



NOISE AND VIBRATION PARTNERSHIP

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CONSULTANTS IN ACOUSTICS, NOISE AND VIBRATION

PROJECT NO: 1352

DATE: 28th October 2010

CLIENT:

Brightwood Ltd
57/63 Line Wall Road
Gibraltar

PROJECT:

46 Avenue Road London NW8
Measurement of environmental noise levels
at the proposed development site and
recommendations for acoustic treatments for
mechanical services.

PREPARED BY:

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1. BRIEF FOR CONSULTANCY

- 1) To measure levels of noise at the proposed development site.
- 2) To examine mechanical services drawings for the project
- 3) To propose targets for noise emission from mechanical services.
- 4) To propose remedial treatment to ensure compliance with current noise standards.

2. SUMMARY

Background noise levels have been measured at the site.

Preliminary assessment of noise from new mechanical plant has been made.

Recommendations for atmospheric attenuation for mechanical plant are included in the report.



A handwritten signature in black ink, appearing to read 'R. J. D. Smith', is written over a horizontal dotted line.

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3. INTRODUCTION

It is intended to provide an underground swimming pool and leisure areas in the rear garden of no.46 Avenue Road London NW8.

NVP were requested to measure background noise levels at the site and establish permissible levels of mechanical services noise emission.

4. SURVEY

Measurements were made on 25th and 26th October 2010 using the following equipment.

Brüel and Kjær

Precision Sound Level Meter Type 2260

Noise measurements were made over a 24 hour period in the rear garden of the property (See appended chart).

Measurements complied in all respects with current British and International Standards. Equipment was calibrated before and after use with a calibrator having an accuracy of $\pm 0.3\text{dB}$.

Noise measurements were made at location 1 in the rear garden of the residence. See appended site plan.

5. RESULTS

The most important parameter for the assessment of noise nuisance to the neighbourhood is the LA_{90} value. This is the noise level, in dBA, exceeded for 90% of the measurement period and is the recognised parameter that represents the *background* noise level.

It can be seen that the lowest daytime LA_{90} value is 40.1dBA (at 23.00hrs) and the lowest nighttime LA_{90} value is 35dBA (at 0300hrs).

6. APPRAISAL OF THE NOISE CLIMATE ON SITE

The rear garden of the site is screened from road traffic noise and is quiet. No noise from mechanical plant was noted in the garden.

7. NOISE CRITERIA

The impact of noise from mechanical plant to the surrounding neighbourhood is assessed by comparison of the residual noise at the nearest neighbourhood façade with the pre-existing background (LA_{90}). This procedure is described in BS4142 (ref 1).

8. MECHANICAL SERVICES SERVING THE PROJECT

It is understood that the atmospheric inlets/discharges will be via a service riser to be provided to the rear of the proposed summer house. The shaft to the rear of the summer house may also contain a Daikin VRV (variable refrigerant volume) plant which will have atmospheric inlet and discharge at this point. Initial assessment of the sound power output of the VRV unit indicate levels of 78dBA SWL Re 10^{-12} w.

The nearest residences to the plant discharges are nos. 44 and 48 Avenue Road, which are at a distance of approximately 30m, however the discharge of the VRV unit, if fitted, will face to the rear of the shaft in the direction of properties on Elsworth Road, a distance of approximately 40m.

Because of the directivity effect of the installation it is considered that this will be the most critical noise transfer path.

It is recommended that the target residual noise from mechanical plant be limited to approximately 10dBA below the pre-existing background (LA90) level. This will mean the use of single bank acoustic louvres fitted to the inlet and discharge of the VRV plant chamber. A possible layout is shown in Sketch 1 appended.

Inlet and discharge ducts from air handling units and extract fans within the basement plantroom should be provided with conventional duct mounted attenuators sized to give an emerging sound power level at the atmospheric louvres no higher than 57dBA.

The acoustic louvres should have the following Dynamic Insertion Loss.

	Octave Band Hz						
	63	125	250	500	1k	2k	4k
DILdB	7	7	9	12	18	20	15

9. CONCLUSIONS

Duct mounted attenuation is recommended for the inlet and discharges of the pool and basement vent systems.

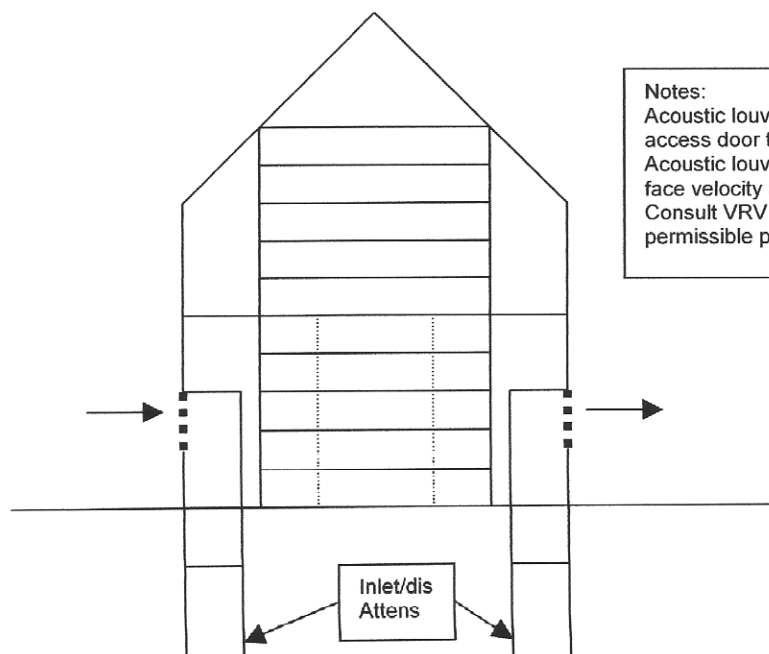
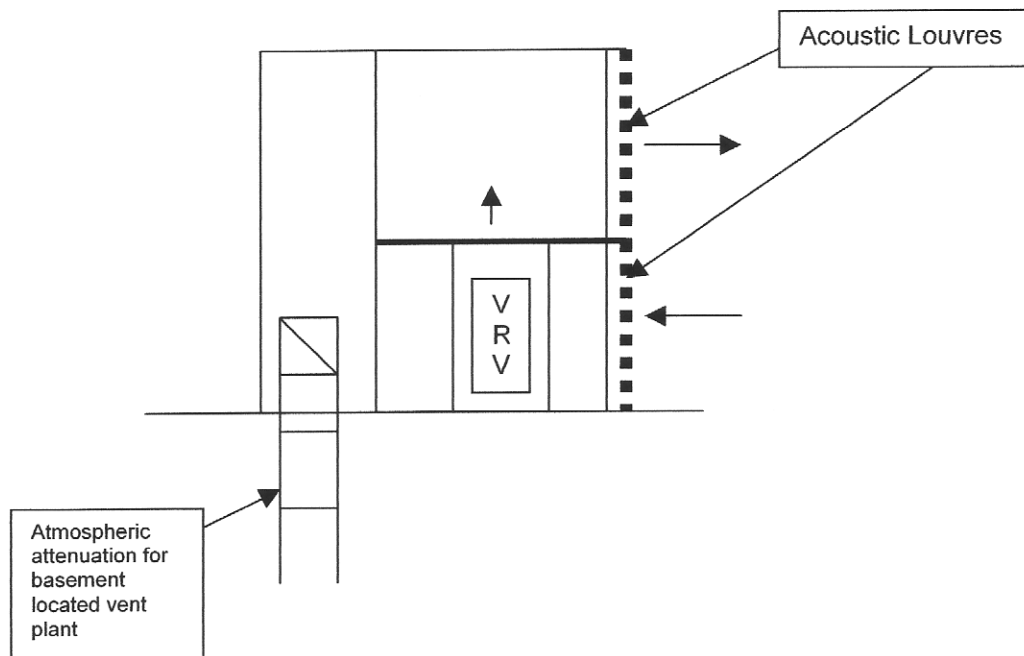
Single bank acoustic louvres are recommended for the air inlet and discharge of the VRV unit. These could be built into access doors to the plant chamber if required. A sketch of possible plant layout is shown is appended to the report.

10. REFERENCES

- 1) BS 4142 ' Rating of industrial noise affecting mixed residential and industrial areas'

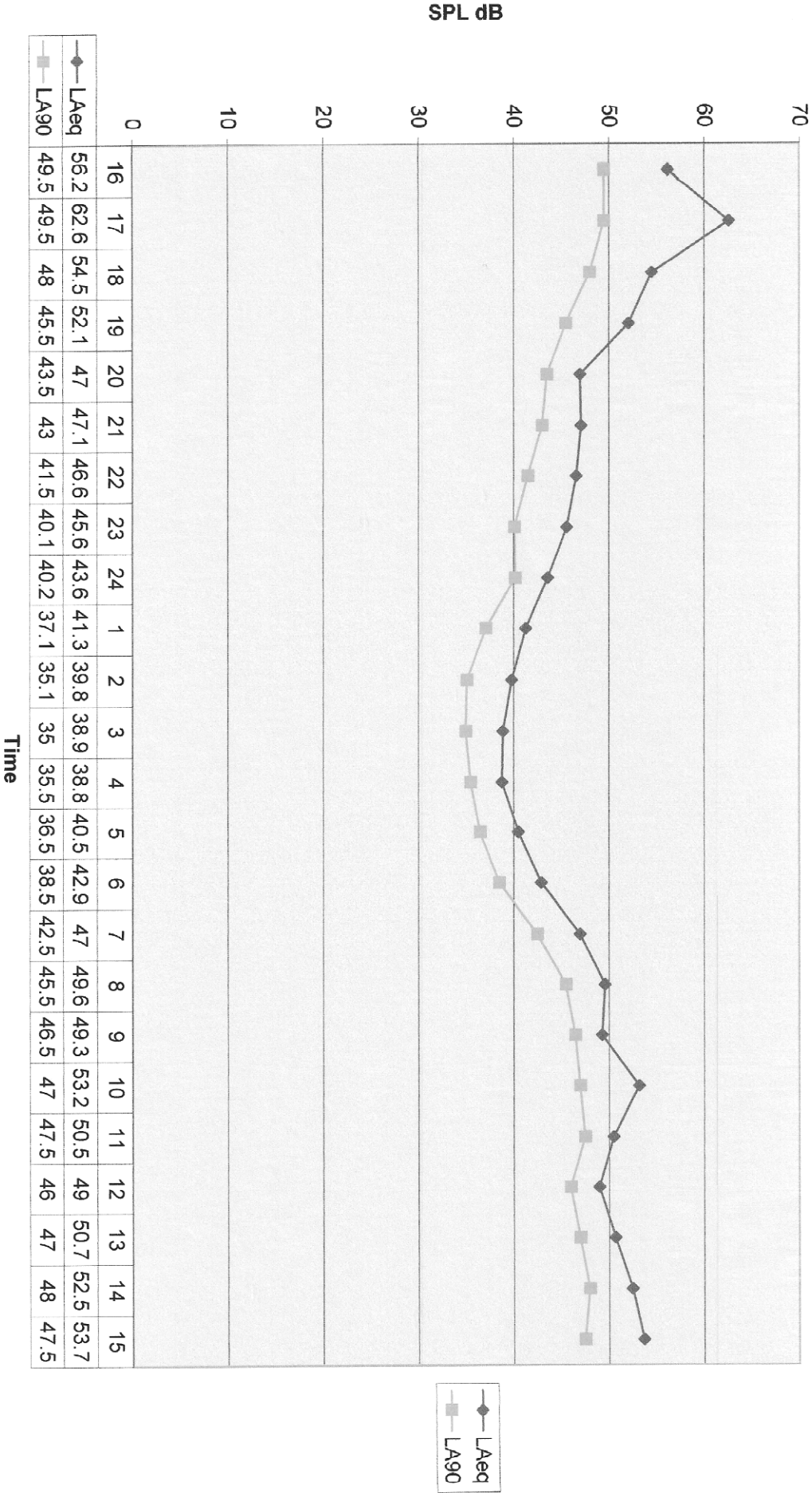
Sketch 1

Possible plant layout



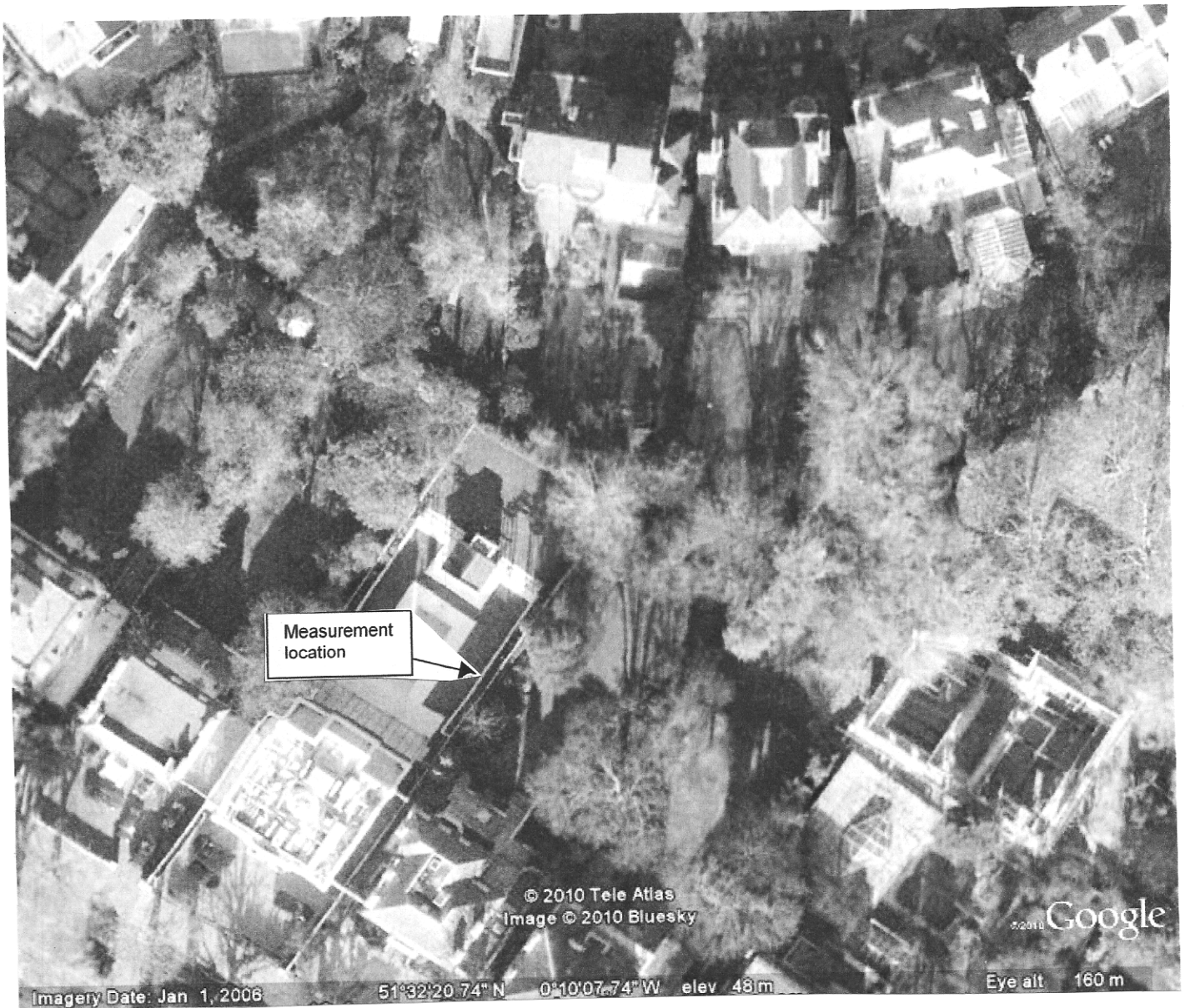
Notes:
Acoustic louvre could be formed as an access door to the VRV plant.
Acoustic louvre should be sized for a face velocity no greater than 2m/s.
Consult VRV manufacturer for permissible pressure losses.

46 Avenue Road NW8. Noise level in rear garden



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Site plan showing location of measurement