

2 BURLEY ROAD, PADSTOW

Road Traffic Noise Assessment

Prepared for:

Masterton Homes Pty Ltd
Cnr Hume Highway & Sappho Road
WARWICK FARM NSW 2170

SLR Ref: 670.30096-R01
Version No: -v1.0
May 2022



PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
GPO Box 410
Canberra ACT 2600 Australia

T: +61 2 6287 0800
E: canberra@slrconsulting.com www.slrconsulting.com

BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Masterton Homes Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
670.30096-R01-v1.0	4 May 2022	Pierre Najjarin	Matthew Bryce	Matthew Bryce

CONTENTS

1	INTRODUCTION	4
2	PROPOSED DEVELOPMENT	4
3	ROAD NOISE CRITERIA	4
4	EXISTING NOISE ENVIRONMENT	6
5	ROAD TRAFFIC NOISE INTRUSION	7
5.1	Required Noise Reduction	7
5.2	Proposed Building Constructions.....	7
5.3	Facade Sound Insulation and Constructions.....	7
6	CONCLUSION.....	9

DOCUMENT REFERENCES

TABLES

Table 1	2 Burley Road, Padstow – Road Traffic Noise Levels	6
Table 2	Future Road Traffic Noise Levels.....	6
Table 3	Required Noise Reductions	7
Table 4	Proposed Building Constructions	7
Table 5	Minimum Sound Insulation Performance Requirements	8

FIGURES

Figure 1	Site Location and Surrounds	5
----------	-----------------------------------	---

APPENDICES

Appendix A	Site Plan, Layout and Elevations
Appendix B	Example AS 3671 Calculations

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has undertaken an acoustic assessment, relating to road traffic noise intrusion, for a proposed residential development at 2 Burley Road in Padstow, New South Wales (NSW).

The aim of the assessment was to determine minimum building constructions required to achieve satisfactory acoustic amenity within the future dwelling. This report documents the results and findings of the assessment, thus satisfying the requirements of the City of Canterbury-Bankstown in relation to the proposed dwelling.

2 PROPOSED DEVELOPMENT

The proposed development will be a two-storey dwelling, located on the northwest corner of the Burley Road-Davies Road intersection in Padstow. The area surrounding the site is predominantly residential. **Figure 1** shows an aerial view of the project site and surrounds.

Layout plans and elevation drawings can be seen in **Appendix A**. The east-facing facade of the building will be the most exposed to noise from vehicles on Davies Road, situated approximately 8 m from the nearest active lane.

3 Road Noise Criteria

The City of Canterbury Bankstown (CCB) does not provide any specific regulations regarding noise in its *Development Control Plan* (DCP) issued in 2015. Consequently, it is appropriate to consider road noise in the context of commonly-applied published criteria available in NSW.

The NSW Department of Planning (DoP) *Development near Rail Corridors and Busy Roads – Interim Guideline* (the DoP Guideline) provides guidance for the consideration of road noise and building constructions for proposed dwellings near busy roads.

The DoP Guideline relies upon the *State Environmental Planning Policy (Infrastructure) 2007* (“the Infrastructure SEPP”) for noise criteria internal areas of dwellings. In relation to road traffic noise at residential developments, Clause 102 ‘Impact of road noise or vibration on non-rail development’ of the Infrastructure SEPP states:

“(3) If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded—

(a) in any bedroom in the residential accommodation — 35 dB(A) at any time between 10 pm and 7 am,

(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway) — 40 dB(A) at any time.”

Figure 1 Site Location and Surrounds



4 Existing Noise Environment

Long-term noise monitoring was completed at the site between Monday 4 April and Wednesday 13 April 2022. The measured noise levels have been used to determine the existing road traffic noise levels at the proposed site.

The monitoring equipment was positioned to measure existing noise levels at the location of the future facade most-exposed to noise from vehicles on Davies Road.

The noise monitoring equipment continuously measured existing noise levels in 15-minute periods during the daytime (7:00 am-10:00 pm) and night-time (10:00 pm-7:00 am).

The measurement results are shown in **Table 1**.

Table 1 2 Burley Road, Padstow – Road Traffic Noise Levels

Location	Measured Noise Level (LAeq dBA) ¹	
	Day (15 hour)	Night (9 hour)
East-facing facade, ground floor	64	62

1. Adjacent to the most exposed and nearest facade to Davies Road.

The measurements were undertaken using a B&K 2250 Light sound level meter (Serial Number: 3004637). All equipment carried current National Association of Testing Authorities (NATA) calibration certificates and equipment calibration was confirmed before and after the monitoring survey using a GRAS 42AG Acoustical Calibrator (Serial Number: 280550).

The measured noise levels have been adjusted to account for the measurement position relative to the future facade locations as shown in **Table 2**, to establish the future road traffic noise at the site.

Table 2 Future Road Traffic Noise Levels

Noise Level	Daytime (LAeq(15 hour) dBA)		Night-time (LAeq(9 hour) dBA)	
	Ground Floor	First Floor	Ground Floor	First Floor
Measured noise level – ground floor, dBA	64	64	62	62
Adjustment for first floor assessment location ² , dBA	--	+2	--	+2
Future noise level at east-facing facade, dBA	64	66	62	64

1. Ground attenuation is less where the assessment location is higher from the ground, eg at second and subsequent levels of a building.

A -2 dBA adjustment has been applied for external noise levels at future facades with less exposure to road traffic noise from Davies Road.

5 Road Traffic Noise Intrusion

The DoP Guideline recommends the use of Australian Standard (AS) 3671:1989 *Acoustics — Road Noise Intrusion—Building siting and construction* (AS 3671) to determine the level of noise reduction required and the minimum sound insulation performance to be achieved by the external building envelope.

5.1 Required Noise Reduction

The required noise reductions to be achieved by the building facade have been calculated using the noise levels in **Table 2** and are shown in **Table 3**.

Table 3 Required Noise Reductions

Time of Day	Future External Noise Level, dBA LAeq		Internal Design Criteria, dBA LAeq	Required Noise Reduction, dBA	
	Ground Floor	First Floor		Ground Floor	First Floor
Day (7:00 am – 10:00 pm)	64 (15 hour)	66	40 (Habitable room)	24	26
Night (10:00 pm – 7:00 am)	62 (9 hour)	64	35 (Bedroom)	27	29

5.2 Proposed Building Constructions

The proposed building constructions are described in **Table 4**, along with the expected noise reduction performance.

Table 4 Proposed Building Constructions

Building Element	Construction	Expected Noise Reduction, Rw ¹
Exterior wall: Ground Level	Brickwork with plasterboard internal lining with R2.5 cavity insulation	50
Exterior wall: Upper Level	James Hardie “Stria” and “Axon” fibre cement cladding with plasterboard internal lining with R2.5 cavity insulation	42 (Axon) 44 (Stria)
Roof	Roof tiles or metal roof with “Anticon” sarking, 10 mm thick plasterboard ceiling with R4.1 insulation overlaid	42

1. Noise reduction performance is commonly described in terms of the Weighed Sound Reduction Index, Rw. The higher the value, the better the noise reduction performance.

5.3 Facade Sound Insulation and Constructions

Calculations in accordance with the methodology contained within AS 3671 were undertaken to determine the minimum sound insulation performance of building constructions.

The size of the glazed elements (as shown in the project drawings provided) and likely acoustic characteristics of the bedrooms and habitable rooms have been considered. It is anticipated that the floor covering to the bedrooms would be carpet and the habitable areas (ie dining/lounge, entry, etc) would be hard-floored (ie timber, vinyl and/or tiled), with all rooms furnished.

Based on the proposed design of the dwelling, the future road traffic noise levels expected at the site, and the AS 3671 methodology, the minimum sound insulation ratings required to meet the internal criteria are described in **Table 5**.

Table 5 Minimum Sound Insulation Performance Requirements

Level	Occupancy	Element	Minimum Sound Insulation (R _w)	Example Glazing/Configuration
Ground Floor	Guest Room	Windows	32	10.38 mm laminated glass in a proprietary system with acoustic seals
	Sitting/Entry	Windows	28	6 mm float glass in a proprietary system with acoustic seals
		Entry Door	28	35 mm thick timber door with acoustic seals, eg: <ul style="list-style-type: none"> Perimeter: Kilargo “Batwing” type seals or equivalent Bottom: Raven RP8 Si or RQ35 Si or equivalent
	Retreat	Windows	30	6.38 mm laminated glass in a proprietary system with acoustic seals, or 6 mm/12 mm air gap/6 mm double glazing
	Family	East Windows	32	10.38 mm laminated glass in a proprietary system with acoustic seals
		North Windows	30	6.38 mm laminated glass in a proprietary system with acoustic seals, or 6 mm/12 mm air gap/6 mm double glazing
	Dining/Kitchen	North Windows	28	6 mm float glass in a proprietary system with acoustic seals
First Floor	Master	Windows	32	10.38 mm laminated glass in a proprietary system with acoustic seals
	Rumpus/Stair	South Windows	30	6.38 mm laminated glass in a proprietary system with acoustic seals
		East Windows	32	10.38 mm laminated glass in a proprietary system with acoustic seals
	Bedroom 2	Windows	30	6.38 mm laminated glass in a proprietary system with acoustic seals, or 6 mm/12 mm air gap/6 mm double glazing
	Bedrooms 3/4	Windows	30	6.38 mm laminated glass in a proprietary system with acoustic seals, or 6 mm/12 mm air gap/6 mm double glazing

The glazed elements of other facades/occupancies not described in **Table 5** do not require specific acoustic controls.

It is noted that a range of proprietary window style and glazing options and configurations would be available to achieve the specified minimum acoustic performance shown in **Table 5**.

The supplier/manufacturer will be responsible for ensuring satisfactory performance of window/glazing systems. The builder will be responsible for ensuring the correct glazing is installed appropriately and effectively to each location.

Windows and doors are required to be closed to achieve compliance with the indoor noise criteria and an alternative means of ventilation is required to be provided as per the requirements of the NCC. This does not preclude the use of natural ventilation however, where natural ventilation is to be provided, the ventilation opening must be selected such that the overall composite sound insulation of the facade is not compromised.

6 Conclusion

SLR has undertaken a road traffic noise intrusion assessment of a proposed residential development at 2 Burley Road, Padstow.

The assessment has been undertaken in accordance with the NSW Department of Planning (DoP) *Development near Rail Corridors and Busy Roads – Interim Guideline*.

Road traffic noise intrusion was assessed in accordance with methodology contained within AS 3671 to determine the minimum sound insulation rating of building elements to achieve the internal noise criteria nominated in the Infrastructure SEPP.

Calculations show that the Infrastructure SEPP criteria would be achieved using the proposed building constructions, together with glazing and entry doors capable of achieving the specified minimum sound insulation ratings in this report.

The required sound insulation ratings are not onerous and would be achieved with standard proprietary constructions.

APPENDIX A

Site Plan, Layout and Elevations

APPENDIX B

Example AS 3671 Calculations

AS3671 Calculation of Insulation Requirements for Building Elements

Project Number	670.30096
Room Description	GF Family
Maximum Design External Exposure (dBA)	64 dBA LAeq
Design Internal Level (dBA)	40
Façade reflection included?	Yes
Floor Area (sq.m)	15.7
Room height (m)	3.5
Reverberation Time (T60)	1
Number of Components	8

Component Name	Outside Noise Level, dBA	Area (sq.m)	TNR	Sc/Sf	TNac	Rw	Contribution	Alternative Selection
								Rw TNac Contribution
East Window 06	64	2.2	24	0.1	27	33	31	32 26 32
East Stacker Door	64	8.6	24	0.5	33	39	31	32 26 38
North Window 07	62	0.7	22	0.0	20	26	31	30 24 27
North Window 08	62	0.7	22	0.0	20	26	31	30 24 27
North Window 09	62	0.7	22	0.0	20	26	31	30 24 27
East Façade	64	5.0	24	0.3	30	36	31	50 44 17
North Façade	62	12.5	22	0.8	32	38	31	50 44 19
Roof	62	15.7	22	1.0	33	39	31	42 36 28
			0	0.0	0	0	0	0 0 0
Overall Internal Noise Level:							40	Overall Internal Noise Level: 40
Internal Noise Level is 0 better with proposed system								

AS3671 Calculation of Insulation Requirements for Building Elements

Project Number	670.30096
Room Description	1F Rumpus
Maximum Design External Exposure (dBA)	66 dBA LAeq
Design Internal Level (dBA)	40
Façade reflection included?	Yes
Floor Area (sq.m)	18.3
Room height (m)	3.3
Reverberation Time (T60)	1
Number of Components	5

Component Name	Outside Noise Level, dBA	Area (sq.m)	TNR	Sc/Sf	TNac	Rw	Contribution	Alternative Selection
								Rw TNac Contribution
South Stacker Door	64	6.5	24	0.4	29	35	33	32 26 36
South Façade	64	8.1	24	0.4	30	36	33	44 38 25
East Façade	66	14.9	26	0.8	35	41	33	44 38 30
Roof	64	18.3	24	1.0	34	40	33	42 36 31
East windows	66	3.7	26	0.2	29	35	33	32 26 36
			0	0.0	0	0	0	0 0 0
			0	0.0	0	0	0	0 0 0
			0	0.0	0	0	0	0 0 0
			0	0.0	0	0	0	0 0 0
Overall Internal Noise Level:							40	Overall Internal Noise Level: 40
Internal Noise Level is 0 equivalent with proposed system								

ASIA PACIFIC OFFICES

BRISBANE

Level 2, 15 Astor Terrace
Spring Hill QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CANBERRA

GPO Box 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN

Unit 5, 21 Parap Road
Parap NT 0820
Australia
T: +61 8 8998 0100
F: +61 8 9370 0101

GOLD COAST

Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY

21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE

Level 11, 176 Wellington Parade
East Melbourne VIC 3002
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE

10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

NEWCASTLE CBD

Suite 2B, 125 Bull Street
Newcastle West NSW 2302
Australia
T: +61 2 4940 0442

PERTH

Ground Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY

Tenancy 202 Submarine School
Sub Base Platypus
120 High Street
North Sydney NSW 2060
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE

12 Cannan Street
South Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

WOLLONGONG

Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 2 4249 1000

AUCKLAND

Level 4, 12 O'Connell Street
Auckland 1010
New Zealand
T: 0800 757 695

NELSON

6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628