

05 August 2010

GHD Limited  
PO Box 76477  
Manukau City 2241

**Attention: Kent McNaughten**

Dear Kent

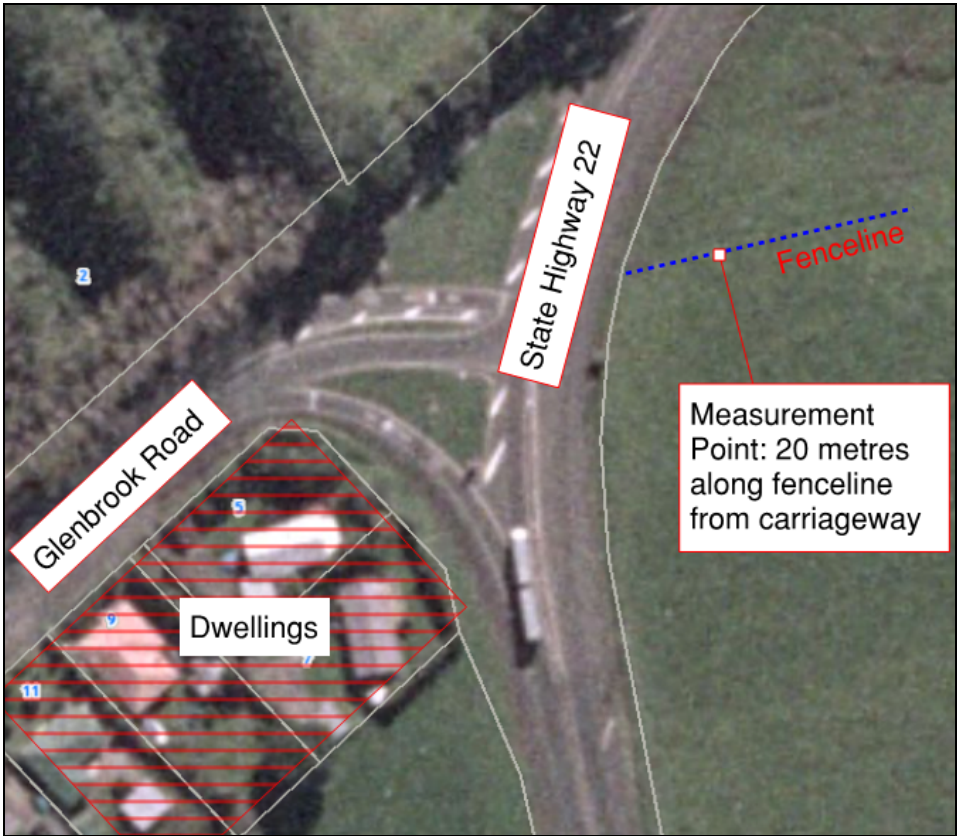
## **SH22/GLENBROOK RD INTERSECTION – EXISTING NOISE MEASUREMENT**

### **INTRODUCTION**

Marshall Day Acoustics (MDA) has been engaged by GHD Limited to measure existing noise levels at the intersection of State Highway 22 and Glenbrook Rd near Paerata. It is proposed that this intersection be upgraded, which will involve remodelling of the intersection into a roundabout and minor realignment of the adjacent road sections away from the existing dwellings. This summary of measurement results is intended to accompany the application for these works.

### **MEASUREMENT POSITION**

A six-day continuous measurement was carried out near the aforementioned intersection between the 30<sup>th</sup> July, 2010, and the 4<sup>th</sup> of August, 2010, in accordance with the relevant standards. The measurement was performed using an Acoustic Research Laboratories 315 Environmental Noise Logger. The logger was setup in the field of number 741 Karaka Rd. This location is shown in Figure 1 below.



**Figure 1.** Aerial view showing measurement point. (Measurement point GPS E2677647 N6449775 – New Zealand Map Grid)

This measurement position was chosen to give an uncontaminated measurement of traffic noise levels around the intersection. It was confirmed before measurement that no livestock would be grazing in either field beside the noise logger.

Subjective assessment during setup confirmed that traffic noise was incontestably the dominant noise source at the measurement point.

**EXISTING NOISE LEVEL**

The average  $L_{Aeq(24hour)}$  noise level measured by the logger was 65 dB. Variation of the  $L_{Aeq(24hour)}$  level between individual days is given below:

Daily measured noise levels (dB)	
Date	$L_{Aeq(24hour)}$
Friday 30 <sup>th</sup> July	65
Saturday 31 <sup>st</sup> July	66

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Sunday 1 <sup>st</sup> August	64
Monday 2 <sup>nd</sup> August	63
Tuesday 3 <sup>rd</sup> August	65
Wednesday 4 <sup>th</sup> August	65

Appendix A gives a full summary of the logger results.

Weather data from NIWA was used to check the influence of weather upon the results. Weather effects can create additional noise when rainfall exceeds 6mm/h and wind speed exceeds 5m/s. When the hours in which these conditions were met/exceeded were removed from the data, a change of less than 1dB resulted.

#### **NOISE EFFECTS OF PROPOSED WORKS**

GHD has expressed to MDA that the proposed works to the intersection will not result in increased design-year Average Annual Daily Traffic (AADT) flow above the levels which would be expected at design-year if no change to the intersection occurred. GHD has also expressed that the proposed road surface near the proposed roundabout would be stone mastic asphalt – a surface which causes less traffic noise than the current chip seal. Road surfaces further from the roundabout on would remain as chip seal. The proposed alignment would move the majority of the traffic flow (on State Highway 22) 5-10 metres further from the dwellings at 5-7 Glenbrook Rd.

On the basis of this information, MDA advises that the proposed works would, in fact, result in a decrease in noise levels at the dwellings nearest the intersection (5 and 7 Glenbrook Road), and hence would not require assessment with respect to NZS 6806:2010 *Acoustics – Road traffic noise – New and altered roads*.

The Altered Road Test from the New Zealand Transport Agency’s website has been carried out (<http://acoustics.nzta.govt.nz/node/add/calc-altered-road-screening>). A summary of results from this test is given in Appendix B. These test results agree with MDA’s opinion that the proposed works will result in a noticeable decrease in noise level at the nearest dwellings, and are not subject to assessment by NZS 6806.

Yours faithfully

**MARSHALL DAY ACOUSTICS LTD**

**Jack Mules**

**Consultant**

# Appendix A Logger Measurements

Date: Friday, 6 August 2010  
File name: J:\JOBS\2010\2010323A\Logger results\[processed, not weather corrected.xls]Logger\_Summary

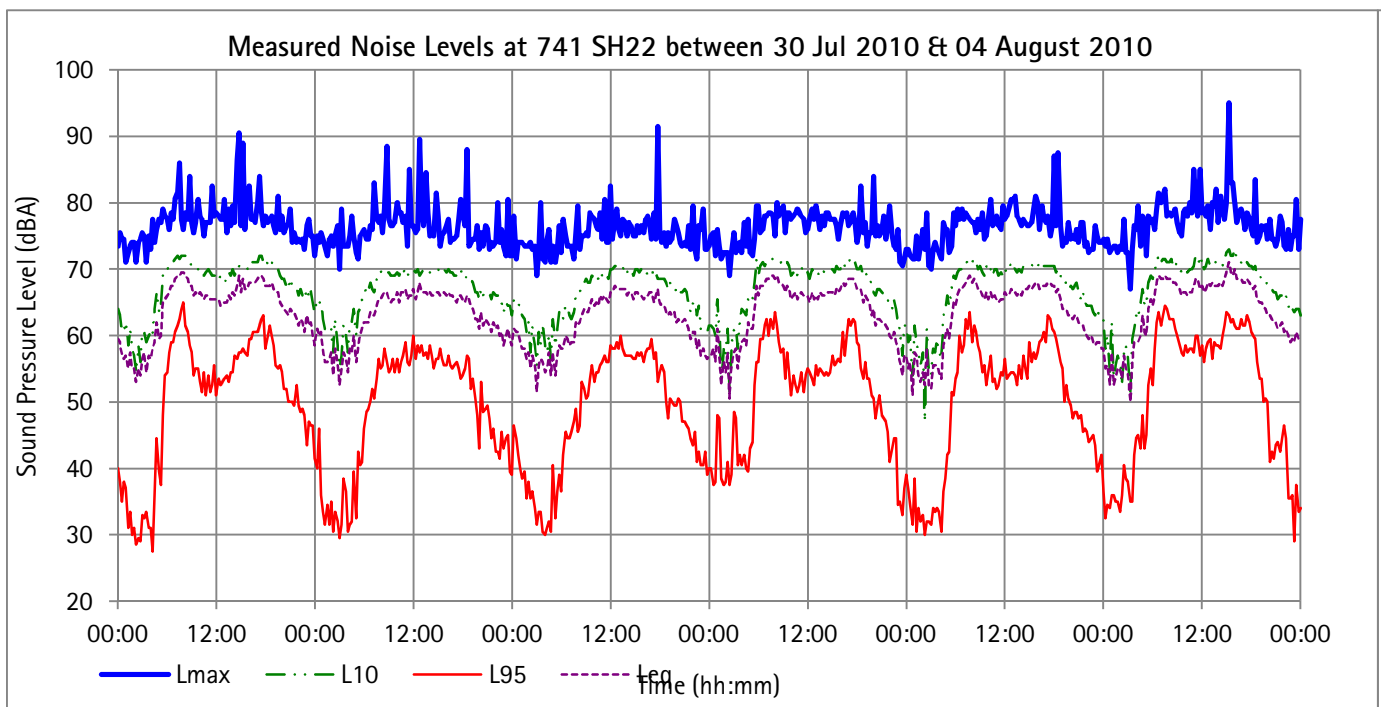
Job number: 2010323  
Job name: SH22/Glenbrook Rd Intersection Improvements  
Initials: JJM  
Measurement Dates: Friday, 30 July 2010 to Thursday, 04 August 2010

Notes: 741 Karaka Rd

## OVERVIEW SUMMARY SHEET

Noise Level, dBA		Leq	L10	L95	Lmax
Day (0700-1800)	Lowest	59	63	45	72
	Average	67	70	57	78
	Highest	71	73	65	95
Evening (1800-2200)	Lowest	60	64	41	73
	Average	64	68	51	76
	Highest	68	71	62	88
Night (2200-0700)	Lowest	50	47	29	67
	Average	60	62	40	74
	Highest	69	72	64	82

$L_{eq\ 24-hr}$  65 dBA



# Appendix B

## Altered Road Test

From NZTA:  
<http://acoustics.nzta.govt.nz/node/add/calc-altered-road-screening>

### Preliminaries

**What is the design year?:**

2021

**Is the traffic volume at design year greater than 2000 vehicles per day?:**

Yes

**Is the road in a rural or urban area?:**

Rural

**Distance to façade of most affected PPF:**

Existing road:

10m

Proposed alteration:

15m

**Will the horizontal or vertical road alignment be changed?:**

Yes

**Is the alteration a permitted or designated activity?:**

No

### Estimated noise levels

**Is the geometry simple?:**

Yes

**Is there currently any screening or bunding?:**

Existing road:

No

Proposed alteration:

No

**Barrier height:**

Existing road:

Proposed alteration:

**Barrier distance:**

Existing road:

Proposed alteration:

**Are there reflecting surfaces opposite?:**

Existing road:

No

Proposed alteration:

No

**AADT:**

Existing road:

14950vpd

Proposed alteration:

14950vpd

**Average vehicle speed:**

Existing road:

90km/hr

Proposed alteration:

60km/hr

**Percentage heavy vehicles:**

Existing road:

5%

Proposed alteration:

5%

**Gradient:**

Existing road:

0%

Proposed alteration:

0%

**Is the surface chip seal?:**

Existing road:

Yes

Proposed alteration:

No

**Results:**

**Levels used in assessment:**

**Existing road**

74dB

**Proposed alteration**

66dB

**Result:**

Screen test indicates that NZS6806 does not apply. No further action is required.

**Calculation details**

**Road:**

SH22/Glenbrook Rd Intersection

**Project:**

SH22/Glenbrook Rd Intersection Upgrade

**Section:**

Intersection

**Scenario:**

Roundabout

**Receiver address:**

**Comments:**

Traffic counts based on 2009 data with 3% non-compounding increase. Design-year existing and proposed alignment predicted traffic counts are equal.

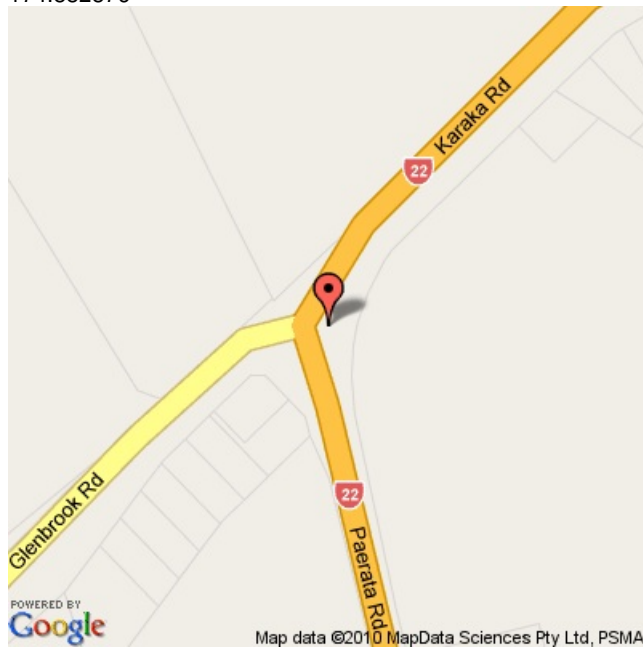
**Map**

**Latitude:**

-37.138572

**Longitude:**

174.882876



Friday 6th of August 2010 03:54:15 PM