

PKA

**ROZELLE HOSPITAL SITE
SUITABILITY FOR RESIDENTIAL DEVELOPMENT
ACOUSTIC ASSESSMENT**

NOVEMBER 2000



PKA ACOUSTIC CONSULTING

CONSULTANTS IN ◊ ACOUSTICS ◊ VIBRATION ◊ AUDIO VISUAL ◊ HEARING CONSERVATION ◊

Suite 103, 220 Pacific Highway CROWS NEST NSW 2065 Ph: (612) 9922 4189 Fax: (612) 9923 1462 Email: pk@pknet.au

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Author: Peter Knowland

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1.0 INTRODUCTION

The site of the Rozelle Hospital is under review for potential redevelopment. As part of that redevelopment the southwestern section is under consideration for residential occupation. This section of the site is directly under the flight path to the main north-south runway at Mascot. At the request of the Urban Design Advisory Service, noise measurements have been carried out to determine if residential development would be able to comply with Australian Standard AS2021.

This report discusses the procedures adopted to carry out noise measurements, the results of the noise measurements and describes the outcomes in terms of Australian Standard AS2021.

2.0 CRITERIA

The requirements of interior noise levels are given in Table 3.3 of the Standard AS2021 of which a portion is reproduced below.

INDOOR DESIGN SOUND LEVELS FOR AIRCRAFT NOISE REDUCTION ASSESSMENT

Building type and activity	Indoor design sound level, dB(A)
<i>Houses, home units, flats, caravan parks</i>	
Relaxing or sleeping areas	50
Normal domestic	60

Basically the design goal should be to achieve 50 dB(A) in the bulk of the residence.

3.0 NOISE MEASUREMENT PROCEDURE

An acoustic data logger was located near the corner of Church and Glover Streets from 11 October 2000 to 22 October 2000. This site was selected as it was directly under the flight path and at the most critical noise point on the site. The results of the data logger are contained as an appendix to this report.

The statistical descriptor of interest in relation to the aircraft noise at the site is the L_{Amax} or maximum noise level. This corresponds with the deflection of an

analogue sound level meter needle with the meter set to A-weighting, "Slow" response.

The noise data logger is a digital sound level meter capable of recording very short duration sound pressure levels. The maximum needle deflection on an analogue sound level meter, such as the Bruel & Kjaer Model 2215, would correspond more closely with an L1 to L10 descriptor, depending on the type of noise being measured. For this reason we have adopted the measured L1 noise level as the maximum dB(A) noise level as measured on an analogue sound level meter set to "Slow" response.

Using the L1 descriptor is possibly conservative.

4.0 DATA LOGGER RESULTS

An examination of the pattern of noise over the measuring period has clearly indicated that both the conditions of landing and takeoffs have been measured. With the exception of one only event, the L1 noise level did not exceed 81 dB(A) during the time of measurement. For the bulk of the time the level was in the range of 70-80 dB(A).

For the purposes of calculation the level of 81 dB(A) has been used.

5.0 SUMMARY

Using procedures recommended in British Standard 8233:1999 and using PKA Acoustics' own standards based on extensive noise level measurements under the Mascot flight path, the provision of residential accommodation on the site is possible and practical. It is possible with normal sensible construction and the use of 10.38mm laminated glass to achieve the conditions required in AS2021.

For the conditions of takeoff the noise levels would be as follows:

BS 8233	49 dB(A)
PKA standards	49 dB(A)

For the conditions of landing the noise levels would be as follows:

BS 8233	47 dB(A)
PKA standards	48 dB(A)

It is important that the main sound transmitting paths are restricted to glazing areas and entry doors, which are required to have an acoustic performance of R_w (STC) 33 with particular emphasis on the low frequency performance. This is provided by 10.38mm laminated glass in high quality frames that include acoustic gaskets. There are a number of proprietary systems, which are supported by acoustic laboratory measurements to substantiate their performance. The doors would need to be at least 40mm solid core with acoustic gaskets fitted to the head hinge jamb and sill.

The remainder of the construction, i.e. walls, roofs must have an acoustic performance of at least R_w (STC) 40. This is very easy to achieve in normal construction. This includes wall constructions equal to at least 110 brick and ceiling roof constructions involving double layer plasterboard and glass wool insulation above.

6.0 APPENDIX

- a) Acoustic data logger charts.
- b) Site map.

200 262 Aircraft Noise Monitoring

DSNSP BACKGROUND NOISE LEVELS LA90,15min			
Date	Day ABL 0700-1800	Evening ABL 1800-2200	Night ABL 2200-0700
11/10/00	x	37.5	35.0
12/10/00	40.0	40.5	35.0
13/10/00	41.4	41.0	38.6
14/10/00	41.0	39.8	38.5
15/10/00	39.5	36.8	36.0
16/10/00	40.5	41.3	37.5
17/10/00	x	x	x
18/10/00	x	x	x
19/10/00	x	x	x
20/10/00	x	x	x
21/10/00	x	x	x
22/10/00	x	x	x
RBL	41	40	37

Rozelle Hospital, Lilyfield

DSNSP EXISTING NOISE LEVELS LAeq,15min			
Date	Day 0700-1800	Evening 1800-2200	Night 2200-0700
11/10/00	x	60.0	40.8
12/10/00	52.0	47.6	48.0
13/10/00	57.0	52.2	48.5
14/10/00	60.5	53.0	47.7
15/10/00	56.4	58.6	42.7
16/10/00	58.6	61.1	54.8
17/10/00	x	x	x
18/10/00	x	x	x
19/10/00	x	x	x
20/10/00	x	x	x
21/10/00	x	x	x
22/10/00	x	x	x
EXISTING	59	58	49

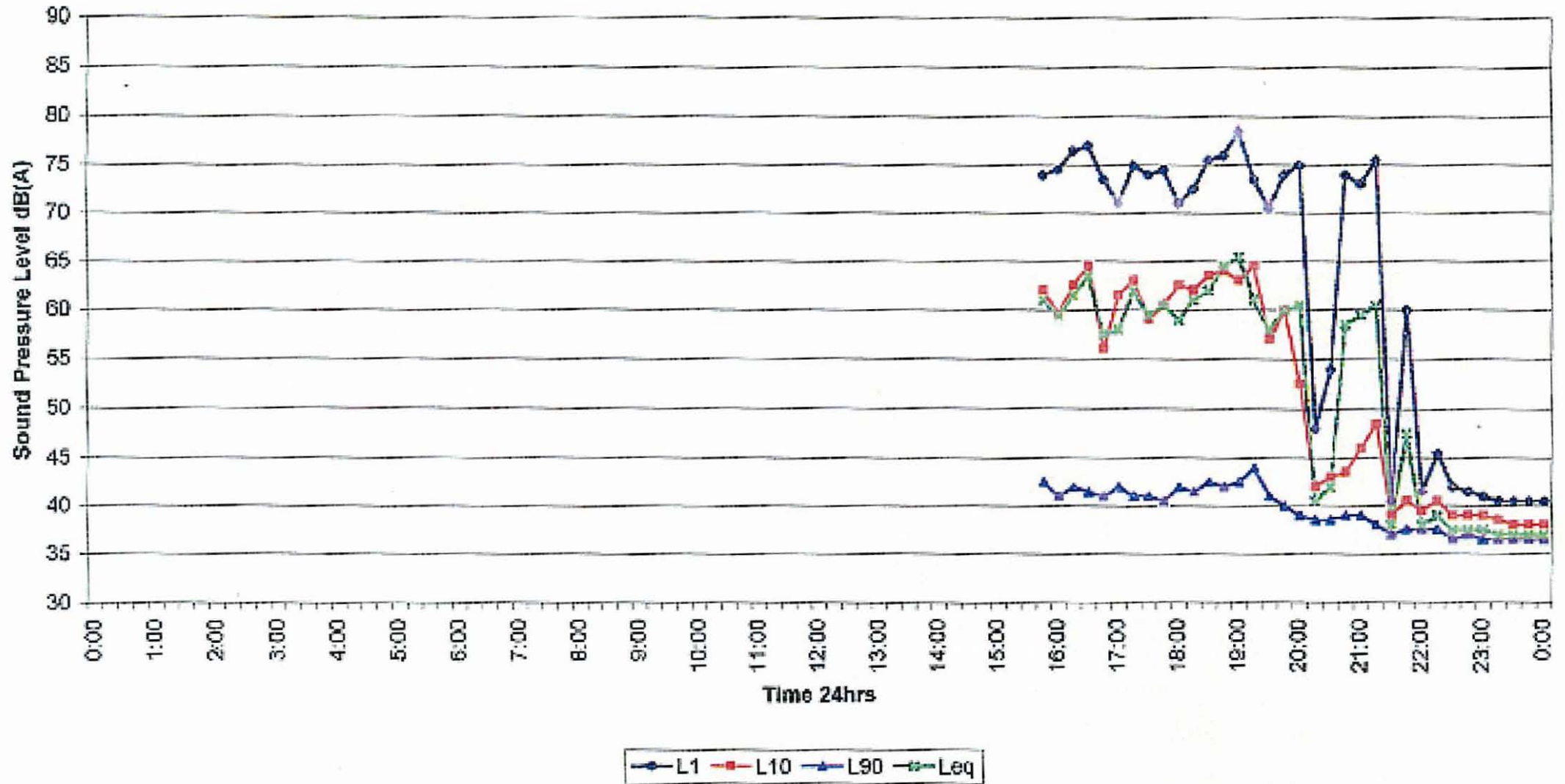
ABL - Assessment Background Level - determined by Tenth Percentile method described in Appendix B of the EPA Draft Stationary Noise Source Policy

RBL - Rating Background Noise Level - Median of all the ABLs

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Rozelle Hospital, Lilyfield

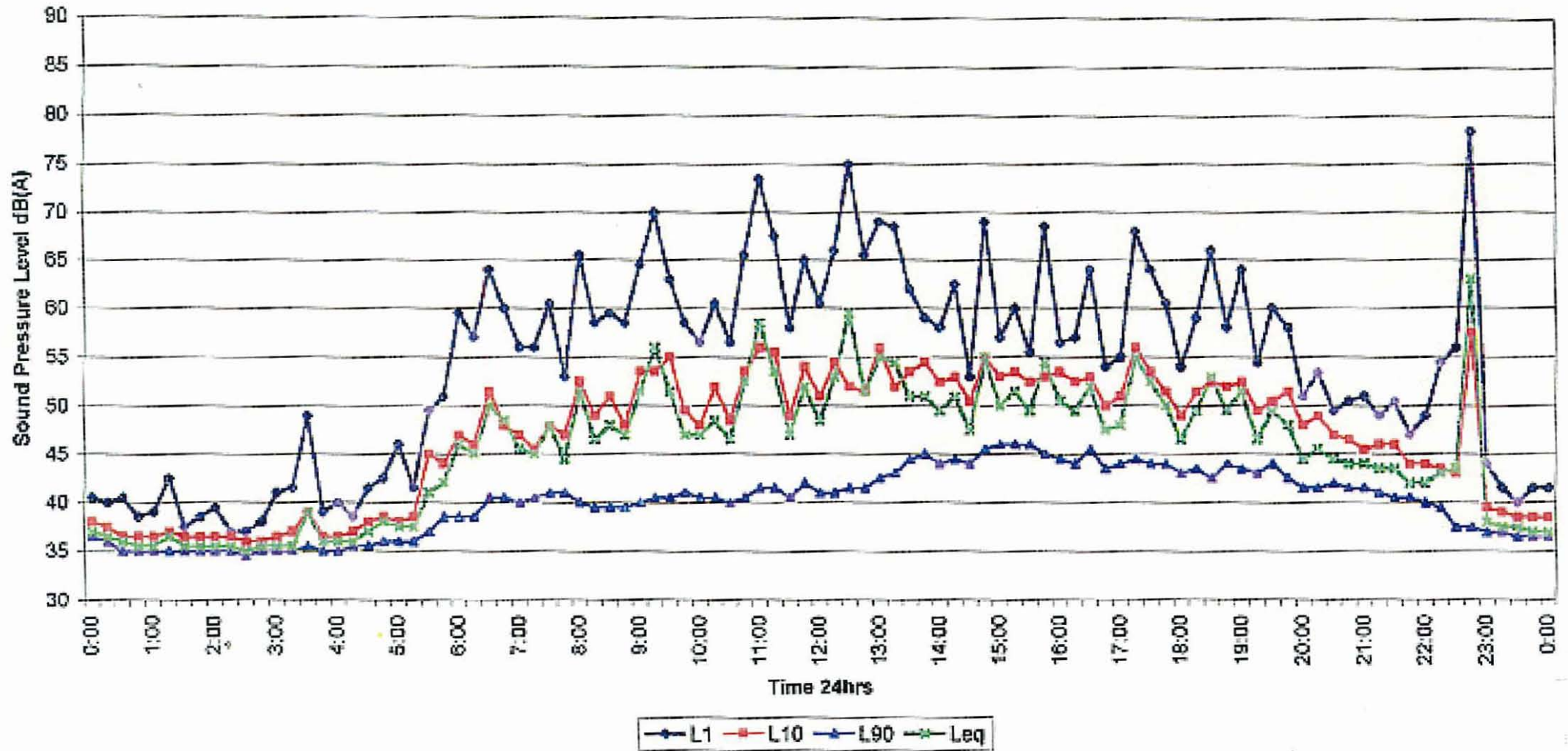
Wednesday 11/10/00



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Rozelle Hospital, Lilyfield

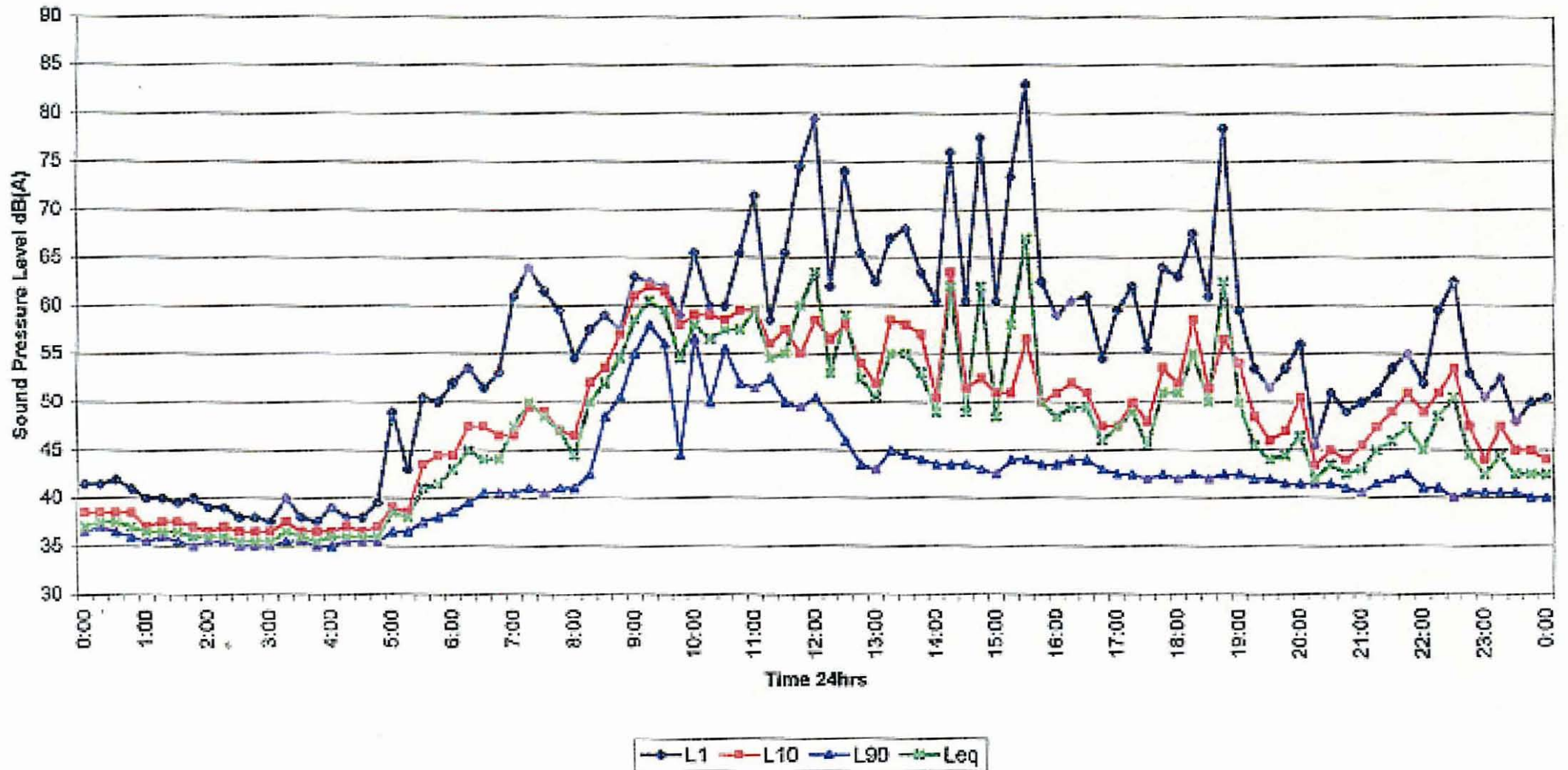
Thursday 12/10/00



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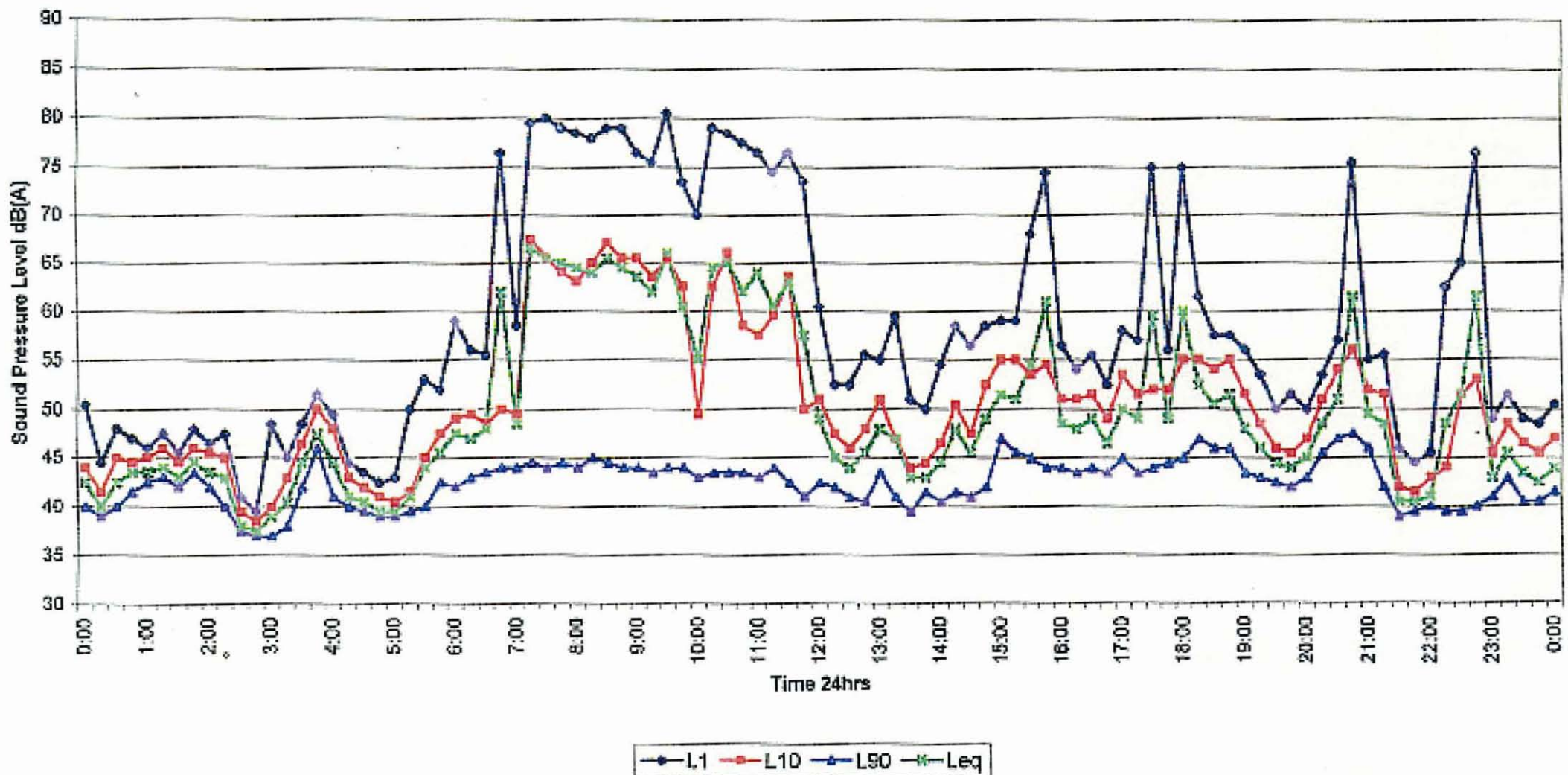
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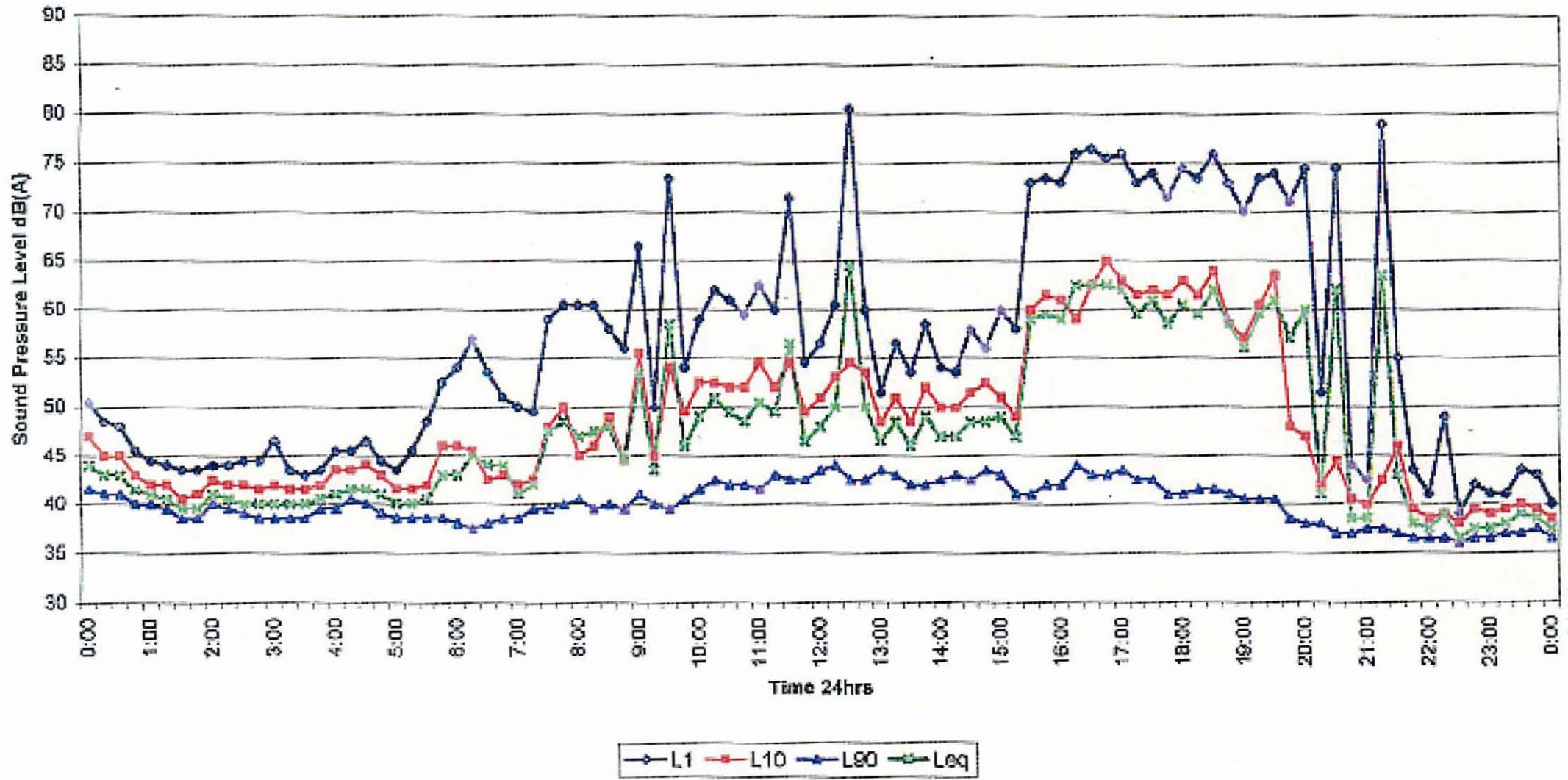
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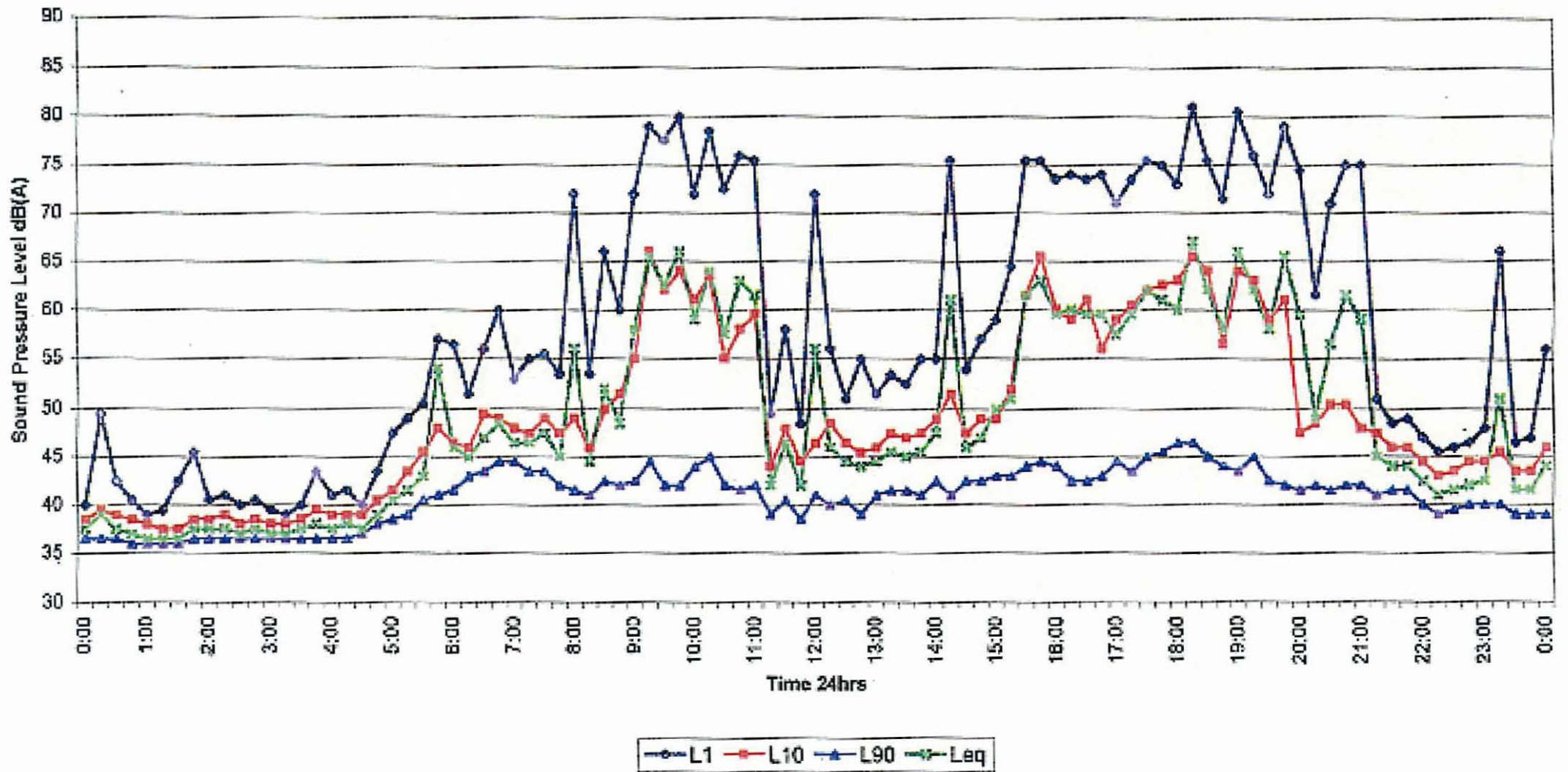
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Rozelle Hospital, Lilyfield

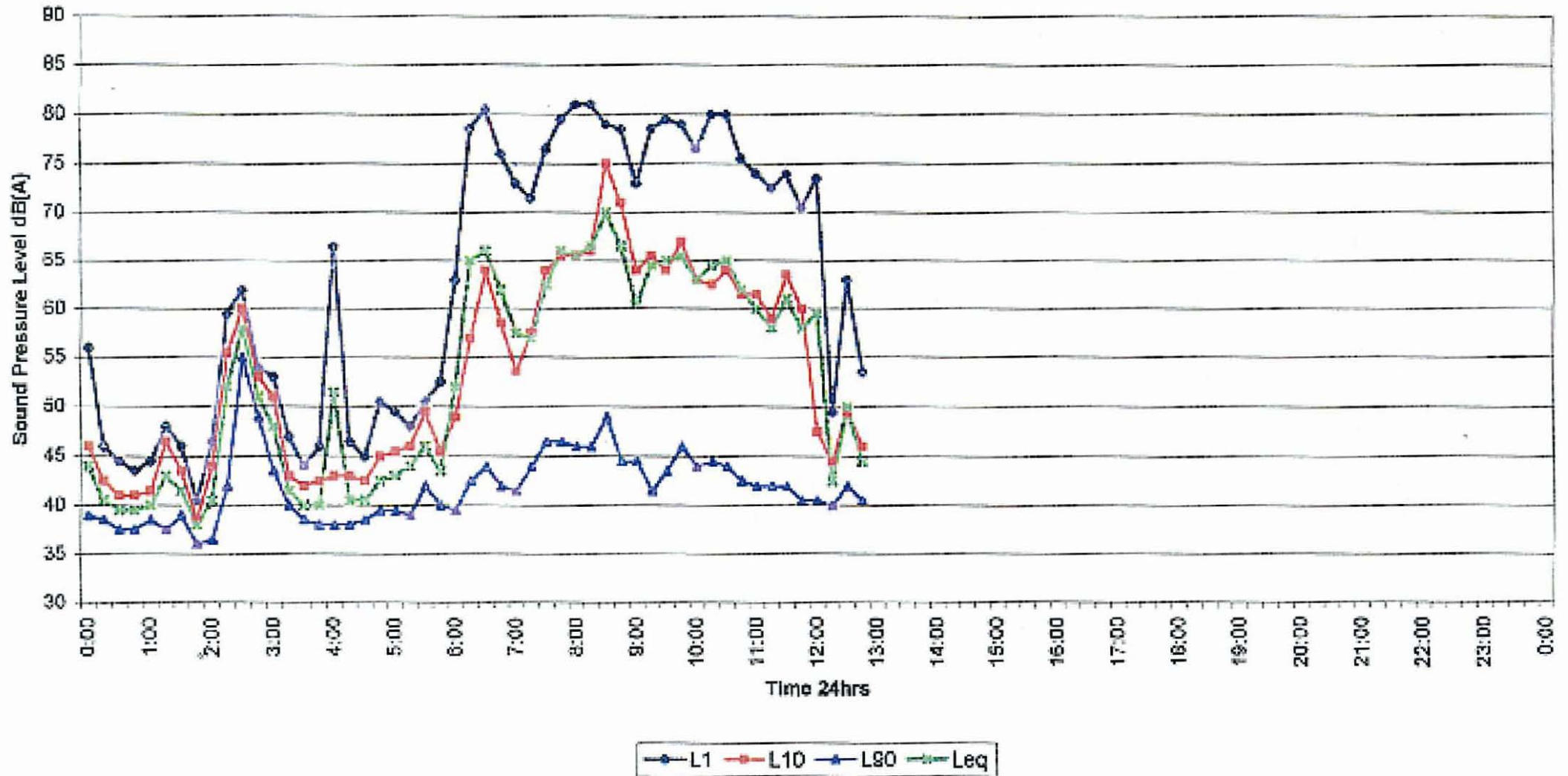
Monday 16/10/00



200 262 Aircraft Noise Monitoring

Rozelle Hospital, Lilyfield

Tuesday 17/10/00

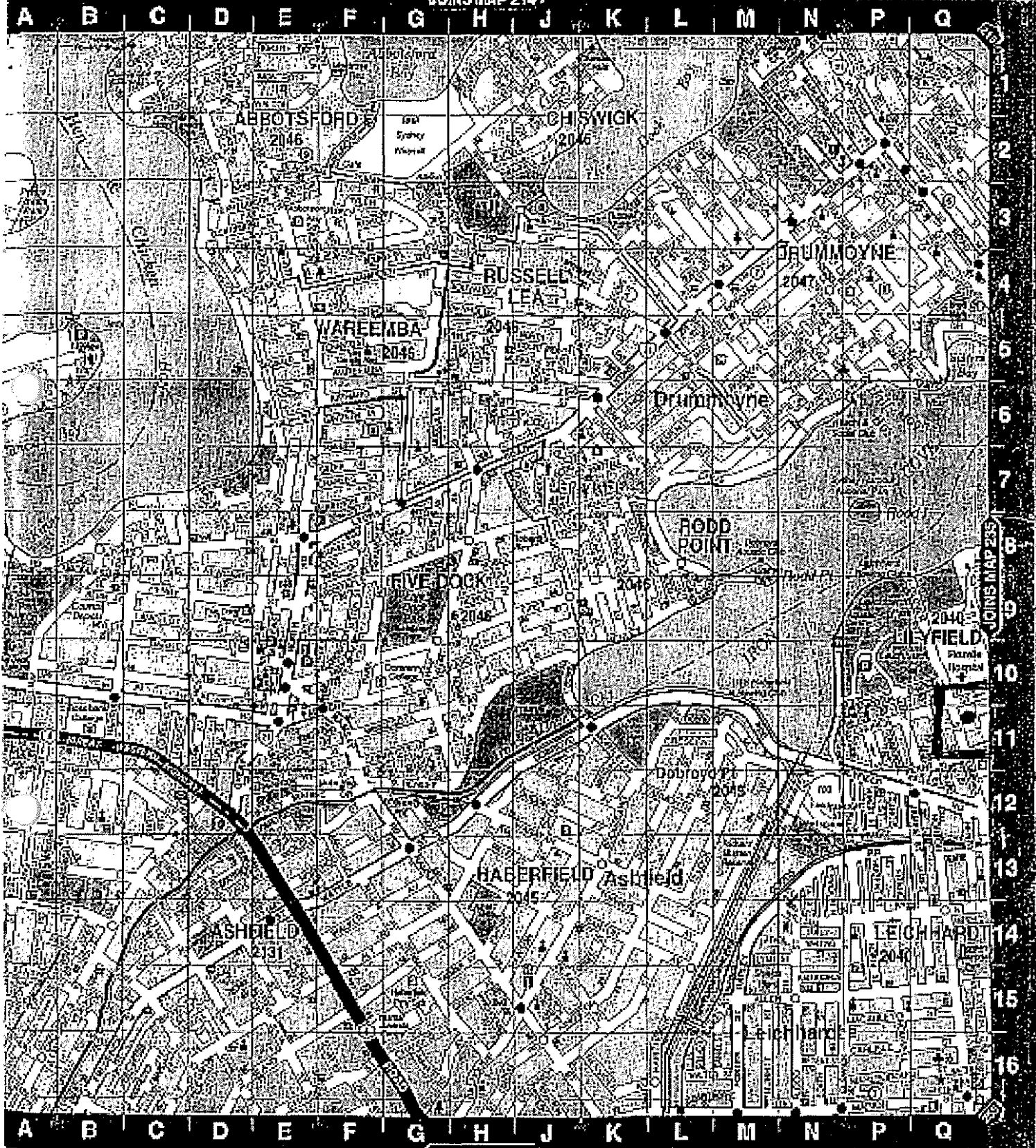


- POLICE STATION ★
- POST OFFICE ○
- PRIMARY SCHOOL ○
- PRIVATE SCHOOL ○
- PUBLIC COLLEGE □
- PUBLIC SCHOOL ○
- ROUENBOUNT ○
- SCOUT HALL ○
- SHOPPING CENTRE ○
- TELEPHONE ○
- TRAFFIC LIGHTS ○
- DISTANCE FROM CBD ○

SCALE 1:20,000
Metres 500 1000

MAP 234

JOINS MAP 214



JOINS MAP 254

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