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Noise Impact Assessment – Change of use to Depot
20 Selwyn Street
Mayfield East, NSW

Prepared for:

JBC Family Nominees Pty Ltd
c/- LDS Development Solutions
PO Box 853
The Junction NSW 2291

Neil Pennington
B.Sc.(Physics), B. Math.(Hons), MAIP, MAAS, MASA
Principal / Director

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1.0 INTRODUCTION

This report presents the results, findings and recommendations arising from an acoustic assessment of the proposed change of use to a depot at 20 Selwyn Street, Mayfield East, NSW.

This assessment has been prepared to support a development application to City of Newcastle Council (Council).

1.1 Project Description

The purpose of the application is to obtain consent for change of use of the existing site to a depot. This would be for temporary use to store Scaffolding equipment and materials. All buildings that will be onsite for the storage will be in the form of relocatable structures.

The site will be used to store scaffold material with collection and distribution. Storage of vehicles will be located within the site outside of operational hours. A portion of the site will be retained and levelled with soil being imported to the site as needed.

The site would be utilised during normal daytime hours (ie, not before 7am) and would only involve 1-2 person on site at any given time. The subject site is shown in **Figure 1**.

Figure 1. Project site and surrounding land uses.

Figure 1 shows residences south of the site at a distance of approximately 200m. These residences are adjacent to substantial rail and road infrastructure. Heavy industrial building are located between the site and residences 200m to the west.

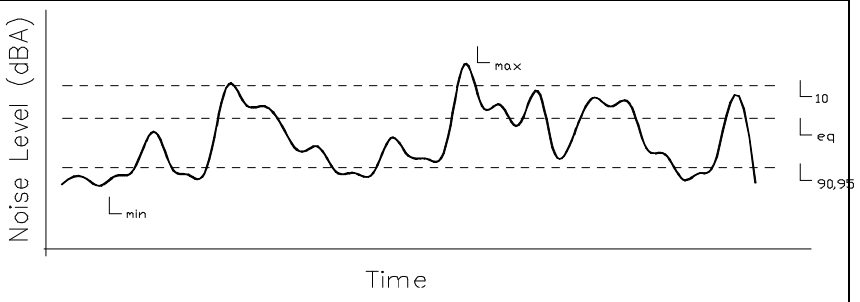
2.0 TERMS AND DEFINITIONS

Table 1 contains the definitions of commonly used acoustical terms and is presented as an aid to understanding this report.

TABLE 1

DEFINITION OF ACOUSTICAL TERMS

Term	Definition
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L10	Average Maximum Noise Level - the level exceeded for 10% of the monitoring period.
L90	Average Minimum Noise Level - the level exceeded for 90% of the monitoring period and recognised as the Background Noise Level. In this instance, the L90 percentile level is representative of the noise level generated by the surrounds of the residential area.



3.0 EXISTING ENVIRONMENT & NOISE CRITERIA

Noise from the proposed depot has been assessed as an industrial noise source against the requirements of the NSW Noise Policy for Industry (NPI).

In setting noise goals for a particular project the NPI considers both Amenity and Intrusiveness criteria. The former is set to limit continuing increase in noise from industry, whilst the latter is set to minimise the intrusive impact of a particular noise source.

The site is within an established industrial area adjacent a State Road (Industrial Drive). As such, the intrusiveness criteria are those applicable to setting the project specific noise goals. That is, the 15 minute Leq noise level should not exceed the Rating Background Level (RBL) for each time period, plus 5 dB(A).

A conservative approach has been adopted by setting background noise levels to the default minimum values of 35 dB(A),L_{90} (day) and 30 dB(A),L90 (night). Based on the adopted LA90 levels (RBLs), the intrusiveness criteria (project noise screening levels) for residential receivers are

Day **40 dB(A),$L_{eq(15min)}$**

Evening **35 dB(A),$L_{eq(15min)}$**

Night **35 dB(A),$L_{eq(15min)}$**

Only the daytime trigger levels are applicable to this proposal.

4.0 NOISE ASSESSMENT

4.1 Noise sources

As the site would have no permanent facilities or manufacturing the only conceivable noise sources are elevated voices, manual handling of metal scaffolds and medium-heavy vehicle movements on site. Maximal effort shouting can produce a sound power of over 100 dB(A) although any person on site would be alone or only communicating with one other person relatively close to them. A sound power level of 90 dB(A) could result. This is similar to the sound power generated by a medium sized truck revving hard or the metallic sound of impacts. These sources are all transient and it is estimated that the 15-minute average level would be 10 dB lower.

4.2 Impact assessment

Tables 2 and 3 show calculations of noise propagated from the site and impacting on the nearest residential receivers to the west and south indicted in Figure 1.

TABLE 2 CALCULATED DAYTIME SPL AT RESIDENCES (SOUTH)									
	Octave Band Centre Frequency, Hz								
Item	dB(A)	63	125	250	500	1k	2k	4k	8k
Shouting plus truck	83	55	65	68	76	80	76	70	65
Distance Loss to receiver (200m)		54	54	54	54	54	54	54	54
Atmosphere Absorption*		0	0	0	1	1	2	4	8
SPL @ receiver Leq (15 min)	28	1	11	14	22	25	20	12	3
Daytime criterion Leq (15 min)	40								
Impact	**0**								

* Harris, CM, (Ed), Handbook of Noise Control, McGraw-Hill, 1957.

TABLE 3 CALCULATED DAYTIME SPL AT RESIDENCES (WEST)									
	Octave Band Centre Frequency, Hz								
Item	dB(A)	63	125	250	500	1k	2k	4k	8k
Shouting plus truck	83	55	65	68	76	80	76	70	65
Distance Loss to receiver (200m)		54	54	54	54	54	54	54	54
Barrier loss*		7	8	11	14	17	20	22	24
Atmosphere Absorption		0	0	0	1	1	2	4	8
SPL @ receiver Leq (15 min)	11	0	3	3	8	8	0	0	0
Daytime criterion Leq (15 min)	40								
Impact	**0**								

* 6m high industrial building.

The results in Tables 3 to 6 show that, under the assessed conditions, noise levels at the nearest residential receivers from the proposal would be well below the default minimum daytime noise criterion.

5.0 CONCLUSION

An acoustic assessment of the proposed change of use to a depot at 20 Selwyn Street, Mayfield East, NSW has been conducted.

The assessment has found that the proposal could comply with noise emission criteria as may be imposed by Council in a Development Approval.