



DRURY METROPOLITAN CENTRE PLAN CHANGE
ACOUSTIC ASSESSMENT OF ENVIRONMENTAL EFFECTS

Rp 001 20190076 | 13 September 2019



Project: **DRURY METROPOLITAN CENTRE PLAN CHANGE**

Prepared for: **Kiwi Property Group Limited
c/o Barkers & Associates
PO Box 1986
Shortland Street
Auckland 1140**

Attention: **Rachel Morgan**

Report No.: **Rp 001 20190076**

Disclaimer

Reports produced by Marshall Day Acoustics Limited are based on a specific scope, conditions and limitations, as agreed between Marshall Day Acoustics and the Client. Information and/or report(s) prepared by Marshall Day Acoustics may not be suitable for uses other than the specific project. No parties other than the Client should use any information and/or report(s) without first conferring with Marshall Day Acoustics.

The advice given herein is for acoustic purposes only. Relevant authorities and experts should be consulted with regard to compliance with regulations or requirements governing areas other than acoustics.

Copyright

The concepts and information contained in this document are the property of Marshall Day Acoustics Limited. Use or copying of this document in whole or in part without the written permission of Marshall Day Acoustics constitutes an infringement of copyright. Information shall not be assigned to a third party without prior consent.

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
DRAFT	00		31 / 01 / 19	C Robinson	S King
FINAL	01	Incl planner's comments	25 / 02 / 19		
	02	Updated drawings	13 / 09 / 19		

TABLE OF CONTENTS

1.0	INTRODUCTION.....	4
2.0	DESCRIPTION.....	4
3.0	NOISE PERFORMNACE STANDARDS.....	6
3.1	Noise emission to sites outside the plan change area	6
3.2	Noise emission tosites within the plan change area.....	7
4.0	CONCLUSION.....	7
	APPENDIX A GLOSSARY OF TERMINOLOGY	8

1.0 INTRODUCTION

This report has been prepared to inform the Drury Metropolitan Centre Plan Change on behalf of Kiwi Property Group Limited (Kiwi). Marshall Day Acoustics has been commissioned to consider the potential acoustic effects of the proposed change in zoning within the boundary and to properties outside the Plan Change Area.

This report summarises those findings.

2.0 DESCRIPTION

The Drury Metropolitan Centre Plan Change area is approximately 85 hectares and is located to the south of the existing Drury Local Centre and Light Industrial area on Great South Road. The Plan Change area has frontage to Fitzgerald Road to the east, Brookfield Road to the south, Flanagan Road to west, and Waihoehoe Road to the north. The subject sites are primarily used for farming, with some residential activity. Kiwi currently own 52ha of land within the plan change area as shown in blue in the following figures. All other properties within the wider Plan Change area are owned by various parties.

The existing zoning map is shown in Figure 1 and the proposed Plan Change Map in Figure 2.

Figure 1: Auckland Unitary Plan existing zoning map

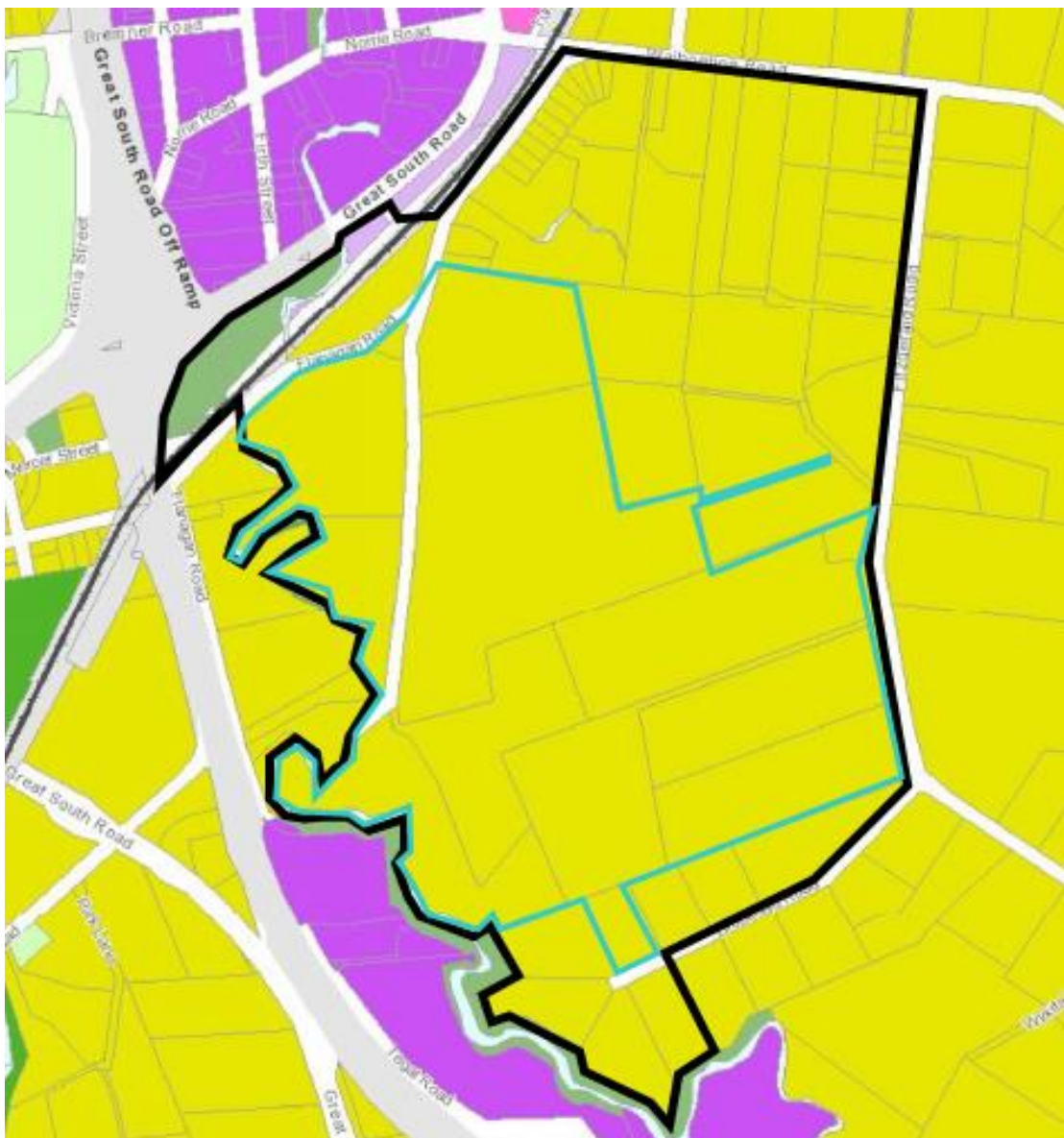
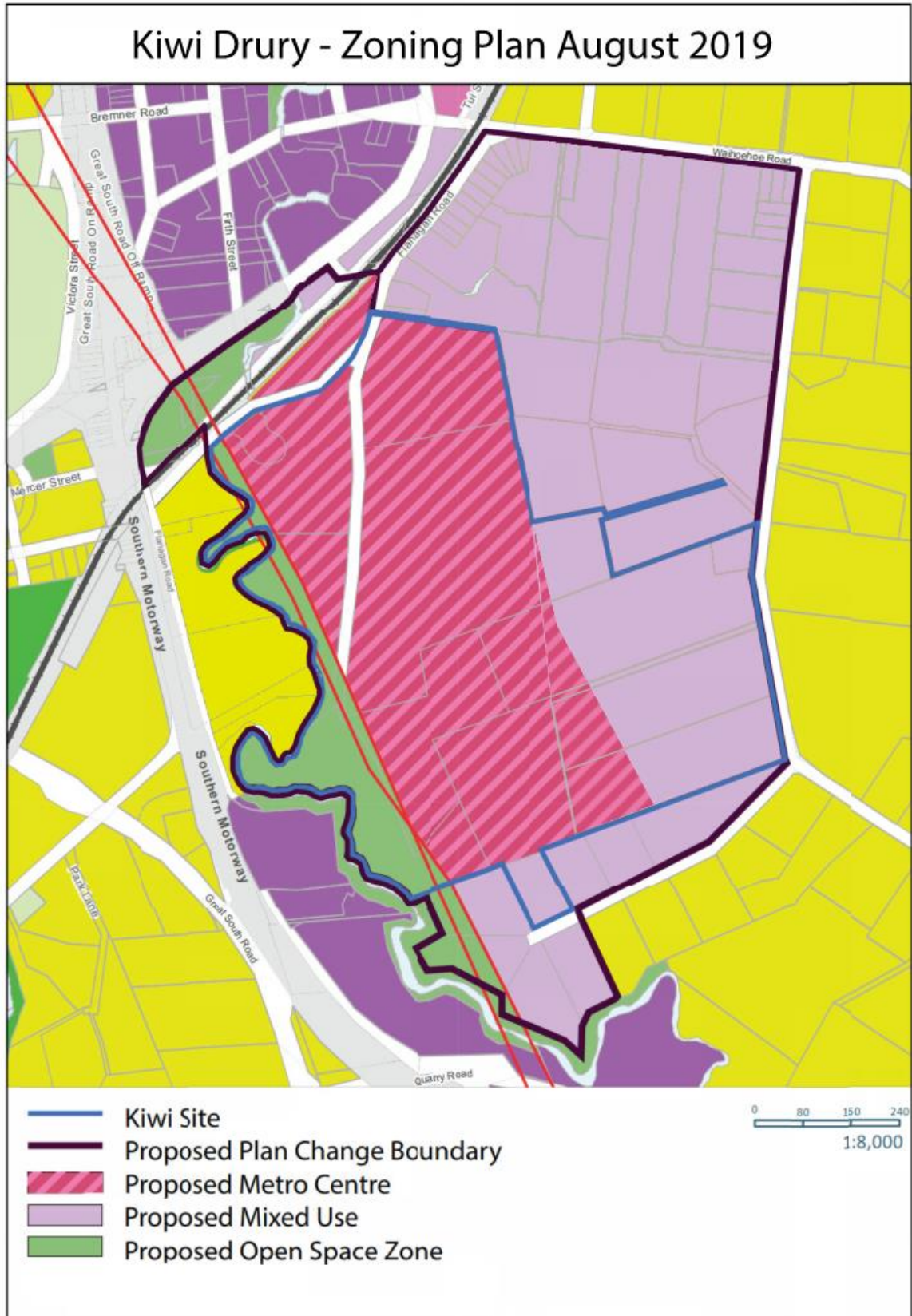


Figure 2: Proposed Drury Metropolitan Centre map



The site is situated in close proximity to Great South Road and State Highway 1, currently accessible via Waihoehoe Road at the northern end of Flanagan Road. The interchange provides northern and southern on and off-ramps to State Highway 1. The railway line is located to the immediate north of the site, however there is currently no train station servicing Drury.

The overall topography of the area is undulating, with several elevated ridgelines. The western extent of the Plan Change area is traversed by the Hingia Creek, which forms part of an inter-connected stormwater catchment which eventually drains into Drury Creek, which is an estuary of the Pahurehure Inlet and Manukau harbour.

The Plan Change area is currently zoned Future Urban under the Auckland Unitary Plan. Kiwi are seeking to rezone the land to a mix of Metropolitan Centre, Mixed Use, and Open Space – Informal Recreation.

The acoustic environment of the area is largely dominated by traffic movements on the Southern motorway and Great South Road as well as periodic train movements. The area is not considered to be of high acoustic standard and it is considered that compliance with the Future Urban Zone noise performance standards would give rise to a less than minor effect with respect to acoustics.

3.0 NOISE PERFORMANCE STANDARDS

3.1 Noise emission to sites outside the plan change area

The current zoning for the area under the Auckland Unitary Plan is Future Urban Zone. The applicable noise rule for activities within this zone are given in AUP Rule E25.6.3 which requires that any activity within the zone measured at the notional boundary of any other site shall comply with the following noise limits:

- Monday to Saturday 7 am to 10 pm 55 dBL_{Aeq}
- Sunday 9 am to 6 pm 55 dB L_{Aeq}
- At all other times 45 dB L_{Aeq} / 75dB L_{Amax}

The proposed plan change area would change the zoning within the plan change perimeter to either Business – Metropolitan Centre Zone or Business – Mixed Use Zone. AUP Rule E25.6.19.1 for Business zones interface requires that the following noise limits shall be complied with at the notional boundary of properties located within the Future Urban Zone.

- Monday to Saturday 7 am to 10 pm 55 dBL_{Aeq}
- Sunday 9 am to 6 pm 55 dB L_{Aeq}
- At all other times 45 dB L_{Aeq} / 60 dB L_{eq} at 63 Hz / 55 dB L_{eq} at 125 Hz
75dB L_{Amax}

It can be seen that the day time noise limit is the same and that the night-time noise limit is more stringent than the current zone noise rule as it includes low frequency noise controls in the octave band centre frequencies 63 and 125 Hz.

The acoustic effect of the proposed change would, therefore, be an improvement over the current permitted noise limits and will achieve a level of acoustic amenity typical of other Metropolitan and Mixed Use areas in Auckland, without compromising the amenity of properties outside of the Plan Change Boundary.

3.2 Noise emission to sites within the plan change area

The Auckland Unitary Plan has comprehensive noise rules for noise emission between sites and for the protection of acoustic amenity for any noise sensitive occupancy within the zones. The following rules are considered applicable:

- AUP E25.6.8 *Noise levels in the Business – Metropolitan Centre Zone or the Business – Mixed Use Zone*
- AUP E25.6.9 *Noise levels between units in the Business – Metropolitan Centre Zone or the Business – Mixed Use Zone*
- AUP E25.6.10 *Noise levels for noise sensitive spaces in the Business – Metropolitan Centre Zone or the Business – Mixed Use Zone*

These noise rules are considered to be appropriate to control the acoustic effects within the proposed plan change.

4.0 CONCLUSION

The Drury Metropolitan Centre Plan Change proposes to change the existing zoning with the perimeter of the plan change from Future Urban Zone to Business – Metropolitan Centre Zone and Business – Mixed Use Zone.

The AUP permitted noise limits at the interface between the proposed business zones and the adjacent Future Urban Zoned sites is more stringent than the existing noise limit, with low frequency controls to be applied at night-time. The acoustic effect of the proposed Plan Change is, therefore, an improvement over the current permitted rules, and will achieve a level of acoustic amenity typical of other Metropolitan and Mixed Use areas in Auckland, without compromising the amenity of properties outside of the Plan Change Boundary. The AUP noise standards are therefore considered appropriate to manage effects of noise.

APPENDIX A GLOSSARY OF TERMINOLOGY

Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
dB	<u>Decibel</u> The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of $P_r=20 \mu\text{Pa}$ i.e. $\text{dB} = 20 \times \log(P/P_r)$
dba	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.
Frequency	The number of pressure fluctuation cycles per second of a sound wave. Measured in units of Hertz (Hz).
Hertz (Hz)	Hertz is the unit of frequency. One hertz is one cycle per second. One thousand hertz is a kilohertz (kHz).
$L_{Aeq}(t)$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours and (15 min) would represent a period of 15 minutes.
$L_{A90}(t)$	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours and (15 min) would represent a period of 15 minutes.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
Octave Band	A range of frequencies where the highest frequency included is twice the lowest frequency. Octave bands are referred to by their logarithmic centre frequencies, these being 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz for the audible range of sound.
Special Audible Characteristics	Distinctive characteristics of a sound which are likely to subjectively cause adverse community response at lower levels than a sound without such characteristics. Examples are tonality (e.g. a hum or a whine) and impulsiveness (e.g. bangs or thumps).
SPL or L_p	<u>Sound Pressure Level</u> A logarithmic ratio of a sound pressure measured at distance, relative to the threshold of hearing ($20 \mu\text{Pa}$ RMS) and expressed in decibels.