

**THREE KINGS QUARRY**  
**Noise Compliance Assessment – Quarry Activity**  
**Rp 005 2011528A**

**9 December 2013**



Project: **THREE KINGS QUARRY**  
**Noise Compliance Assessment – Quarry Activity**

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## 1.0 INTRODUCTION

Marshall Day Acoustics (MDA) has carried out an environmental noise survey at monitoring positions adjacent to Three Kings Quarry, Mt Eden on 25 November 2013. Winstone Aggregates is required to undertake two noise surveys per year, at two identified monitoring positions, as part of the Environmental Management Plan for the quarry, in order to determine compliance with the noise rules for the site.

“Fill” operations are also taking place at the northern end of the quarry. Sound generated from these activities must comply with the conditions in Environment Court Decision No. [2011] NZEnvC 214.

## 2.0 NOISE PERFORMANCE STANDARDS

The quarry is zoned *Business 7* in the City of Auckland District Plan Isthmus Section – Operative 1999. The closest dwellings are located immediately to the west of the quarry in Fyvie Avenue. The noise rule for operations within the quarry is:

*“Noise Control at the Residential Interface*

*The  $L_{10}$  noise level and maximum level ( $L_{max}$ ) arising from any activity measured at or within the boundary of any residential zoned property shall not exceed the following limits:*

<i>Monday to Saturday</i>	<i>7.00 am – 10.00 pm</i>	<i><math>L_{10}</math> 55 dBA</i>
<i>Sunday and Public Holidays</i>	<i>9.00 am – 6.00 pm</i>	
<i>At all other times</i>		<i><math>L_{10}</math> 45 dBA</i>
		<i><math>L_{max}</math> 75 dBA, or background (<math>L_{95}</math>), plus 30 dBA whichever is the lower</i>

*The above noise levels shall be measured and assessed in accordance with the requirements of the NZS 6801:1991 “Measurement of Sound” and NZS 6802:1991 “Assessment of Environmental Sound” or their replacement.”*

## 3.0 MEASUREMENTS

### 3.1 General

Measurements were completed at the Fyvie Avenue measurement position on 25 November 2013 between 2:30 pm and 5:00 pm. Measurements could not be practicably undertaken at the Grahame Breed Drive position due to noise from construction activities associated with the building of a new 3-storey apartment development at 12-18 Henshaw Avenue, Mt Roskill.

The measurement positions are the same as in all previous compliance measurements of this type and are shown on the figure in Appendix A.

Sound level measurements were carried out using a Brüel & Kjaer 2250 sound level meter, which satisfies the requirements for a Type 1 sound level meter according to IEC 651. Measurements were carried out and assessed generally in accordance with the relevant New Zealand Standards.

The weather was fine with 3 okta cloud cover and a light breeze from the south-west. These conditions are considered acceptable for environmental noise surveys.

### 3.2 Operations and Equipment

The following equipment was operating in the quarry during the survey. These operations were confirmed by the quarry supervisor following completion of the survey.

#### Quarry Activity:

- General loader operation
- Doosan 225 Excavator operating at the south-eastern corner of the quarry
- Arrival and departure of trucks collecting aggregate from the stockpiles

#### Fill Operations Activity (at northern end of quarry):

- 1 x Hyundai 290 Excavator digging out from the trench and stockpiling
- 1 x CAT D6 Swamp Track Bulldozer spreading and compacting fill
- Arrival and departure of trucks delivering fill materials

As sound from Fill Operations is covered by another resource consent, this activity was ceased prior to the commencement of the measurement detailed in Section 3.3 so that Quarry Activity sound could be reliably measured. It is understood that Fill Operations monitoring will occur in a separate survey.

### 3.3 Results

The measured sound level is presented in Table 1 below.

**Table 1 – Measured Sound Levels**

Measurement Position	Duration	dB L <sub>A10</sub>	Noise Sources <sup>(1)</sup>
Fyvie Avenue	10 minutes	53	<u>Doosan 225 excavator</u> in south eastern corner of quarry <i>Non-quarry sound: Birds and insects</i>

#### Notes to Table 1:

- (1) Controlling sound source(s) underlined

### 3.4 Discussion

#### 3.4.1 Fyvie Avenue

Sound from quarry (excluding scoria extraction and crushing) was audible at the Fyvie Avenue measurement position.

The Terex Pegson crushing plant was not operating during the survey due to maintenance downtime. Therefore associated activities including extraction of rock from the quarry face and scoria load-out of dump truck did not occur.

Ambient sound sources (i.e. not associated with quarry activity) including birds and insects were considered to contribute approximately 1 decibel to the overall measured level.

A level of 53 dB L<sub>A10</sub> was measured at this location, which indicates that Quarry Activity was operating compliantly during the period of the survey.

### 3.4.2 Grahame Breed Drive

As previously noted it was impracticable to measure noise emission from the quarry due to on-going intrusive noise from construction of a new building development at 12-18 Henshaw Avenue, Mt Roskill by NZ Strong Construction.

During the site visit, sounds from quarry activities were audible intermittently, but only when construction was quiet.

The noise effects from the construction site dominated the noise environment in the vicinity of the measurement position. Subsequently, it is considered that any potential noise effects from the quarry would be of no concern at this location whilst the construction activity continues to dominate the noise environment.

Based on the observed progress of work at 12-18 Henshaw Avenue, construction activity is expected to have ceased by the next 6-monthly noise survey, allowing a measurement to be carried out at this location.



**Photo 1: Northern End of Quarry**





*Photo 2: South-east Corner of Quarry*

#### 4.0 CONCLUSIONS

Marshall Day Acoustics has completed noise monitoring at one of the two nominated monitoring positions as required by the Environmental Management Plan for the Three Kings Quarry. The second position, at Grahame Breed Drive, could not be practicably measured due to intrusive noise from a nearby construction site.

Sound generating activity from the quarry during the recorded measurement included Quarry Activity.

Fill operations were taking place in the northern and south-eastern areas of the quarry and involved one bulldozer to spread and compact the fill material, two excavators, and trucks delivering material to the fill areas. This activity was ceased to allow a reliable measurement of Quarry Activity only.

Quarry Activity included the arrival and departure of trucks collecting aggregate from the stockpiles and general excavator/loader operation.

The sound levels measured at the Fyvie Avenue measurement position, excluding sound from fill operations, complied with the relevant noise limit for Quarry Activity on the site.

The noise environment at the Grahame Breed Drive measurement position is currently controlled by noise from construction activity at 12-18 Henshaw Avenue, Mt Roskill. However, construction activity is expected to have ceased by the next 6-monthly noise survey, allowing a measurement to be carried out at this location.



## APPENDIX A MEASUREMENT POSITIONS

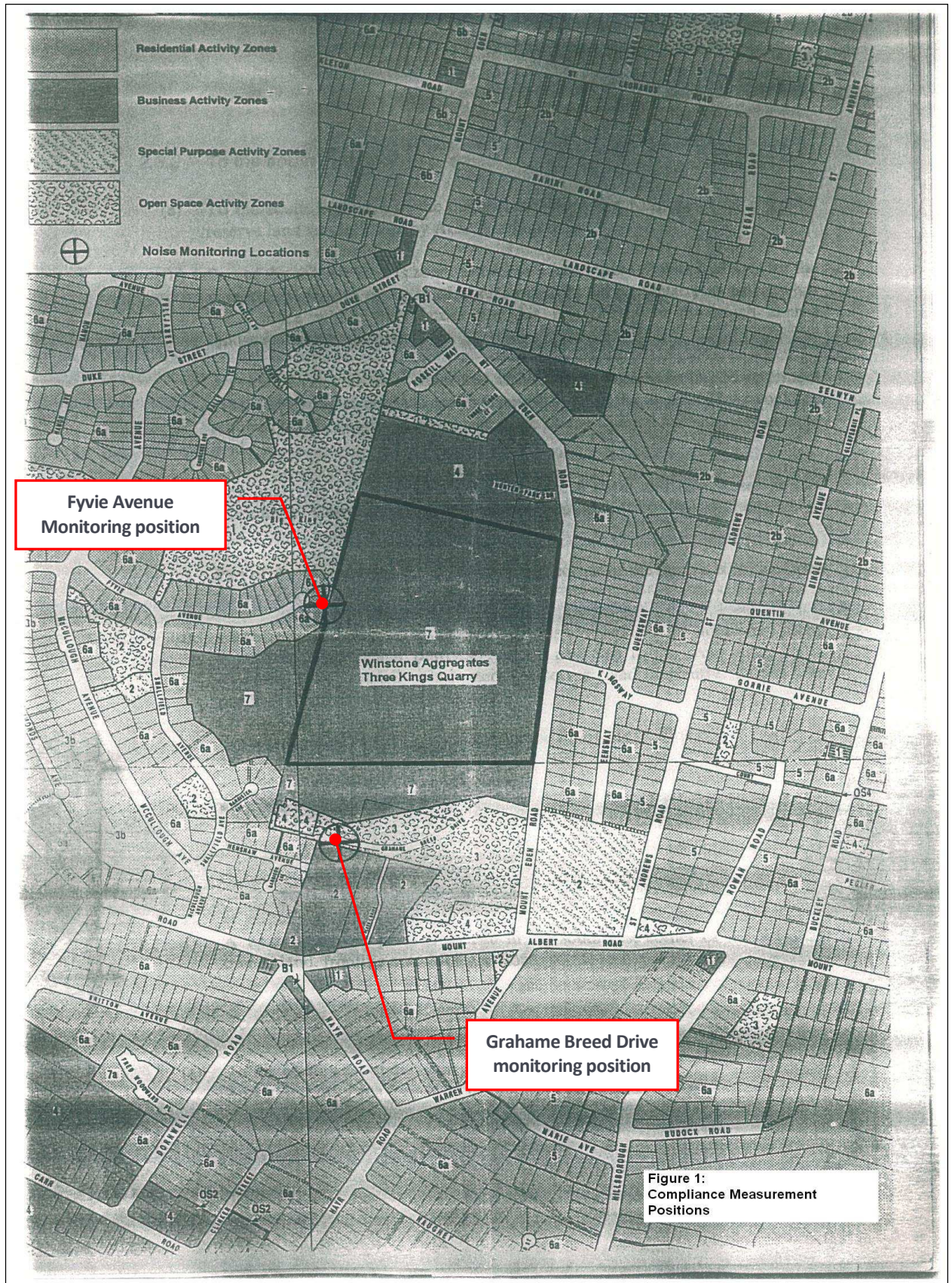


Figure 1:  
Compliance Measurement  
Positions