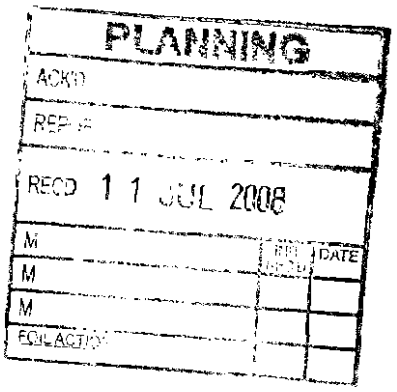
Mark Andrews Developments
The Landmark
21 Back Turner Street
Manchester

Noise assessment at Walrus High Street Manchester



AB acoustics
Unit 8
Laurel Trading Estate
Higginshaw Lane
Royton
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30 June 2008.

Introduction

AB acoustics were commissioned by The Walrus bar located in High Street Manchester to undertake an acoustic assessment of the existing noise level externally to the bar .

The reason for the assessment being an acoustic report was required to accompany a Planning Application for a 'Tables And Chairs' licence for the above bar.

It is understood that a number (for 24 people) of external tables and chairs are proposed to be located outside on High Street and an acoustic assessment of the existing noise levels in the area together with a prediction of the likely effect of conversation etc. from people using the tables / chairs is required to accompany the Planning Application.

The Walrus bar is located on High Street Manchester in an area that has a number of existing bars (some with external tables / chairs) and a number of 'fast food' outlets.

High Street is a busy road – one way – carrying (at the time of the surveys) cars and a substantial number of buses.

The residential property of concern is located directly opposite The Walrus bar on the first floor of an old development – there are also a number of apartments on Back Turner Street which runs off High Street down one side of The Walrus bar.

Measurements of the existing noise levels were undertaken on two dates (see results) and then the noise level from conversation at the proposed location of the Tables / Chairs was related to the noise level that could be expected at the residential properties from the conversation etc.

The noise level generated by normal conversation and raised voices has been taken from Table 7 (Maximum steady noise levels for reliable speech communication) of BS 8233 : 1999.

These are :

Distance between talker / listener	Normal Voice	Raised Voice
1m	57 dBA	62 dBA
2m	51 dBA	56 dBA
4m	45 dBA	50 dBA
8m	39 dBA	44 dBA

Equipment Used and Measurement Method

The noise levels were measured using a :

Norsonic Type 114 real Time Octave Band Analyser (type 1 instrument)

Calibration was carried out prior to the measurements – and checked afterwards using a ;

Norsonic Acoustic Calibrator.

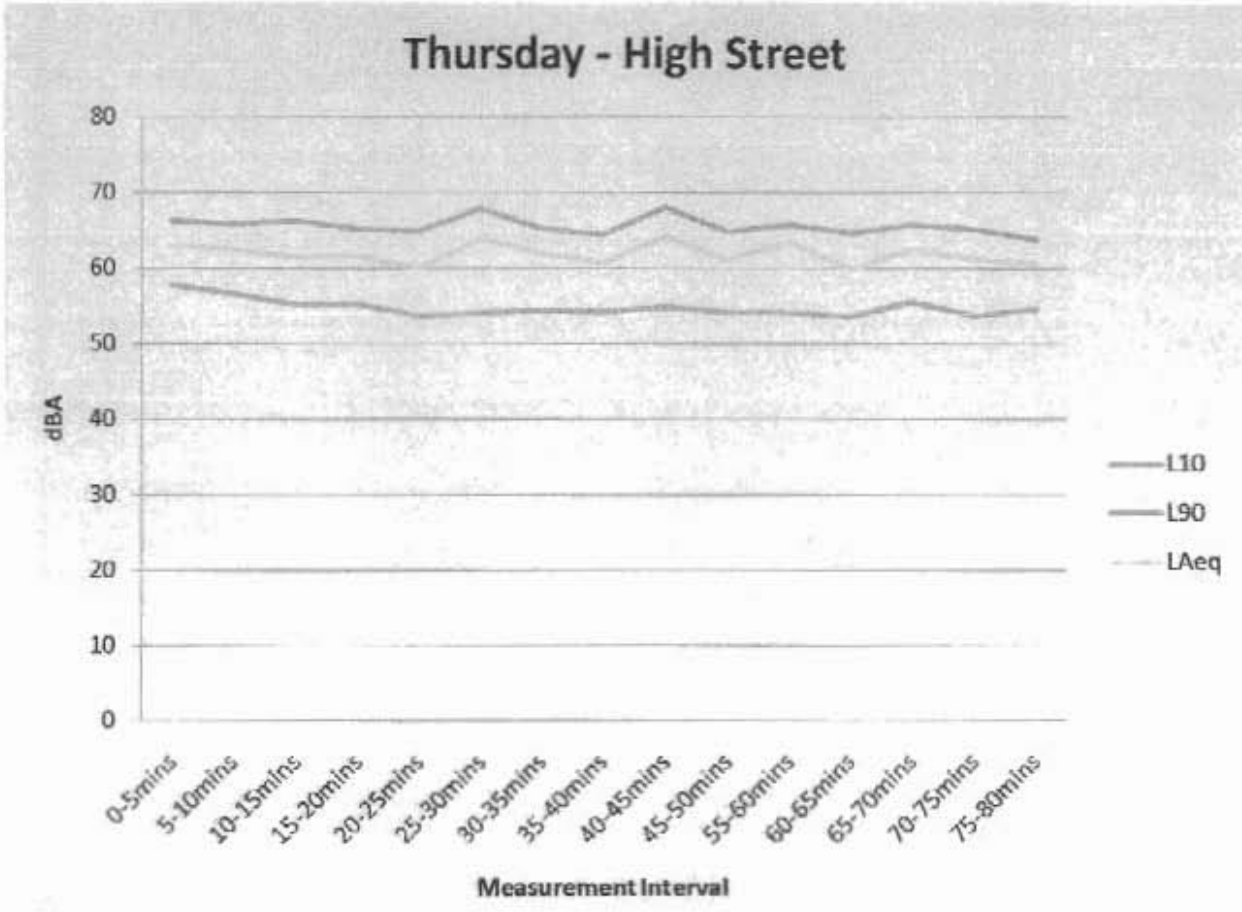
The measurements were carried out at the locations described at a height of 1500mm above the ground and away from reflecting surfaces.

The measurements were undertaken at the times stated in the results.

Results

Below are tabulated the results of the noise measurements undertaken on Thursday 19 June 2008 – the weather was dry (though the road was damp) with a westerly wind of 3.5 – 5.3 m/sec and an air temperature of 13^0 C .

Measurement Time	Noise Level dBA		
	L_{10}	L_{90}	LA_{eq}
19.25 – 19.30	66.3	57.8	63.1
19.30 – 19.35	65.9	56.7	62.6
19.35 – 19.40	66.3	55.2	61.5
19.45 – 19.50	65.3	55.2	61.6
19.50 – 19.55	64.9	53.7	60.1
19.55 – 20.00	67.9	54.0	63.9
20.00 – 20.05	65.3	54.4	62.1
20.05 – 20.10	64.5	54.2	60.8
20.10 – 20.15	68.1	54.9	64.3
20.15 – 20.20	64.8	54.2	61.1
20.20 – 20.25	65.8	54.1	63.5
20.25 – 20.30	64.7	53.6	59.9
20.30 – 20.35	65.8	56.9	62.6
20.35 – 20.40	65.2	55.6	61.2
20.40 – 20.45	63.8	53.7	60.8
Average Level :	**66 (65.6)**	**55 (54.9)**	**62 (61.9)**

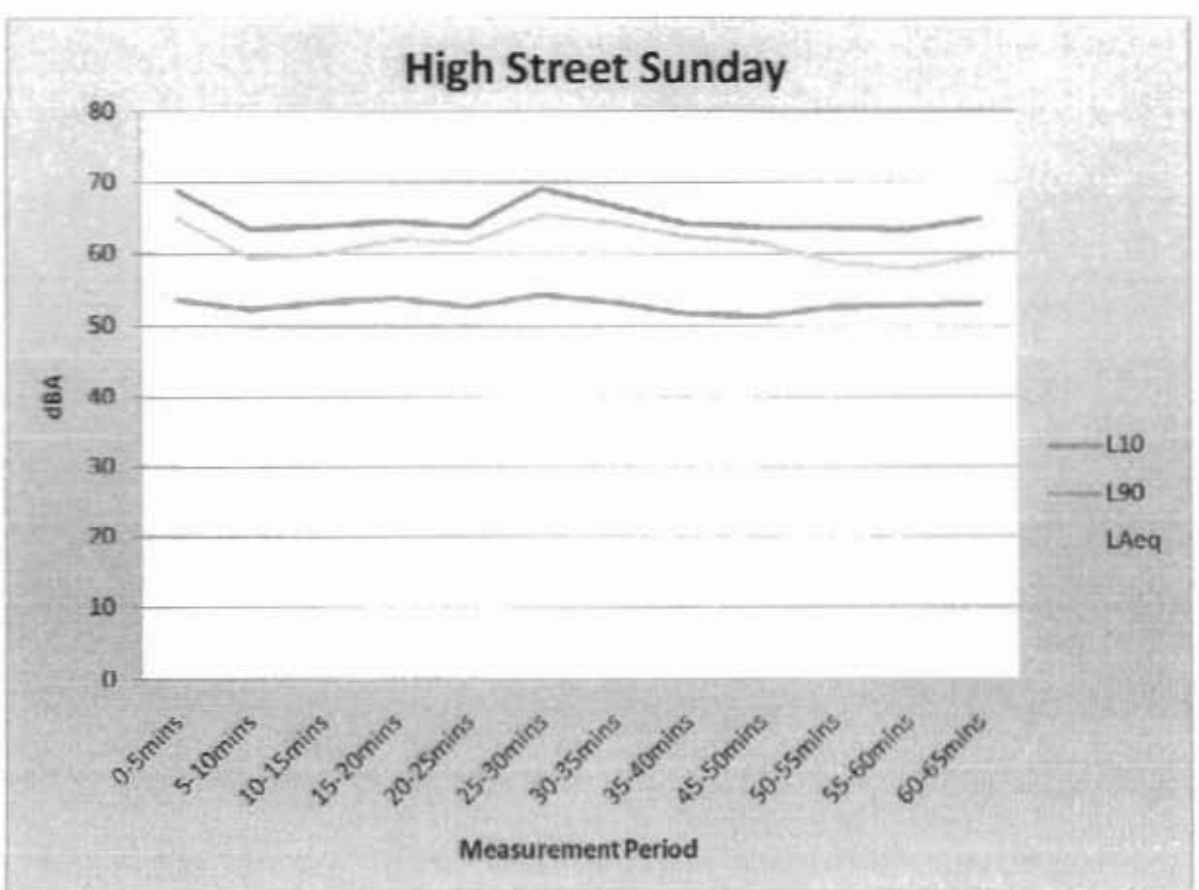


At the time of the above measurements the noise sources were : traffic movement along High Street (both cars and buses) – people walking and talking – tram movements along the nearby Metrolink.

As can be seen from the above graph the LA_{eq} mirrors the L_{10} curve illustrating that the main noise source at the time of the measurements was due to the various traffic movements in the neighbourhood.

Below are tabulated the results of the noise measurements undertaken on Sunday 29 June 2008 – the weather was dry with a westerly wind of 2.4 – 5.7 m/sec and an air temperature of 17^0 C

Measurement Time	Noise Level dBA		
	L_{10}	L_{90}	LA_{eq}
19.10 - 19.15	68.9	53.7	65.1
19.15 – 19.20	63.5	52.3	59.4
19.20 – 19.25	63.9	53.3	60.1
19.25 – 19.30	64.6	53.8	62.1
19.30 – 19.35	63.8	52.7	61.6
19.35 – 19.40	69.1	54.3	65.4
19.45 – 19.50	66.7	53.2	64.3
19.50 – 19.55	64.2	51.7	62.4
19.55 – 20.00	63.8	51.3	61.6
20.05 – 20.10	63.7	52.6	58.9
20.10 – 20.15	63.4	52.8	58.0
20.15 – 20.20	64.9	53.0	59.6
Average Level :	**65 (65.04)**	**53 (52.9)**	**62(61.9)**



Again at the time of the above measurements the noise sources were : traffic movement along High Street (both cars and buses) – people walking and talking – tram movements along the nearby Metrolink.

As can be seen from the above graph the LA_{eq} mirrors the L_{10} curve illustrating that the main noise source at the time of the measurements was due to the various traffic movements in the neighbourhood.

However as would be expected the actual measured L_{90} is slightly lower than that measured on Thursday evening due to a general reduction in activity.

Calculations

The following calculations are based on the distances scaled from Google Earth shown below :



These are summerised below :

	L_{90}	LA_{eq}
Measured Level (19.06.08)	55 dBA	62 dBA
Measured Level (29.06.08)	53 dBA	62 dBA
Calculated Level	@ 11m	@16m
	52 dBA	49 dBA

Conclusion

As can be seen from the above the calculated noise level of 12 people talking at the proposed tables / chairs is calculated to be 52 / 49 dBA.

This is now compared to the measured existing noise level on High Street and as can be seen the calculated level varies between 1 dBA to 3 dBA *BELOW* the measured existing background level for the apartments on Back Turner Street and 4 dBA to 6 dBA *BELOW* the measured existing background for the apartments on High Street.

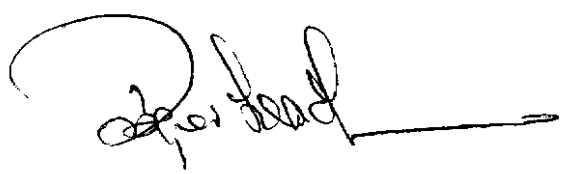
This is an indication that complaints from the residential properties are unlikely regarding the 'noise' of conversation from the proposed tables & chairs.

No correction factor has been added to the calculated noise level of people talking at The Walrus as the talking is an existing noise source even though it is generated by other commercial properties in the vicinity.

Therefore it is recommended that the Planning Application be granted with respect to noise.

Roger Leach AMIOA

Dated : 30 June 2008.



Using the noise levels quoted in BS 8233 for a raised voice of 62 dBA at 1.0m then at the distances (which are horizontal distances and do not account for the slight increase in path length due to the residential property being on the first floor and above) of 16m and 11 m using :

$$L_1 = L_2 - 20 \log R / R_{ref} \, dB$$

Where : L_1 = Level @ distance R

L_2 = Measured level = 62 dBA in this case (ref BS 8233)

R = distance from source in metres – 11 & 16m in this case

R_{ref} = Reference distance = 1.0m in this case

Then $L_1 = 62 - 20$ Log 11 (16) dBA

L_1 = **41** (41.1) and **38** (37.9) **dBA** respectively

However the above levels are for one person talking – this is very unlikely to be the case for the majority of the time that the tables are occupied – if it is assumed that as 24 chairs have been applied for then if these are totally occupied and that 12 people are talking at any one time then the noise level due to the conversations will be increased – this can be calculated using :

$$L_A = L_B + 10 \log N \, dBA$$

Where : L_A = Level of conversation at residential property for N people talking – in this case 12 people

L_B = Level of conversation at residential property of one person talking – in this case either 41 or 38 dBA

N = number of people talking = 12

Therefore $L_A = 41 (38) + 10 \log 12$

$L_A = 52 (49)$

These levels are now compared to the measured levels recorded on Thursday 19 June 2008 and Sunday 29 June 2008..