete floor Slabs.
- Solid core doors with acoustic seals at apartment entrances, and;
- Impact treatment under tiled or timber floors that are above habitable areas

7 CONCLUSION

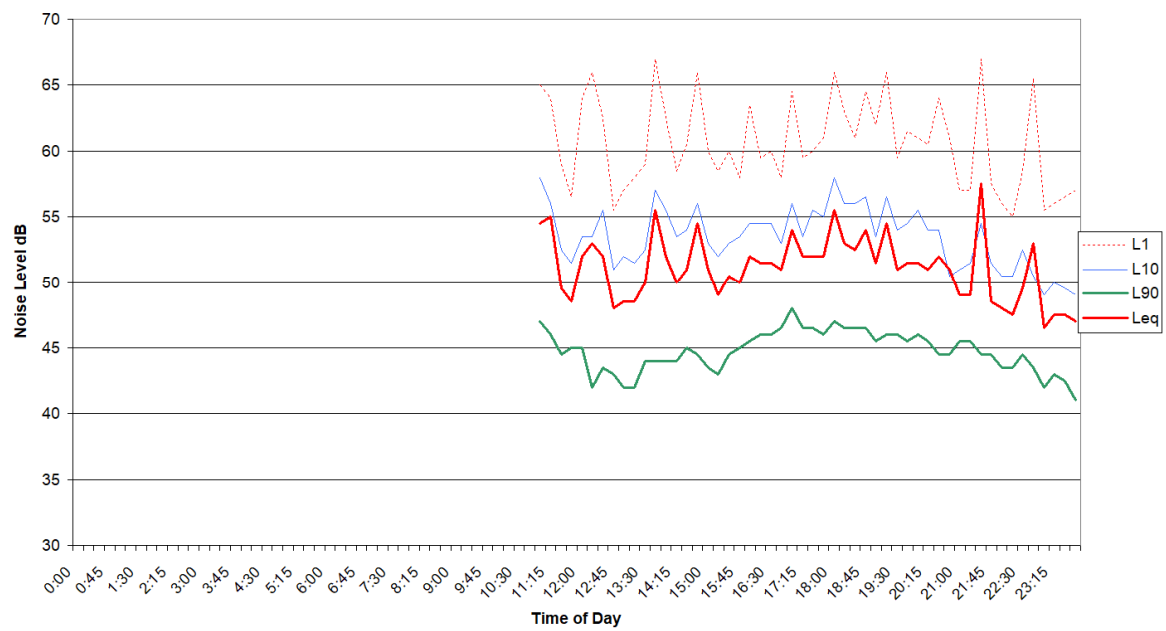
A DA assessment on the proposed development at 68A Queenscliff Road, Queenscliff has been conducted. The following has been determined:

- Site-specific noise emission noise criteria to be achieved at the new residences and surrounding residential properties has been established. Compliance will be achieved by adopting standard engineering noise controls that will be determined during the detailed design stage when equipment selection and design is known.
- Noise from the common roof terrace area will be acceptable for normal use at all surrounding receivers. Should large groups use this area restriction to the hours of 7 am to 10 pm is recommended.
- The future use of the Commercial Area 1, which will be the subject of a future DA, has the potential to exceed site-specific noise criteria at the adjacent southern residences. Therefore, an allowance for the installation of a transparent screen is recommended to facilitate noise mitigation if required.
- Internal noise isolation requirements have been established based on NCC and council requirements. Constructions that will be adopted to ensure that compliance with these requirements has been detailed which will be refined during the detail design stage prior to CC.
- The site is not subject to acoustically significant transportation or other noise and therefore no special treatment of facades is required.

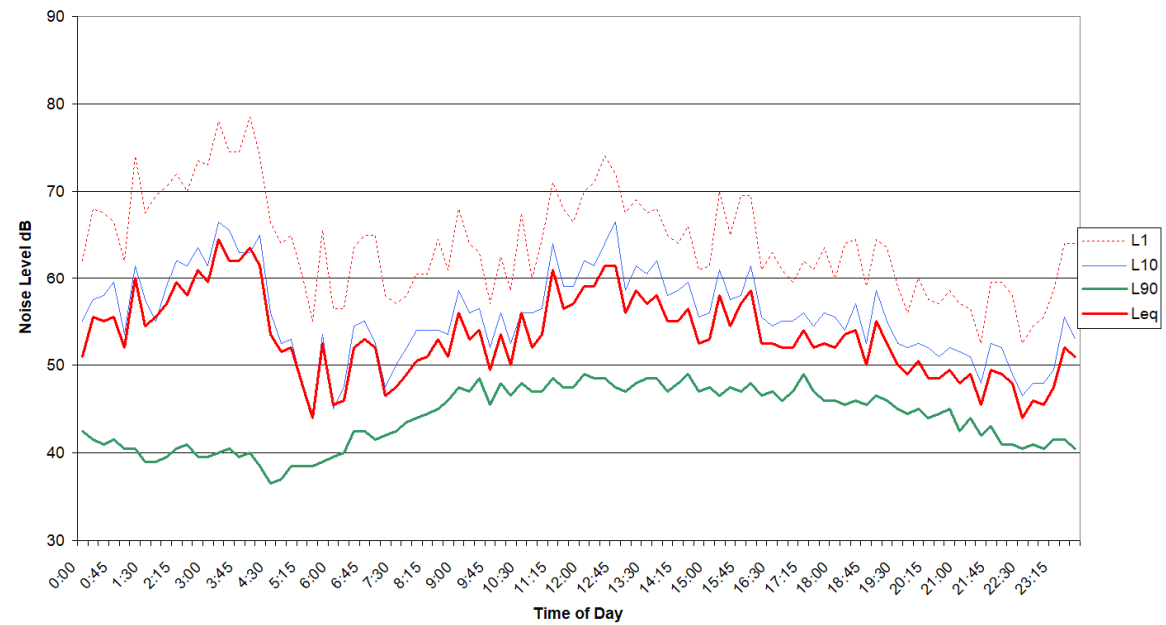
APPENDIX A

Results of Noise Logging

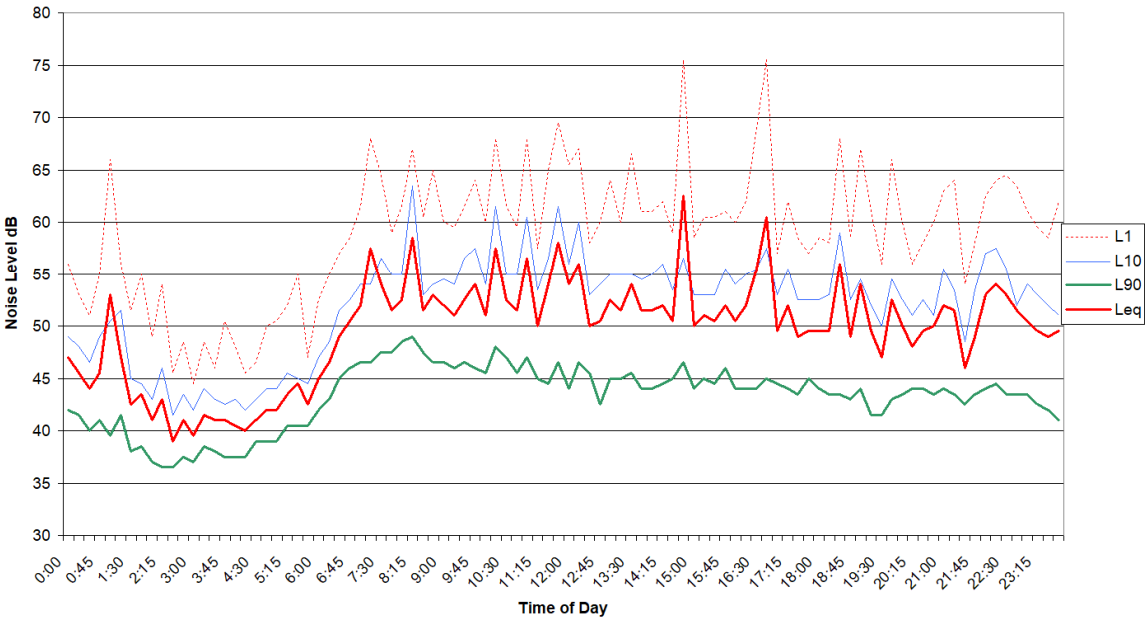
Ambinet Noise Levels - 24 May 2019



Ambinet Noise Levels - 26 May 2017



Ambinet Noise Levels - 25 May 2017



Ambinet Noise Levels - 27 May 2017

