ADUR DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT, 1990

APPLICATION FOR PLANNING PERMISSION

4 copies of this form required, together with plans and appropriate fee.
All measurements are to be given in metric.
If site relates to Lancing or Sompting, please submit 5 copies.

FOR OFFICIAL USE ONLY
Appl. No. ADC/0497/07
Date Received 08 JAN 2008
Fee 265
Rem. List

IT IS IMPORTANT THAT YOU READ THE GUIDANCE NOTES AS INCORRECT COMPLETION INVOLVES DELAY

1. Applicant (In BLOCK CAPITALS)

Name TRADITIONAL FURNITURE FRAMES LTD
Address UNIT 6, QUOIN ESTATE, MARLBOROUGH RD, LANCING, W. SUSSEX
Tel. No. [redacted] OR [redacted]

Agent (if any) to whom correspondence should be sent (In BLOCK CAPITALS)

Name MICHAEL DOVE
Address 23 MONTPELIER CRESCENT, BRIGHTON BN1 3JJ
Tel. No. 01273-202104

2. Type of Application (see Note 2)

		State Yes or No
(a)	Full planning permission (including changes of use)	NO
(b)	Outline planning permission	NO →
(c)	Renewal of a temporary permission	NO
(d)	Permission for retention of building or continuance of use without complying with a condition imposed on a planning permission	YES
(e)	Permission to develop land without complying with a condition imposed on a planning permission.	NO

If yes, state those matters to which this application relates (tick where appropriate)

(i)	Siting	☐
(ii)	Design	☐
(iii)	External appearance	☐
(iv)	The means of access	☐
(v)	Landscaping of the site	☐

If yes, state the date and number of the permission and outline the particular condition

Date N/K
Application No. L/176/98/TP/OA
Condition No. CONDITION 15

3. (a) Full address or location of the land to which this application relates

UNIT 6, QUOIN ESTATE, LANCING BUSINESS PARK, MARLBOROUGH RD, LANCING

(b) State whether applicant owns or controls any adjoining land — State Yes or No: NO — If yes, this land must be edged blue on the location plan

(c) Area of site — hectares/sq. metres

Dimensions of the application site and distances from the new buildings to boundaries must be clearly indicated on plans

(d) Description of proposed development (If residential development, state no. of units proposed and type if known e.g. houses, bungalows, flats)

CHANGE OF USE FROM B.1. TO B2 LIGHT INDUSTRIAL

(e) State whether the proposal involves:-

		State Yes or No
(i)	New building(s) or structure(s)	NO
(ii)	Alteration or extension of building(s)	YES
(iii)	Construction of a new) vehicular access to a highway) pedestrian	NO / NO
(iv)	Alteration of an existing) vehicular access to a highway) pedestrian	NO / NO
(v)	Closure of existing access	NO
(vi)	Change of use only	NO

4. Particulars of Use of Buildings or Land: state (a) Present use
(b) If vacant, the last use

5. **Additional information**

		State Yes or No		State Yes or No
(a)	Is the application for industrial, office warehousing, storage, shopping, commercial purposes or places of public assembly? (See note 5)	YES	If yes, complete part 2 of form C.P. 1	
(b)	Is the application for the winning or working of minerals?	NO	If yes, complete part 4 of form C.P. 1	
(c)	Is the application for an agricutural dwelling or building?	NO	If yes, complete part 6 of form C.P. 1	
(d)	Does the proposed development involve the demolition of any residential units?	NO	If yes, how many units? Please indicate their position on plans	
(e)	Does the proposed development involve the felling of any trees?	NO	If yes, indicate their position on plans	
(f)	Does the proposed development involve any public right of way within the site?	NO	If yes, indicate the position on plan	
(g)	Does the proposed development involve demolition or alteration of a building or Special Architectural or Historic interest or demolition within a Conservation Area?	NO	If YES a separate application for **Listed Building Consent or Conservation Area Consent** may be necessary.	

(h) (i) How will surface water be disposed of? (i)
(ii) How will foul sewage be disposed of? (ii) } EXISTING FACILITIES.
(e.g. mains, cesspit, etc.)

6. Plans (See Note 6). List of drawings and plans submitted as part of the application - indicate drawing numbers and scales.
4 sets of all drawings are required. Additional copies in respect of major applications will assist in determination of such applications. All measurements are to be given in metric (89/617 EEC Directive)
1. ORDINANCE SURVEY EXTRACT SCALE 1 : 1250

7. Fees (See Note 7)
If a fee is submitted please give the amount £

8. I/WE APPLY FOR PLANNING PERMISSION AS DETAILED ABOVE.
DATE 4th August 2007 SIGNED [redacted] (DIRECTOR)
on behalf of pp Traditional Furniture Trained
(insert applicant's name if signed by an agent)

9. Certificate under Section 65 of the Town and Country Planning Act. 1990 (Article 7 of the T & CP (General Development Procedure) Order 1995
N.B. A signed certificate MUST accompany this application (See Note 9).
If the applicant is the sole owner (a) the following certificate should be completed and signed.

CERTIFICATE A

1. **Certificate A(a)**
I certify that

(a) Owner means a person having a freehold interest or tenancy the unexpired term of which was not less than 7 years

on the day 21 days before the date of the accompanying application nobody, except the applicant, was the owner (a) of any part of the land to which the application relates.

*2. None of the land to which the application relates is or is part of an agricultural holding.

OR

*3. *I have / The applicant has ——— given requisite notice to every person other than *myself / himself/herself ——— who, on the day 21 days before the date of the application was a tenant of an agricultural holding on all or part of the land to which the application relates, as follows

Name of Tenant	Address at which Notice was served	Date on which Notice was served

*Delete where inappropriate

Signed . . . . . .

On behalf of . . . . . .

Date . . . . . .

WEST SUSSEX

ADUR DISTRICT COUNCIL

Application No. ADC/0497/07

(For official use only)

PLANNING APPLICATION FORM PART 2

Additional information required in respect of Applications for Industrial, Office, Warehousing, Storage, Shopping, Rest and Nursing Homes, Commercial Purposes or Places of Public Assembly.

4 copies of this form should be submitted

N.B. Please use GROSS figures only (external measurement). All measurements are to be given in metric (89/617 EEC Directive)

1.	In the case of industrial development, give a description of the processes to be carried on and of the end products, and the type of plant or machinery to be installed. Please relate your answer to question 5 below.	MANUFACTURE OF WOODEN FRAMES FOR SOFAS & ARMCHAIRS. BASIC WOODWORKING MACHINERY I.E. SAWS, PLANERS, THICKNESSER, PLUS DUST EXTRACTION.
2.	Name and address of proposed occupier and type of business	TRADITIONAL FURNITURE FRAMES LTD PRESENT TRADING ADDRESS IS UNIT 6, QUOIN ESTATE, MARLBOROUGH RD LANCING, BN 15 8AD.
3.	Is the proposal related to an existing use on or near the site? If so, please explain the relationship.	State Yes or No YES. WE ARE CURRENTLY TRADING FROM THE PREMISES THAT ARE THE SUBJECT OF THE PLANNING APPLICATION.
4.	Is this a proposal to replace existing premises in this area or elsewhere which have become obsolete, inadequate or otherwise unsatisfactory? If so, please give details including gross floor area of such premises and state your intentions in respect of those premises.	State Yes or No NO

5. Details of floor areas and uses

	Existing Floor Space or use(if any)	Proposed New Floor Space or use	Total Floor Space (allow for any space lost)
(a) What is the amount of industrial floor space?	(a) APPROX 185 m^2	N/A m^2	185 m^2
(b) What is the amount of office floor space?	(b) 20 m^2	N/A m^2	20 m^2
(c) What is the amount of retail floor space?	(c) NONE m^2	NONE m^2	NONE m^2
(d) What is the amount of storage or warehousing floor space?	(d) NONE m^2	NONE m^2	NONE m^2
(e) Other uses(please specify).....	(e) NONE m^2	NONE m^2	NONE m^2
.....	..... m^2	..... m^2	..... m^2
TOTALS			

6. Staff

	Office Male	Office Female	Industrial Male	Industrial Female	Other Staff Male	Other Staff Female
(a) Number of staff in existing premises on the site	NONE		4		NONE	
(b) How many new staff will be employed on the site as a result of the development?	NONE		NONE		NONE	
(c) If you propose to transfer staff from other premises, please give details of the numbers involved and of the premises affected.	N/A		N/A		N/A	

P.T.O.

C.P.1(Pt.2)

7.	In the case of restaurants, hotels, public houses, theatres, cinemas, meeting halls, Rest and Nursing Homes, etc. please specify (a) public floor space (Total) (b) seating capacity (c) bar floor area (d) bedrooms as appropriate	(a)..... sq.m. (b)..... N/A (c)..... sq.m. (d)..... single double
8.	What provisions have been made for parking, loading and unloading of vehicles within the curtilage on the site? (Please show location of such provision on the plans and distinguish between parking for operational needs and other purposes) State number of spaces	THERE IS AN EXISTING CAR PARK (7 SPACES IN TOTAL car..... lorry.....
9.	What is the estimated vehicular traffic flow to the site during a normal working day? (Please include all vehicles but separately specify those used by employees driving to work)	1 TIMBER LORRY PER WEEK (MAXIMA 3 OR 4 COLLECTIONS PER WEEK BY OUR CUSTOMERS. 3 OR 4 MISCELLANEOUS VISITORS 1 EMPLOYEE CAR (4 DAYS PER WEE
10.	What is the nature, volume and proposed means of disposal of any trade effluents or trade refuse?	NO EFFLUENTS. TRADE REFUSE COLLECTED BY ADUR COUNCIL SOME WASTE WOOD COLLECTED BY WOOD RECYCLING OF BRIGHTON.
	HAZARDOUS MATERIALS	State Yes or No
11.	Will the proposed use involve the use or storage of any hazardous substances?	NO — If 'YES' please indicate

ADC/0497/07

ADUR DISTRICT COUNCIL

NOTICE NO. 1

Town and Country Planning (General Development Procedure) Order 1995

NOTICE UNDER ARTICLE 6 OF APPLICATION FOR PLANNING PERMISSION

(to be published in a newspaper or to be served on an owner or a tenant**)*

Proposed development at *(a)* UNIT 6, QUOIN ESTATE, MARLBOROUGH RD, LANCING

I give notice that *(b)* TRADITIONAL FURNITURE FRAMES LTD

is applying to the ADUR DISTRICT COUNCIL

for planning permission to *(c)* CHANGE OF USE FROM B1 TO B2

Anyone owner* of the land or tenant** who wishes to make representations about this application should write to the Council at Development Services Dept. Civic Centre, Ham Road, Shoreham-by-Sea, West Sussex. BN43 6PR

by *(d)*.....

* "owner" means a person having a freehold interest or a leasehold interest the unexpired term of which is not less than 7 years, or, in the case of development consisting of the winning or working of minerals, a person entitled to an interest in a mineral in the land (other than oil, gas, coal, gold or silver).

** "tenant" means a tenant of an agricultural holding any part of which is comprised in the land.

Sign[redacted]....

†On behalf of TRADITIONAL FURN. FRAMES LTD

Date 9.8.07

Statement of owners' rights

The grant of planning permission does not affect owners' rights to retain or dispose of their property, unless there is some provision to the contrary in an agreement or in a lease.

Statement of agricultural tenants' rights

The grant of planning permission for non-agricultural development may affect agricultural tenants' security of tenure.

†delete where inappropriate

Insert:

(a) address or location of the proposed development

(b) applicant's name

(c) description of the proposed development

(d) date giving a period of 21 days beginning with the date of service, or 14 days beginning with the date of publication, of the notice (as the case maybe).

ADUR DISTRICT COUNCIL

AD/0497/07

Town and Country Planning (General Development Procedure) Order 1995

CERTIFICATE UNDER ARTICLE 7

Certificate B *(a)*
I certify that:

• I have/The applicant has/~~The appellant has~~* given the requisite notice to everyone else who, on the day 21 days before the date of the accompanying application/~~appeal~~*, was the owner*(b)* of any part of the land to which the application/~~appeal~~* relates, as listed below.

Owner's*(b)* name	Address at which notice was served	Date on which notice was served
MR DON SCOTT MRS SCOTT	"SEVILLE" WINSTONE ROAD, LANCING W. SUSSEX BN15 8SL	7.8.07

• None of the land to which the application/~~appeal~~ relates is, or is part of, an agricultural holding.

OR

• I have/The applicant has/~~The appellant has~~ given the requisite notice to every person other than my/him/her* self who, on the day 21 days before the date of the application/appeal*, was a tenant of an agricultural holding on all or part of the land to which the application/appeal* relates, as follows:

Tenant's name	Address at which notice was served	Date on which notice was served

Signed [redacted]

* On behalf of TRADITIONAL FURNITURE FRAMES LTD.

Date 7/8/07

*delete where inappropriate

(a) This Certificate is for use with applications and appeals for planning permission (articles 7 and 9(1) of the Order). One of Certificates A, B, C or D (or the appropriate certificate in the case of certain minerals applications) must be completed, together with the Agricultural Holdings Certificate.

(b) "owner" means a person having a freehold interest or a leasehold interest the unexpired term of which is not less than 7 years, or, in the case of development consisting of the winning and working of minerals, a person entitled to an interest in a mineral in the land (other than oil, gas, coal, gold or silver).

ADUR
DISTRICT COUNCIL

CHIEF EXECUTIVES DEPARTMENT

P. DAVIES
Head of Planning and Community

Civic Centre, Ham Road, Shoreham-by-Sea
West Sussex. BN43 6PR
Telephone, (01273) 263000
Fax No. (01273) 263027
E Mail - developmentcontrol@adur.gov.uk

Local Authority
BUILDING CONTROL



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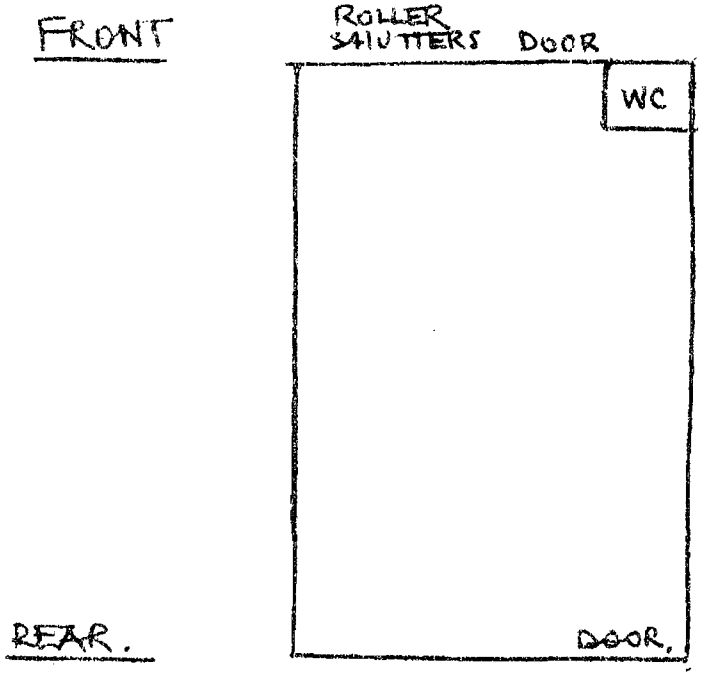
SCALE DRAWING : 1/200

UNIT 6, QUOIN ESTATE, MARLBOROUGH ROAD, LANCING. W. SUSSEX

BLOCK PLAN/FLOOR PLAN



ADUR DISTRICT COUNCIL
PLANNING DIVISION
PLAN No. AD/04/0767
DATE RECEIVED 08 JAN 2008

PLEASE NOTE : THERE ARE NO PROPOSED WORKS - THIS IS A PLANNING APPLICATION FOR CHANGE OF USE.

THERE IS NO DIFFERENCE BETWEEN THE BLOCK PLAN AND LAYOUT (FLOOR) PLAN ; THERE IS NO FLOOR PLAN - IT IS OPEN SPACE.

Traditional Furniture Frames Ltd

Unit 6, The Quoin Estate

Factory Noise Impact Assessment

Draft Report

October 2007

Application
08 JAN 2008

Project	Unit 6, The Quoin Estate . Factory Noise Impact Assessment
Client	Traditional Furniture Frames Ltd Unit 6, The Quoin Estate Marlborough Road Lancing Business Park Lancing West Sussex BN15 8AD
Date	15th October 2007
Version	Draft Report
Project No	1059
Report By	Anderson Acoustics Limited 52 Chester Terrace Brighton East Sussex BN1 6GB

Author	Authorised	Date	Version
Andrew Knowles BEng(Hons) MIOA Director		15th October 2007	Draft Report

This document has been prepared using all reasonable skill and care. Anderson Acoustics Ltd accepts no responsibility or liability for any third party data presented in this report, or used for the basis of drawing any conclusions. This document is confidential to the named client above and Anderson Acoustics Ltd accepts no responsibility or liability resulting from third party use of this document or for a purpose other than for which it was commissioned.

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1. INTRODUCTION

Anderson Acoustics Ltd was commissioned by Traditional Furniture Frames Ltd in August 2007 to undertake an assessment of the noise impact arising from their operations at Unit 6, The Quoin Estate, Lancing.

The assessment is required for 2 purposes. The first, in response to complaints from local residents, is to assess the noise impact of operations on local residents and where possible identify options to reduce noise levels emanating from the Unit. The second is to assess the suitability of Timber Furniture Frames business to this property with respect to a potential planning application for change of use from B1 to B2 Industrial following the company's move to these premises.

This report therefore presents an assessment of the noise from the current operation and its impact on nearby residential properties in accordance with relevant British Standards and World Health Organisation guidelines.

2. NOISE UNITS AND CRITERIA

2.1 Noise Units

There is a million to one ratio between the lowest to the highest tolerable sound pressure. Noise is therefore measured using a logarithmic scale, to account for this wide range, called the decibel (dB). Noise is defined as unwanted sound and the range of audible sound varies from around 0 db to 140 dB.

The human ear is capable of detecting sound over a range of frequencies from around 20 Hz to 20 kHz, however its response varies depending on the frequency and is most sensitive to sounds in the mid frequency range of 1 kHz to 5 kHz. Instrumentation used to measure noise is therefore weighted across the frequency bands to represent the sensitivity of the ear. This is called 'A weighting' and is represented as dB(A).

It is generally accepted that under laboratory conditions humans are capable of detecting changes in steady noise level of 3 dB, whilst a change of 10 dB is perceived as a doubling or halving of the noise level. An indication of the range of noise levels commonly found in the environment is given below.

Table 2.1: Typical Noise Levels

Typical Noise Level dB(A)	Example
0	Threshold of hearing
30	Rural area at night
40	Residential area at night
60	Conversation
80	Inside general factory premises
100	Near to pneumatic hammer
120	Near to speaker at rock concert
140	Threshold of pain

A number of different indices are used to describe the fluctuations in noise level over certain time periods. The main indices include:

$L_{A90,T}$ This is the noise level exceeded for 90% of the measurement period and provides a measurement of the quieter 'lull' periods in between noise events. It is often referred to as the background noise level.

$L_{Aeq,T}$ This is the equivalent continuous A weighted sound pressure level and is the level of a notional steady sound which has the same acoustic energy as the fluctuating sound over a specified time period. It is often used for measuring all sources of noise in the environment, which can be referred to as the ambient noise.

$L_{Amax,F}$ This is the maximum sound pressure level measured in a given time period with the sound level meter set to 'fast' response.

Reference is often made to acoustic measurements being undertaken in 'free-field' or 'façade' locations. Free-field measurements represent a location away from reflecting surfaces, normally by at least 3.5 metres. A façade measurement is undertaken, or calculated to, a position 1 metre from an external façade and a correction of up to 3 dB(A) can be applied to account for the sound reflected from the façade. This latter position is often used when assessing the impact of external noise affecting residents inside properties.

2.2 Noise Criteria

2.2.1 British Standard 4142

Guidance on the rating of noise from fixed installations and sources of an industrial nature is provided in British Standard BS 4142: 1997 'Method for rating industrial noise affecting mixed residential and industrial areas' [1]. This standard provides a procedure for the measurement and rating of noise levels outside dwellings in mixed residential and industrial areas. A methodology for predicting the likelihood of complaints is also provided in this document although the assessment of nuisance explicitly falls outside the scope of this British Standard.

The rating level, $L_{Ar,T}$, is defined in BS 4142 and is used to rate the industrial source (known as the specific noise source) outside residential dwellings. This level is obtained by adding a 5 dB correction for tonal, impulsive or other irregular characteristics to the equivalent continuous A weighted level of the specific noise source. Reference time intervals, T, of 1 hour and 5 minutes are specified for the determination of rating levels during the day and night, respectively.

The method for predicting the likelihood of complaints is based on differences between the rating level and the background $L_{A90,T}$ noise level. The Standard states that:

"A difference of around +10 dB or more indicates that complaints are likely; a difference of around 5 dB is of marginal significance; if the rating level is more than 10 dB below the measured background noise level then this is a positive indication that complaints are unlikely."

It should be noted that this method is not suitable for assessing the likelihood of complaints where the background and rating noise levels are both very low, i.e. where the background noise levels and rating levels are below about 30 dB and 35 dB respectively

2.2.2 British Standard 8233

The following absolute values for good and reasonable indoor noise levels are specified in British Standard BS 8233: 1999: Sound insulation and noise reduction for buildings – Code of practice [2].

Table 2.2: British Standard 8233 Indoor Noise Levels

Room	Good	Reasonable
Living Room	30 dB $L_{Aeq,T}$	40 dB $L_{Aeq,T}$
Bedroom	30 dB $L_{Aeq,T}$	35 dB $L_{Aeq,T}$ & 45 dB $L_{Amax,F}$

2.2.3 World Health Organization

The following guideline values for community noise in specific environments are presented in the World Health Organization (WHO) document [3].

Table 2.3: WHO Guideline Noise Values

Specific Environment	Critical Health Effect(s)	dB $L_{Aeq,T}$	Time Base hours	dB $L_{Amax,F}$
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45

3. SITE DESCRIPTION

Traditional Furniture Frames Ltd occupies Unit 6 of the Quoin Estate, Lancing, West Sussex following a move from alternative premises in late 2006. The Quoin Estate is part of Lancing Business Park which is home to a wide range of businesses from high-tech electronics and furniture manufacturing to heavy steel fabrication.

Unit 6 is at the southern end of a terrace of units, the other units are used primarily by businesses for storage and warehouse type purposes and there is also a glazing company. There are regular deliveries and fork lift truck movements outside the terrace of units.

The units are of a portal frame construction with plastic coated, lined and insulated steel profile cladding. Unit 6 is approximately 16 m deep, 11 m wide and 8 m high into the eaves of the pitched roof with a height of 6 m at the front and rear of the property. The unit is lined internally with blockwork to a height of approximately 2 m around the southern, rear and northern sides. The front of the unit is fitted with a sectional up and over loading door and separate pedestrian entrance both of which are closed during operation to reduce noise emissions. There is a mezzanine level, fully enclosed office along the front half of the southern internal wall.

The entire 16 m length of the southern facade is immediately adjacent to the residential property at 13 Bessborough Terrace and is approximately 1 m from the garden boundary separated only by a side access route.

The site location is shown in Figure A1 of Appendix A.

The unit is used by Traditional Furniture Frames Ltd as a timber workshop comprising a range of machine and hand tools (including those summarised in Table 3.1 below) to form furniture frames. Up to 4 people work at any one time.

Table 3.1: Workshop Machinery

Description	No of Items
Cross-Saw	2
Thicknesser	1
Wood Chip Extractor	1
Planer	1
Spindle	1
Belt Sander	1
Pad Sander	1
Band-saw	2
Fine Dust Extractor	1
Wood Borer	1
Handsaw	1

The fine dust extractor is located in the rear, right hand corner of the unit and is used when either the belt or pad sanders are in operation which are both along the rear of the unit. The wood chip extractor is located along the northern wall and is used when the planer, thicknesser or cross-saw, which are located around the centre of the unit, are being used. Subjectively the fine dust extractor generates higher noise levels than the wood chip extractor.

Planning permission currently exists for B1 Industrial use however Traditional Furniture Frames Ltd are considering an application to convert to B2 use.

In response to local concerns operating hours are restricted to 08:00 to 17:00 hrs during weekdays and 08:00 to 13:00 hrs on Saturdays.

Subjectively the external ambient $L_{Aeq,T}$ noise levels are governed by the operation of machinery in Unit 6 and when operating these machines contribute to the background $L_{A90,T}$ noise levels. When there are no workshop operations local traffic, other operations on the industrial estate and occasional overflight of aircraft for Shoreham Airport are the main contributors to the ambient noise environment. The background noise levels are relatively low when the wood work shop is not operating considering the proximity of the residential property to an industrial estate.

4. NOISE MEASUREMENTS

Continuous unattended monitoring was conducted to obtain data on daily variations in the background $L_{A90,T}$ noise levels over a period that included days when the workshop was shutdown. An attended noise survey was also conducted to obtain external ambient and source noise levels whilst machinery was being operated under various conditions. Unattended noise measurements were conducted over an 8 day period between 29th August and 5th September 2007 and attended measurements on 5th September 2007.

The noise measurements and a summary of the survey results are presented below.

4.1 Continuous Noise Monitoring

Continuous monitoring of ambient noise levels was undertaken in the rear garden of 13 Bessborough Terrace, Lancing. The microphone was positioned 1.5 m above local ground level under free field conditions. The location of the microphone is presented in Figure A1.

Noise levels were measured using a Rion NL-31 precision integrating sound level meter fitted with a weatherproof windshield. The sound level meter was powered by dry cell batteries and stored inside a weatherproof security box.

Measurements were obtained using the 'F' time weighting and A-weighting frequency network. The equipment was calibrated before and after the survey using a Norsonic 1251 sound calibrator to generate a calibration level of 113.8 dB at 1 kHz. No calibration drifts were observed.

Fifteen minute consecutive measurements of $L_{Amax,F}$, $L_{Aeq,T}$, $L_{A10,T}$, $L_{A90,T}$ and $L_{Amin,F}$ noise levels were obtained between 11:00 hrs on 29th August 2007 and 12:00 hrs on 5th September 2007. The results of the survey are presented graphically on Figure A2 of Appendix A, and are tabulated in Table B1 of Appendix B.

4.2 Workshop Operation Noise Survey

On 5th September 2007 noise measurements were undertaken to establish typical noise levels in the garden resulting from operations in the workshop. External ambient and background noise level measurements were taken along with internal noise levels from the operation of specific individual machines inside the workshop.

These measurements were taken on 5th September 2007 between 09:30 and 12:00 hours.

All noise levels were measured using a tripod mounted Norsonic 118 sound level meter fitted with a windshield with the microphone positioned 1.5 m above ground level.

All measurements were obtained in third octave frequency bands using the 'F' time weighting. The equipment was calibrated before and after the survey using a Norsonic 1251 sound calibrator to generate a calibration level of 113.8 dB at 1 kHz. No significant calibration drifts were observed.

4.2.1 Ambient and Background Noise Measurements

Consecutive 5 minute measurements were taken between 09:37 hours and 10:37 hours of ambient and background noise levels during a period of workshop operation and a tea break. The microphone was positioned in the garden under free field conditions. The results of the survey are tabulated in Table B2 and B3 of Appendix B.

4.2.2 Machine Tools Garden Noise Measurements

Three 60 second noise level measurements were taken in the garden under free field conditions with the fine dust extractor, planer, thicknesser, cross-saw and wood-chip extractor in operation. The results of the survey are tabulated in Table B4 of Appendix B.

4.2.3 Machine Tools Internal Noise Measurements

Single 15 second noise level measurements were taken for each machine tool in the unit for reference purposes. Measurements were taken in the middle of the factory under reverberant conditions. The results of these measurements are tabulated in Table B5 of Appendix B.

4.3 Weather Conditions

Weather conditions during the survey period were dry with wind speeds throughout the period generally below 5 ms^{-1}.

It is considered that the weather conditions did not adversely affect the noise measurements.

5. NOISE SURVEY RESULTS

5.1 Continuous Noise Monitoring Results

The results of the continuous noise monitoring survey are presented in graphical form on Figure A2 and are tabulated in Table B1.

Ambient $L_{Aeq,T}$ and background $L_{A90,T}$ noise levels have been calculated for the operating period from the measured data for the period 08:00 to 17:00 hrs weekdays and 08:00 to 13:00 for the Saturday and are summarised below in Table 5.1.

Table 5.1: Summary of Continuous Noise Monitoring Results

Measurement Day	Measured Noise Levels (08:00 to 17:00** hrs)	
	$L_{Aeq,T}$ dB	$L_{A90,T}$ dB
Wednesday	51	44
Thursday	50	43
Friday	51	44
Saturday**	56	43
Sunday	51	43
Monday	48	44
Tuesday	52	46
Wednesday	54	46
Average	**51**	**44**

** noise levels are calculated for the period 08:00 to 13:00 for Saturday.

During the survey period the workshop was not in operation from Wednesday 29th August to Sunday 2nd September, only hand tools were operated on Monday 3rd September and the workshop returned to full operation on Tuesday 4th September 2007. The influence of the operation of the workshop on ambient and background noise levels is shown by the increase in calculated $L_{Aeq,T}$ and $L_{A90,T}$ noise levels observed on Tuesday and Wednesday. An overall average background $L_{A90,T}$ noise level of 44 dB(A) has been calculated.

A representative background noise level for the assessment has been calculated by averaging the measured $L_{A90,T}$ noise levels during the period when the workshop was not operational. This has resulted in a representative background noise level of 43 dB (A).

5.2 Workshop Operation Noise Survey Results

5.2.1 Ambient and background noise levels

Noise levels were measured and subjective observations made in the garden whilst machine tools were being operated and during the morning tea break. The results of the survey are tabulated in Table B2 and B3 of Appendix B and summarised in Table 5.2 below.

Table 5.2 Garden Ambient & Background Noise Level Measurements - Machines Operating

Condition	Duration	Average Measured Noise Level	
		dB $L_{Aeq,T}$	dB $L_{A90,T}$
Machinery operating	5 mins	52	48
Tea Break	5 mins	45	40

Subjectively ambient noise levels increased and were dominated by the noise levels of the machinery in operation (understood to be the thicknesser). The noise measurements taken during the tea break support this observation.

On average, the ambient and background noise levels were circa 7-8 dB (A) lower during the tea break than when the thicknesser was operating. During the tea break, voices and the noise of the radio from within the workshop were audible, though not intelligible.

5.2.2 Garden Noise Measurements – Specific Machinery Operating

The results of the external source noise measurements taken in the garden with the fine dust extractor, planer, thicknesser, cross-saw and wood-chip extractor operating simultaneously are tabulated in Table B4 in Appendix B. This is considered to be a representative operation.

The results show that typical ambient noise levels in the garden resulting from a representative workshop operation are 59 dB (A).

5.2.3 Machine Tools Internal Noise Measurements

The results of the noise level measurements taken inside the workshop are tabulated in Table B5 in Appendix B and summarised below in Table 5.3 below.

Table 5.3 – Internal Machinery Noise Measurements

Machine	Measurement Duration	Noise Level dB $L_{Aeq,T}$
Cross-saw	15 secs	83
Planer	15 secs	85
Thicknesser	15 secs	79
Cross-saw	15 secs	85
Band-saw	15 secs	77
Belt sander	15 secs	69
Belt sander, Fine Dust Extract	15 secs	87
Spindle	15 secs	90
Little band saw	15 secs	75
Borer	15 secs	85
Wood chip extractor	15 secs	76

These results show that internal noise levels from the operation of the machine tools, in particular when tools requiring the use of either extractor, are likely to exceed 80 dB (A). The operation of the tools is intermittent and irregular and many of them display tonal characteristics.

5.3 Noise Survey Results Summary

A representative background noise level of 43 dB $L_{A90,T}$ has been calculated from the results of the continuous noise measurements in the garden during the period when the workshop was not operating.

The continuous and attended noise measurements indicate typical ambient noise levels in the range 51 to 59 dB $L_{Aeq,T}$ in the garden resulting from the operation of machinery in the workshop. Ambient and background noise levels have been found to be governed by machine tool operation within the workshop. It is considered that ambient noise levels could exceed the typical range measured above with alternative combinations of equipment in operation. Subjectively, conversation within the workshop is audible but not intelligible in the garden.

6. WORKSHOP NOISE ASSESSMENT

6.1 British Standard 4142

BS 4142 requires that a correction is applied to the specific noise level if there are any tonal, impulsive or other irregular characteristics likely to attract attention present in the noise source.

Review of the measured noise data for machinery that could operate shows that some of the tools generate noise that is tonal in character. Furthermore, the operation of the machinery is intermittent and has irregular characteristics likely to draw attention. Therefore a character correction is applied.

The BS4142 assessment is summarised in Table 6.1 below.

Table 6.1: BS4142 Noise Level Results

Address	Specific Noise Level dB (A)	Character Correction dB	BS 4142 Rating Noise Level $L_{Ar,T}$ dB
13 Bessborough Terrace	59	5	64

This results in a Rating Noise Level of 64 dB $L_{Ar,T}$ which is 21 dB above the representative background noise level of 43 dB $L_{A90,T}$. This is a positive indication that complaints are likely in accordance with BS 4142.

6.2 British Standard 8233 and World Health Organisation

British Standard 8233 specifies that a 'reasonable' standard of indoor living room noise can be achieved with an internal noise level of 40 dB $L_{Aeq,T}$ and WHO guidelines propose that internal noise levels greater than 35 dB $L_{Aeq,T}$ may give rise to speech intelligibility issues and lead to moderate annoyance.

To correct the external measured noise levels to internal noise level a reduction of 15 dB has been assumed from a partially open window. This level has been taken from guidance given in Planning Policy Guidance PPG 24, 1994 and assumes a worst case that windows are partially open during a hot summer to allow for ventilation.

Applying this reduction to the predicted Rating Noise Level provided in Table 6.1 above results in predicted internal noise levels that exceed the 'reasonable' living room criteria of BS 8233 and those of 'moderate annoyance' from the WHO guidelines. It is therefore concluded that typical noise levels from the workshop operation are likely to give rise to adverse internal noise impacts.

WHO guidelines further propose that noise levels greater than 50 dB $L_{Aeq,T}$ in an outdoor area would give rise to moderate annoyance, with levels above 55 dB $L_{Aeq,T}$ potentially resulting n serious annoyance. Ambient noise levels in the garden have been measured in the range 51 to 59 dB $L_{Aeq,T}$ and therefore it is concluded that noise levels in the garden from the workshop operation could also give rise to adverse noise impact.

9. REFERENCES

1. British Standard BS 4142: 1997. Method for Rating Industrial Noise affecting Mixed Residential and Industrial Areas.
2. British Standards Institution. Sound Insulation and Noise Reduction for Buildings – Code of Practice. BS 8233: 1999.
3. World Health Organization. Guideline for Community Noise. 2000.

APPENDIX A: FIGURES

8. CONCLUSIONS

An assessment has been undertaken to establish the level of noise impact at 13 Bessborough Terrace associated with machine tool operation at Timber Furniture Frames Ltd workshop at Unit 6, The Quoin Estate, Lancing.

Unattended noise level measurements during a 5 day period when the workshop was not operational have indicated a representative background noise level of 43 dB $L_{A90,\ 15min}$ during the operating hours of the workshop in the garden.

Unattended and attended noise level measurements indicate typical noise levels in the garden of 13 Bessborough Terrace from the operation of machine tools in the workshop in the range 51 to 59 dB $L_{Aeq,T}$.

The noise impact of the workshop operation at 13 Bessborough Terrace has been assessed in accordance with BS4142, BS8233 and WHO Guidelines based on measured noise data obtained through unattended and attended noise measurements.

In accordance with BS4142 Rating Noise Levels from the operation of the system are predicted to be 64 dB $L_{Ar,T}$ at 13 Bessborough Terrace. The assessment therefore indicates that operations give rise to noise levels 21 dB above background noise level during the operating times. This is a positive indication that complaints are likely in accordance with BS 4142.

Further, noise levels are calculated to exceed a 'reasonable' internal living room noise criteria in accordance with BS 8233 and are also likely to exceed guideline levels of 35 dB and 50 to 55 dB $L_{Aeq,T}$ for internal and external levels respectively as specified in the WHO document.

Mitigation measures have been considered to reduce external noise levels to acceptable levels. Whilst it may be technically feasible to reduce noise levels through the use of enclosures and/or additional structural treatments to the inside of the building fabric it is considered that these are neither practical nor cost effective.

It has been concluded that noise levels from the operation of machinery at Timber Furniture Frames Ltd workshop cause adverse noise impacts at 13 Bessborough Terrace. Given the nature of the workshop operation, the construction of the premises and the close proximity to residential properties it is not feasible to introduce mitigation measures to reduce noise to acceptable levels.

It is therefore considered that Unit 6 is not suitable for the business of Timber Furniture Frames Ltd.

7. MITIGATION MEASURES

The assessment has indicated that measures to reduce the noise from workshop operations by over 20 dB are required. The following options have been considered.

1) Additional lining options inside the unit;

2) Use of acoustic enclosures; or

3) Relocation

These options are considered in more detail below.

7.1 Additional Lining Options Inside The Unit

It is technically possible that the required mitigation could be achieved with additional internal acoustic lining of all interfaces with outdoors including all external walls, the roof (including the corrugated plastic skylights) and all doors. To achieve a reduction of around 20 dB it is likely that an additional separate block work lining would be required, with an independent ceiling lining and acoustic glazing for the skylights.

However review of the existing construction indicates that it would be highly complex to install such a solution and it would be impractical to prevent acoustic leakage. Further, all doors and windows would need to be kept shut during operating hours.

Additionally the cost of such an installation is likely to be prohibitive for this type of business.

For these reasons of feasibility and cost this option has been discounted.

7.2 Use of Acoustic Enclosures

Installation of acoustic enclosures around the machinery and dust extraction units has been considered. Whilst this is technically possible, and may reduce external noise to an acceptable level, acoustically enclosing all of the machinery either individually or in groups would have a significant adverse affect impact on workshop operations. Further, the cost of doing this is likely to be prohibitive to a business of this type

For these reasons this option has been discounted.

7.3 Relocation

In light of the above discussion, relocation of the business has been considered. The assessment indicates that this unit is unsuitable for this type of business because of the noise levels that are generated by the machinery during normal operations, the construction of the premises and the close proximity to residential properties. The unit does not lend itself to modification and installation of acoustic enclosures is not practical. Therefore, whilst it would be inconvenient for the business to move premises again, it is concluded that relocation of the business is the only practical solution to reduce noise levels in the garden of 13 Bessborough Terrace.

Further it would be prudent to ensure that restrictions on use of the unit are put in place to ensure that another similar business does not occupy this unit in the future.

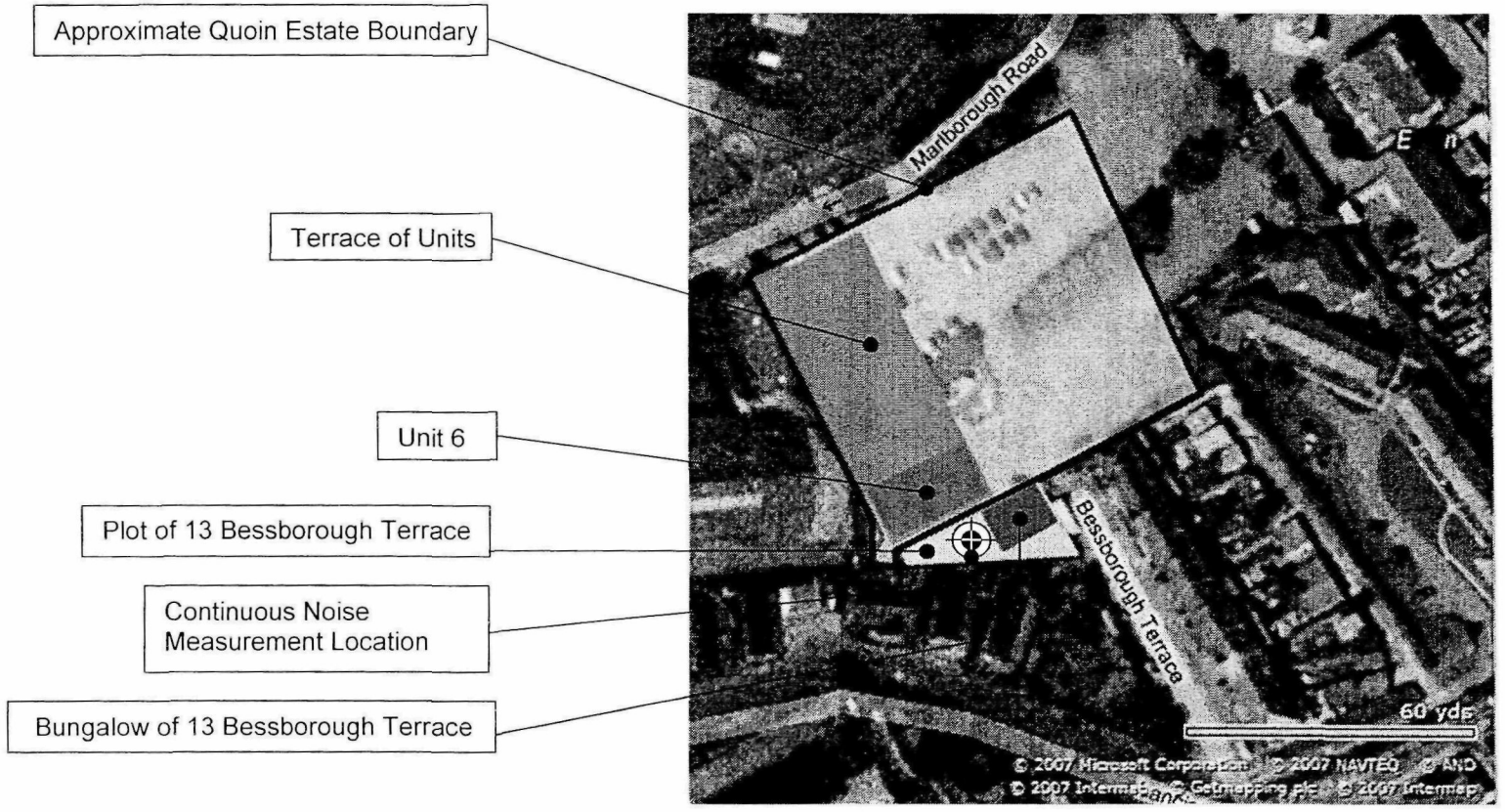

Figure A1: Schematic Site Layout

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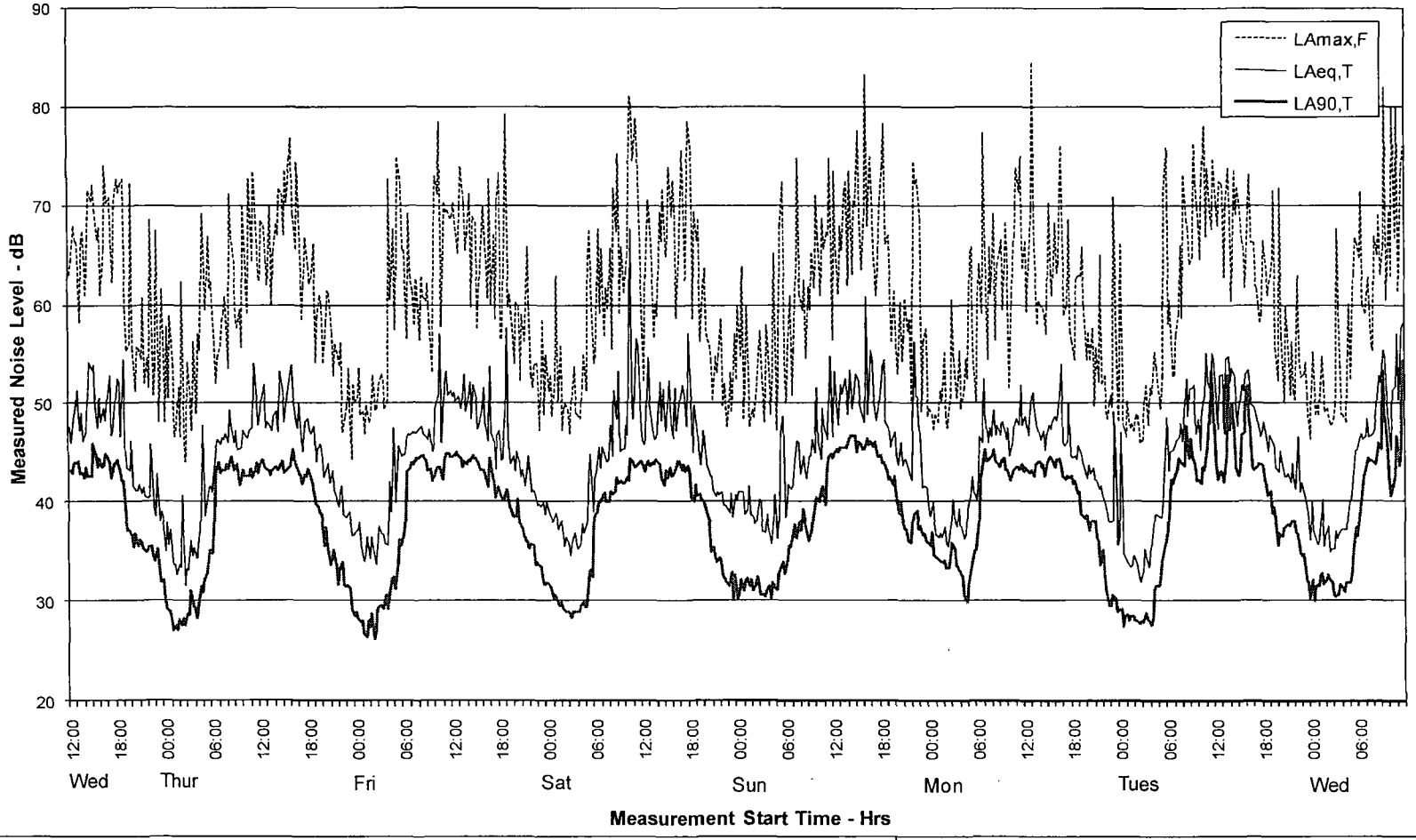

Figure A2: Continuous Noise Monitoring Results 29th Aug to 5th Sep 2007

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APPENDIX B: TABLES

Table B1: *Continuous Noise Monitoring Results*

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Wednesday	11:00	57.3	80.2	60.8	42.8	39.3
29/08/2007	11:15	48.5	73.7	50.7	42	36
	11:30	48.9	68.6	50.5	43.8	39.9
	11:45	46.8	59.8	48.6	43.3	39.5
	12:00	47.7	63.2	50	43.2	40.3
	12:15	46.1	64.6	47.6	42.9	39.1
	12:30	48.6	68.1	50.1	44	40.9
	12:45	49.5	66.5	53.1	44	39.5
	13:00	51.4	66.4	53.6	44.1	39.9
	13:15	47.3	58.3	49.7	42.9	37.6
	13:30	49.1	66.6	49.2	43	37.1
	13:45	46.2	67.5	48.1	42.4	38.8
	14:00	47.1	61.1	49.3	43.6	38.9
	14:15	50	66.9	50	42.7	38.7
	14:30	54.3	71.5	55	42.7	38.3
	14:45	53.5	70.5	57.7	42.6	39.5
	15:00	54	72.2	53.4	45.9	41.9
	15:15	50.4	69.6	50.7	44.7	41.1
	15:30	47.6	66.7	49.9	43.6	39
	15:45	50.6	67.9	53.3	44.4	40.9
	16:00	48.2	61	50.8	43.5	40.5
	16:15	49.6	65.8	50.1	43.7	39.9
	16:30	48.3	74.2	49.7	44.9	41
	16:45	50.3	70.3	52.2	44.5	40.4
	17:00	52.8	71	55.5	44	40.1
	17:15	46.8	65.3	49.1	42.4	38.8
	17:30	47.2	62.4	48.8	43.9	40.5
	17:45	49.2	70.4	49.2	44	41.4
	18:00	52.6	72.7	49.6	44.3	39.4
	18:15	52.3	71.4	53.5	43.1	38.8
	18:30	46.7	72.2	48.2	42.1	38.3
	18:45	54.5	72.8	52.1	42.1	36.1
	19:00	45.2	59.5	47.7	38	33.3
	19:15	43.4	55.5	46.2	37.1	32.9
	19:30	43.1	56	45.7	37.1	32.2
	19:45	46.2	72.3	45.3	36.7	31.9
	20:00	41.7	55.6	44.6	35.5	32.1
	20:15	41.2	51.3	43.7	36.9	34
	20:30	41.2	55.8	43.8	35.7	32.3
	20:45	41.8	55.6	44.4	36.3	33.5
	21:00	40.9	54.5	43.6	36.1	33.1
	21:15	41.5	60.8	43.5	35.5	32.8
	21:30	40.6	52.1	43.2	35.1	33.1
	21:45	40.4	54.7	42.6	35.1	33
	22:00	40.5	51.6	43.2	35.5	33.2
	22:15	45.9	68.6	44.9	35.7	32.7
	22:30	39.4	50.9	42.2	34.6	32.4
	22:45	38.6	53.8	41.3	34.1	32.2
	23:00	42.8	67.6	42.9	35.3	32.2
	23:15	38.1	48.1	41.3	33.6	31.3

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Wednesday	23:30	39	56.9	41.1	32	29.6
29/08/2007 cont'd	23:45	38.6	61.7	41	32.2	29.5
Thursday	00:00	35.1	48.1	38.4	30.2	27.7
30/08/2007	00:15	38	57.9	40.2	29.2	27.3
	00:30	35.7	50.6	39.3	29	26.9
	00:45	37.2	59	39.2	28.2	26
	01:00	33.7	54	37.2	27.2	24.9
	01:15	33.7	46.7	37.7	27.6	25.4
	01:30	32.7	47.2	35.8	27.2	25.1
	01:45	33.7	51.6	37	28.2	25.6
	02:00	33.4	46.6	37.1	27.6	25.8
	02:15	40.7	62.5	40.5	28.4	26.2
	02:30	31.6	44	34	27.6	25.9
	02:45	33.3	45.3	36.3	28.8	26.7
	03:00	33.2	54.2	36	28.6	25.8
	03:15	36.1	50.5	38.7	31.1	28.5
	03:30	34.7	47.3	37.6	29.6	27.6
	03:45	35.4	56.4	38.2	29.3	27.4
	04:00	34.3	49.1	37	28.3	26
	04:15	36.1	57.2	38.3	29.6	27.6
	04:30	37.3	55.5	40.4	31.5	28.5
	04:45	47.8	69.2	44	30.9	27.8
	05:00	38.6	63.7	41.4	32.1	29
	05:15	39.5	59.6	42.8	32.7	29.4
	05:30	41.5	67	43.4	34	30.9
	05:45	41.6	61.8	43.7	35.2	32.4
	06:00	41	62.5	43.6	34.9	31.1
	06:15	44	56.2	47.9	37.7	33.1
	06:30	45.6	52.1	47.6	43.1	41.3
	06:45	46.4	54.7	48.2	44	41.6
	07:00	45.9	55.9	47.7	42.9	39.8
	07:15	46.5	58.5	48.2	43.2	40.8
	07:30	46.3	59.3	48.2	43.3	40
	07:45	46.9	60.9	49	43.9	40.7
	08:00	46.1	53.7	48	43.4	37.4
	08:15	49.4	71.2	50.6	44.6	41.1
	08:30	47.7	67	48.1	44	41.2
	08:45	46	64.6	47.5	43.2	39.8
	09:00	47.3	58.5	49.7	43.8	40.3
	09:15	45.3	57.8	47.2	42.7	40.4
	09:30	45.4	59.5	47.2	41.7	36.9
	09:45	45.6	55.7	47.5	43.2	39.9
	10:00	47.3	70.1	48	42.7	39.3
	10:15	46.7	62.6	48.1	42.6	39.7
	10:30	46.5	59.3	48.3	42.6	38.8
	10:45	47.3	72.7	49.1	43.4	38.5
	11:00	47.6	64.5	50.6	42.4	39.2
	11:15	54.1	73.3	54.1	43.2	40.2
	11:30	52.3	70.9	52.8	44	40.4
	11:45	47.8	62.9	50.1	42.9	39.9

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Thursday	12:00	48.7	62.6	52	43.9	41.8
30/08/2007	12:15	50.5	68.5	51.5	44.3	41.8
	12:30	51.9	68	54.8	43.7	41.2
	12:45	47.5	64.6	49.1	43.4	40
	13:00	48.2	62.2	51.2	43.3	40.7
	13:15	47.7	70	49.4	42.8	39.5
	13:30	47.2	60.2	49.5	43.2	39.4
	13:45	48.8	65.5	50.4	43.5	40
	14:00	49.3	68.2	50.1	43.6	40.4
	14:15	47.1	67.2	49.5	43.2	39.4
	14:30	53.4	71.7	52.9	43.9	40.3
	14:45	51.3	71.2	50.6	44.1	41.1
	15:00	48.1	67.2	50	42.9	39.1
	15:15	49.4	73.6	51.7	43.3	39.5
	15:30	51.2	70.4	53.8	43.6	39.8
	15:45	53.2	74.9	52.4	43.6	39.5
	16:00	53.9	76.9	57.3	45.4	41.7
	16:15	50.6	69.1	49.8	44.3	42
	16:30	48.2	65.8	50	43.8	39.3
	16:45	47.6	74.4	48.4	43	39.2
	17:00	50.1	69.3	52.2	42.7	39.5
	17:15	45.1	58.6	47	41.8	39.8
	17:30	46.3	62.1	47.9	42.8	39.6
	17:45	48.1	66.8	48.3	42.6	38.8
	18:00	48.4	64	49.7	43.4	39.8
	18:15	47.2	62.3	48.6	42.5	39.2
	18:30	46.9	62.7	48.4	41.9	37.8
	18:45	47.7	66.3	47.3	41	32.2
	19:00	44	54.3	46.1	39.9	33.7
	19:15	45.4	58.8	47	39.5	33.2
	19:30	45.9	61.1	48.3	38.9	33.1
	19:45	44.7	60	47.3	38.8	33.7
	20:00	42.5	54.3	45.2	35.7	30.3
	20:15	43.5	58.4	45.9	37.5	30.7
	20:30	43.9	61.6	45.6	35.6	29.2
	20:45	41.9	61.3	45	33.6	29.2
	21:00	43.1	57.2	46.5	34.2	30.3
	21:15	41.2	52.9	44.2	35.2	29.9
	21:30	40.7	56	43.3	33.7	28.9
	21:45	39.5	54.9	42.3	31.7	28
	22:00	41	54	43.5	33.2	29.5
	22:15	41.7	56.2	44.6	33.9	28.9
	22:30	38.7	47.1	42	31.7	28.6
	22:45	38.4	48.8	41.6	31.6	28.4
	23:00	38.8	49.8	42.2	31.6	28.3
	23:15	39	53.6	42.3	31.3	28.5
	23:30	36.7	44.4	40.4	29.2	26.9
	23:45	36.7	51.9	41	28.5	26.6

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Friday	00:00	37	50.2	40.9	29	27
31/08/2007	00:15	37.2	50.6	41	28.4	26.6
	00:30	38	53.7	41.9	27.9	25.4
	00:45	35.7	48.9	40	28.1	25.9
	01:00	34	49.3	38.1	26.7	25.2
	01:15	34.6	47	39.1	26.4	24.7
	01:30	36.4	49.9	40.3	28.1	25.6
	01:45	34.4	48.1	38.5	27.5	25.8
	02:00	36.5	48.7	40.7	28.8	26.8
	02:15	35.4	52.8	39.5	26.3	24.5
	02:30	33.7	49.4	37.4	26.8	24.5
	02:45	35.6	49.6	39.5	29.2	27.1
	03:00	37.5	52	41.4	29.5	26.8
	03:15	36.8	53.1	40.7	29.6	27.1
	03:30	36.8	52.4	39.6	29.3	26.7
	03:45	35.8	49.6	38.9	30.6	28.1
	04:00	35.7	50.2	38.7	29.2	27.2
	04:15	42.1	72.7	41.8	30.5	27.7
	04:30	39	60.6	42.2	32.3	29.6
	04:45	47.5	67.8	46	32.5	28.2
	05:00	39.9	57.6	42.9	31.2	28.3
	05:15	42.7	64.9	44.4	33.6	29.9
	05:30	45.7	74.9	45.4	36.3	33.8
	05:45	44.7	72.1	45.5	35.6	32.2
	06:00	44.9	65.6	47.3	36.7	32.5
	06:15	44.9	65.7	46.6	38.1	34.4
	06:30	46.7	56.6	48.9	43.1	40.1
	06:45	47	69.3	48.7	43.4	41.4
	07:00	46.8	63	48.4	44	41.3
	07:15	47.1	61.4	48.9	43.8	41.3
	07:30	47	58.1	48.5	44.5	41.3
	07:45	47.1	62.6	48.4	44.5	41.5
	08:00	47.6	56.5	49.7	44.6	41.6
	08:15	47.7	62.9	49	44.7	40.9
	08:30	46.9	60.9	48.3	44.4	41.4
	08:45	46.6	60.4	48.3	44.2	41.4
	09:00	46.4	62.3	48.1	43.3	40.3
	09:15	47.4	58.5	49.6	43.4	40.4
	09:30	45.1	53.4	46.8	42.1	38.4
	09:45	46	66.2	47.8	42.5	37.8
	10:00	49.6	73	50.7	43.4	40.2
	10:15	51.1	71.3	48.7	43.6	41.3
	10:30	57.1	78.5	57.6	43.6	40.5
	10:45	46.1	57.9	48.5	42.3	38.9
	11:00	52.2	70.4	51.3	44.3	41
	11:15	53.3	69.4	55.1	44.9	42.7
	11:30	50.9	69.6	53	44.9	42.8
	11:45	51.4	68.8	52.5	44.6	42.4
	12:00	50.8	69	52.1	44.6	42.4
	12:15	51.2	70.3	52.2	44.8	42.3

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Friday	12:30	50.3	68.5	51.1	45.1	42.5
31/08/2007 cont'd	12:45	50.8	65.4	53.3	44.7	41.3
	13:00	50.1	69.6	51.7	44.4	40.9
	13:15	49.5	74	47.8	43.5	41.3
	13:30	53	70.5	52.3	44.2	41.3
	13:45	49.3	65.6	49.4	43.8	40.6
	14:00	49.8	67.2	50.6	44.3	40.8
	14:15	52.2	71.3	52	44.2	41
	14:30	48.4	59.8	51.1	44.8	41.4
	14:45	52	69	54.7	44.4	41
	15:00	50.6	68.3	51.1	44.4	41.6
	15:15	47.4	57.7	49.8	43.9	41.4
	15:30	47.7	61.4	50.3	43.3	39.2
	15:45	49.4	67.4	49.8	43.3	39.8
	16:00	51.6	69.9	52.7	43.2	39.3
	16:15	48	66.4	47.6	42.1	37
	16:30	46.2	60.8	48	41.6	38.9
	16:45	53.8	72.7	53.2	44.5	39.1
	17:00	46.9	60.1	49.7	42.7	38.9
	17:15	46.1	67.2	47.8	42	35.4
	17:30	43.3	58.7	45	40.5	36.6
	17:45	46.8	70.5	47.3	41.6	35.8
	18:00	47.3	73.4	47.3	41.2	37.1
	18:15	44.2	56.6	45.9	40.7	34.5
	18:30	44.4	56.6	46.9	40.2	35.1
	18:45	49	70.6	48	40.7	34.8
	19:00	57.8	79.3	49.7	41.2	35.3
	19:15	45.6	59.9	47.5	39.4	34.1
	19:30	43.9	61.2	45.9	39.1	35
	19:45	44.6	57	47.3	38.5	32.5
	20:00	43.2	54.1	45.7	38.5	34.7
	20:15	45.2	60.3	47.8	40.3	35.5
	20:30	44	59.9	45.8	38.2	35
	20:45	42.6	52.4	45.3	37.6	34.5
	21:00	43.3	59.1	45.2	37.3	34.7
	21:15	41.6	56.4	44.4	36.5	33.7
	21:30	43	60	45.7	36	32.2
	21:45	44.7	65.9	44.9	35.4	32.4
	22:00	41.1	52.8	43.8	35.8	31.9
	22:15	41.2	51.7	44.3	35.6	32.3
	22:30	40.9	53.9	44.2	33.7	31.2
	22:45	39.6	54.1	42.5	34	30.8
	23:00	39.8	50.5	43.2	33.7	31.2
	23:15	39.5	47.3	42.7	33.5	30.9
	23:30	40	58.5	42.7	32.3	30.3
	23:45	38.7	48.9	42.5	31.7	29.8

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Saturday	00:00	40	55	44	31.9	29.1
01/09/2007	00:15	38.7	51.3	42.4	31.7	29
	00:30	38.4	52.8	42.2	31.6	29.4
	00:45	38	48.7	42.4	30.3	28.1
	01:00	38.9	52.7	42.8	30.7	28.3
	01:15	38.3	63.1	42	30.2	27.9
	01:30	37.3	50.1	41.3	29.6	27.6
	01:45	38.2	55.9	41.9	29.9	27.7
	02:00	37.1	47.2	41.2	29.4	26.8
	02:15	35.6	49.5	39.5	28.9	27.4
	02:30	36.4	50	40.4	29	27.2
	02:45	35.9	49.4	40	29	26.4
	03:00	34.7	47	38.9	28.3	26.4
	03:15	35.8	50.3	39.8	29	27.2
	03:30	36.9	53.8	40.8	28.9	26.8
	03:45	35.8	49.1	39.6	29	27.2
	04:00	35.3	48.9	39.5	29	27.5
	04:15	35.8	48.5	39.5	29.5	27.8
	04:30	37.9	51.7	41.7	29.8	27.7
	04:45	36.9	55	40.9	29.4	26.9
	05:00	37.8	51.4	41.9	29.6	27.7
	05:15	42.8	64.8	44.8	33.1	29.9
	05:30	44.9	67.6	43.4	33.2	29.8
	05:45	39.1	57.9	41.6	32.5	29.6
	06:00	42.4	54.1	44.9	38.5	35.9
	06:15	43	55.4	45.3	39	36.4
	06:30	45.6	67.8	46.6	40	37.6
	06:45	43.4	59.3	45.2	40.1	37.5
	07:00	45.6	65.8	47.3	40.6	36.4
	07:15	44.7	57	47	40.9	38.2
	07:30	44.1	61.9	46.6	40.1	37.4
	07:45	44.2	59.7	46.4	40.1	37.6
	08:00	47.9	65.8	49.3	41.1	38
	08:15	44.7	55.6	47.1	40.8	38.5
	08:30	51.4	71.9	48.9	41.1	38.3
	08:45	48.5	67.4	50.6	42.5	39.4
	09:00	53.3	75.4	48	41.8	39.1
	09:15	45.2	59.3	47.1	42.1	38.5
	09:30	45.3	66	46.6	41.8	39
	09:45	45.5	61.4	46.9	41.8	39.3
	10:00	47.8	63.7	51.3	42.4	37.9
	10:15	46.8	65.2	48	42.2	39.3
	10:30	67.7	81.1	73.1	44.4	41.5
	10:45	51	80.2	52.1	44	38.8
	11:00	48.4	74.6	48.8	43.5	38.9
	11:15	56.7	78.8	51	43.7	38.3
	11:30	56.1	75.4	58.2	44	41.2
	11:45	52.3	69.2	54.8	44.2	40.3
	12:00	46.2	57	47.5	44	41.1
	12:15	45.9	52.4	47.8	43.1	39.3

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Saturday	12:30	46.7	62.9	48.5	43.8	38.4
01/09/2007 cont'd	12:45	54.7	70.7	58.3	44.1	40.9
	13:00	49.9	68.7	49.6	43.7	39.5
	13:15	48.8	66.2	49.8	44	41.4
	13:30	46.3	56.8	47.8	43.8	41.1
	13:45	46.5	60.2	48.1	44.3	39.5
	14:00	46.9	59	48.8	44	40.8
	14:15	52.2	69.5	49.3	43.8	39.7
	14:30	48.3	66.5	47.6	42.4	38
	14:45	51.5	71.7	48.6	41.7	37.9
	15:00	47.2	65	48.4	43.3	38.2
	15:15	49.5	66.8	49.1	42.4	38.4
	15:30	52.4	74	48.8	43.5	40
	15:45	47.4	69	48.2	42.7	39.7
	16:00	46.5	72.6	47	42.8	38.9
	16:15	51.6	69.7	51.1	43.5	40
	16:30	47.3	58.8	49	44.1	39.5
	16:45	50.1	66.2	50.4	44.1	40.6
	17:00	51.1	71.2	54	43.3	37
	17:15	52	75.6	49.4	43.8	40.4
	17:30	50	62.6	53.9	43.1	38
	17:45	47.7	70.2	49.5	43.7	38.6
	18:00	57.1	78.6	55.7	42.9	38
	18:15	49.4	75.5	47.8	40.5	35.9
	18:30	45	58.7	47	40	34.5
	18:45	49.8	69.4	50.3	41.7	37.5
	19:00	47.6	66.5	47.5	40.7	36.6
	19:15	45.2	68.7	47	40.8	35.4
	19:30	43.7	56.3	45.9	40.2	35.8
	19:45	47.3	61.9	50.1	40.2	36.4
	20:00	45.3	63.8	47.7	39.7	34.7
	20:15	43.8	57.2	46.3	38.6	34.3
	20:30	42.7	55.9	45.1	38.1	34.3
	20:45	42.6	54.4	45.8	35.1	31.8
	21:00	41.2	50.5	44.3	35.5	31.2
	21:15	40.6	54.9	43.4	34.5	29.1
	21:30	41.1	53.2	44.3	34	29.2
	21:45	40.8	54.8	43.8	34.4	30.5
	22:00	41	58.7	43.5	33.9	29.2
	22:15	39.6	49.9	42.8	32.6	29.7
	22:30	39.7	52.1	43	32	29.1
	22:45	39.2	47.7	42.7	31.9	28.8
	23:00	38.9	49.5	42.4	31.5	28
	23:15	40.9	53.2	43.8	32.9	29.2
	23:30	38.5	49.3	42.2	30.4	27.8
	23:45	40.7	57.1	43.3	32.6	30

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Sunday	00:00	40.2	52.5	43.7	30.4	27.9
02/09/2007	00:15	41	60	43.3	30.8	28.6
	00:30	41	54.8	44	32.2	29.5
	00:45	41	64	43.4	31.1	28.2
	01:00	38.8	48.4	42.6	32	28.8
	01:15	39.2	59.9	42.3	32.3	29.3
	01:30	41.6	53.8	45.4	31.6	28.7
	01:45	38.8	47.7	42.4	32.1	29.6
	02:00	38.5	49.4	42.5	31.1	28.8
	02:15	37.8	48.6	41.7	31.7	29.7
	02:30	38.1	50.6	42	32.4	29.4
	02:45	40.3	55.6	43.6	31.9	29.4
	03:00	39.9	57.4	43	30.6	28.6
	03:15	37.1	52.8	41.2	30.6	28.5
	03:30	36.9	48.1	40.6	30.5	27.6
	03:45	38.8	58	42.2	31.1	28
	04:00	37.4	56	41.3	31.6	29.1
	04:15	35.9	49	39.7	30.4	28.3
	04:30	37.3	53.8	40.6	31.8	29.7
	04:45	40.7	65.4	41.8	31.3	27.8
	05:00	36.3	47.3	40	31.1	28.3
	05:15	38.4	57.4	41.4	32.8	29.8
	05:30	46.6	68.1	47	33.7	30.1
	05:45	48.7	72.5	46.5	33.9	30.3
	06:00	38.4	53.1	41.9	32.7	29.7
	06:15	39.5	50.2	42.7	34.1	31.5
	06:30	41.8	55.8	44.6	35.7	33.5
	06:45	41.4	61.1	44.4	35.5	32.2
	07:00	41.6	50.9	44.5	36.8	32.8
	07:15	43.4	55.4	46.6	37.7	34.5
	07:30	46.2	64.6	46.9	36.4	33.5
	07:45	46.1	74.9	46.5	38	33.1
	08:00	42.8	61.3	44.6	37.2	33.2
	08:15	44.6	59.6	47.2	39.3	35.6
	08:30	43.2	62.6	45.5	37.5	32.3
	08:45	42.4	54.7	45	36.8	32.3
	09:00	44.6	62	46.4	36.1	30.9
	09:15	44.6	59.6	46.1	37.2	31
	09:30	46.4	65.3	46.9	38.6	34.8
	09:45	45	61.8	47.2	39.4	32.8
	10:00	51.6	71.1	50.4	40.5	37.2
	10:15	46	67	46.5	40.1	34.7
	10:30	44.4	61	45.9	40.9	36.4
	10:45	49.5	68.8	49.2	41.6	38.3
	11:00	47.8	65.8	48.5	39.8	35.3
	11:15	46.3	67.5	47.8	43.1	39.3
	11:30	49.3	67.2	50.2	44.4	40.4
	11:45	54.9	74.9	52.6	44.9	41.3
	12:00	46.6	56.5	48.2	44.4	40
	12:15	53.3	73.6	50.9	44.9	41.8

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Sunday	12:30	50.9	65.4	53.1	45.3	43
02/09/2007 cont'd	12:45	47.9	61.3	49.5	45	42.5
	13:00	51.9	68	50.4	45.5	42.2
	13:15	51.1	65.6	50.9	45.5	42.5
	13:30	52.6	71.5	51.7	45.5	41.7
	13:45	51.4	72.5	50	45.5	42.3
	14:00	48.9	62.2	50.4	46.4	43.7
	14:15	53.5	73.5	52.8	46.7	43.7
	14:30	49.5	63.2	50.9	46.7	44.4
	14:45	51.4	70.5	50.1	46.8	44.4
	15:00	53	70.2	54.6	45	40.4
	15:15	52.4	77.6	54.8	46.1	41.2
	15:30	49.9	67.9	50.3	45.8	42.1
	15:45	49.2	63.6	50.7	45.4	42.1
	16:00	48.1	69.5	49.3	45.3	42.3
	16:15	60.9	83.2	56.3	46.4	43
	16:30	48.9	68.1	50.3	45.8	42.7
	16:45	55.5	75	54.9	46.1	42.8
	17:00	54.6	71.6	55.8	45.6	41.9
	17:15	50.5	64.9	52.8	46.1	43.1
	17:30	48.3	61.1	49.9	45.4	41.6
	17:45	49.4	65.6	50.4	44.6	41.4
	18:00	50.8	70	50.6	44.8	41.6
	18:15	53.9	74.2	49.4	44	40
	18:30	54.5	78.4	55	44	41.3
	18:45	48.1	66.2	49.3	43.2	40.3
	19:00	47.5	67.2	48.3	42.3	39.5
	19:15	45.6	61.6	47.2	42.5	40.1
	19:30	46.3	56.4	48.8	41.7	37.5
	19:45	47.1	61.5	48.9	42.6	36.3
	20:00	44.7	55.9	47.1	40.7	37.8
	20:15	43.7	53	46.1	38.8	34.7
	20:30	46	60.3	48.5	40.1	36
	20:45	43.7	54.4	46.5	38.6	34.5
	21:00	44.2	56.6	46.6	37.3	32.2
	21:15	44.4	60.6	47.3	37.3	32.1
	21:30	43.3	57.5	46.5	36.3	30.9
	21:45	42.7	58.6	45.4	35.9	33.3
	22:00	42.3	50.4	44.9	38	31.6
	22:15	56.4	74.4	58.2	38.8	34.8
	22:30	50.7	72.3	49.1	39.2	34.9
	22:45	50.8	72.7	48.4	37.3	34.3
	23:00	45.8	68.6	45.8	37.6	33.6
	23:15	41.5	49.2	44.7	36.7	33.7
	23:30	41.7	56.4	44.5	36.8	34.7
	23:45	41.5	57.7	44.4	36.1	34.4

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Monday	00:00	39.6	48.8	42.6	35.9	34.3
03/09/2007	00:15	38.6	49.5	41.1	35.6	34
	00:30	40	48.9	42.4	37	35.2
	00:45	37.9	47.4	40.5	34.8	32.9
	01:00	36.8	49	38.8	34.4	33
	01:15	36.5	48.1	38.4	34.2	31.7
	01:30	37	51.3	39	34.1	32.6
	01:45	36.4	50.2	38.2	33.9	31.5
	02:00	37.6	55.3	38.9	34.1	32
	02:15	35.9	48.9	37.2	33.4	31.8
	02:30	35.5	47.6	36.6	33.3	31.6
	02:45	37.7	50.8	40.2	34.6	32.6
	03:00	40.2	60.6	40.8	36	33.9
	03:15	38.4	54.7	40.2	35.4	33.1
	03:30	37.5	50.6	39.9	33.6	31.7
	03:45	39.3	52.6	42.7	33.3	30.2
	04:00	37.7	55.4	40.3	32.8	30
	04:15	37.6	49.5	41	32.4	29.9
	04:30	36.3	51.5	39.8	30.7	28.1
	04:45	36.6	54.6	40.3	29.9	27.5
	05:00	39.3	52.6	43	31.7	29.5
	05:15	40.8	65.3	43	32.6	29.7
	05:30	42.5	66	43.3	34.3	31.5
	05:45	41	54.4	44.3	35	32.5
	06:00	40.2	50.1	42.9	35.2	32.5
	06:15	42.3	60.4	44.9	37.8	33.8
	06:30	46.6	64.2	48.7	42.5	39.3
	06:45	46	59.3	47.7	43.3	40.3
	07:00	52.6	77.4	54.3	45.3	41.7
	07:15	48.7	66.1	50.2	44.2	40.7
	07:30	46.1	54.5	47.6	44.1	40.2
	07:45	47.5	66	48.7	44.5	41.5
	08:00	46.7	61.2	48.1	44.8	43
	08:15	49.4	69.3	52.1	45.3	43.1
	08:30	46.8	56.5	48.5	44.2	40.9
	08:45	47.9	64.1	49.5	43.9	41.8
	09:00	46.8	65.6	48.9	43.6	41.2
	09:15	48	66.7	48.7	44.1	41.1
	09:30	48.2	59.5	50.7	44.4	40.8
	09:45	46.4	68.3	48.1	43.3	40.4
	10:00	47.5	64.1	49.5	43.2	40
	10:15	44.7	51.7	46.9	42.2	39.2
	10:30	45.9	61.1	48	42.7	39.7
	10:45	47.6	66.3	49.9	43.2	40.1
	11:00	47.8	67.2	50.9	43.5	39.4
	11:15	48.4	73.9	49	43.5	40.3
	11:30	47.8	71.4	49.8	43.2	40.2
	11:45	52	75.1	54.6	43.9	40.4
	12:00	47.8	63.8	50.4	43.1	39.9
	12:15	48.7	66.5	50.9	43.6	40.7

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Monday	12:30	47.7	59.4	50.8	43.1	39.7
03/09/2007 cont'd	12:45	46.8	64	48.5	42.9	39.7
	13:00	50.7	69.6	50.7	43.2	40.1
	13:15	51.2	84.4	47.8	42.6	40.1
	13:30	49.7	66.4	52.7	43.8	41.1
	13:45	47.3	58.2	49.9	44	41.3
	14:00	47.1	60.5	48.9	44.2	41.4
	14:15	46.4	60.1	48	43.5	41
	14:30	47.3	59.7	49.4	43.9	41.3
	14:45	45.3	58.9	46.6	42.6	40.1
	15:00	47	57.2	48.8	44.2	42.1
	15:15	47.8	70.3	49.4	44.4	42
	15:30	47.4	63.3	49	44.6	42.4
	15:45	48.2	61.1	50.3	44	41.6
	16:00	48.8	68.3	51.5	43.5	39.6
	16:15	48.3	63.3	50.7	44.3	40.9
	16:30	49.1	64.3	51.6	44.4	41.8
	16:45	54.1	76.1	49.9	43.9	40.7
	17:00	46.1	66.9	47.4	42.6	40.6
	17:15	45.7	59.1	46.4	42.3	39.5
	17:30	46.2	60.1	48.3	42.6	39.7
	17:45	50.1	68.7	47.2	42.5	39.4
	18:00	44.9	57.4	46.7	42.6	37.7
	18:15	44.5	56.3	46.1	41.9	39.3
	18:30	44.7	54.5	46.6	42.1	36.7
	18:45	44.3	62.7	45.8	40.9	35.9
	19:00	45.8	63.1	47	41.1	34.5
	19:15	45	63.1	47.7	38.8	34.1
	19:30	44	66	46	38.5	33.3
	19:45	43.5	60.5	45.6	38.4	34
	20:00	42.4	54.6	44.6	38.7	33.3
	20:15	43.7	57.3	46.1	37.2	34.3
	20:30	42.9	54.6	45.3	38	34.1
	20:45	43.5	57.8	45.1	38	33.8
	21:00	42.2	49.8	44.7	38	32.7
	21:15	42.3	55.8	45.2	36.4	32.3
	21:30	41.3	52.2	44	36.1	32.5
	21:45	41.7	65.1	44	33.6	30.2
	22:00	40.8	52.1	43.8	35.2	30.7
	22:15	39.8	52.8	43.5	32.6	29
	22:30	39	49.2	42.6	31.1	28.3
	22:45	38.2	48.5	42.2	29.5	26.1
	23:00	38	50.9	42.1	29.5	26.3
	23:15	38.2	49.7	41.8	30.7	26.6
	23:30	49.2	70.9	44	30.1	27.1
	23:45	35.7	51.6	39.5	29	26.9

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Tuesday	00:00	36.3	48.3	40.3	29.1	26.4
04/09/2007	00:15	47.1	66.2	46	29.3	26.8
	00:30	34.8	47.7	38.7	27.5	24.8
	00:45	34.5	47.2	38.3	28.5	26.6
	01:00	34.2	46.7	38.1	28.6	26.4
	01:15	33.9	50.3	36.9	28	26.2
	01:30	33.5	47.5	36.7	28.5	26.6
	01:45	33.7	48	36.7	28.5	26.7
	02:00	34.6	47.2	38.7	28.1	25.9
	02:15	33.8	48.9	36.8	28	26.3
	02:30	32.7	48.7	35.6	27.8	26
	02:45	31.9	46.1	33.9	28	26.7
	03:00	33	46.3	35.6	27.9	26.2
	03:15	35.3	50.5	38.4	28.8	26.8
	03:30	34.5	52	37.7	28.3	26.3
	03:45	33.4	47.9	36.3	28	26.2
	04:00	35.1	51.6	37.8	27.6	25.5
	04:15	35.8	51	39.4	28.3	25.5
	04:30	38.7	55.3	42.1	31.1	27.6
	04:45	38.8	53.8	42.3	31.5	28.4
	05:00	38.6	52	42.2	31.6	29.2
	05:15	38.4	49.5	42.1	32.3	28.9
	05:30	39.9	52.9	43.3	34.1	31.1
	05:45	43.1	71.7	44.5	35.7	32.7
	06:00	48.6	76	46.4	36.3	33.4
	06:15	43.1	58.2	46	37.2	33.4
	06:30	45.2	60.6	47.2	42.3	39.7
	06:45	45.3	52.9	47.4	41.8	39.8
	07:00	45.8	53.1	47.7	42.4	39
	07:15	46.2	57.1	48	43.2	40.4
	07:30	46.7	59.2	48.1	44.5	40.3
	07:45	48	66.1	47.9	44.1	40.6
	08:00	46.2	58.8	47.8	43.9	40.5
	08:15	47.7	73	48.7	43.7	40.2
	08:30	52.5	68.6	54.4	47.8	44.9
	08:45	48.8	67.7	49.7	44.4	40
	09:00	51.5	64.3	54.6	46.4	40
	09:15	51.6	65	54.5	44.7	40.1
	09:30	52	76.2	54.8	43.7	39.4
	09:45	46.9	72.3	47.6	42.1	37.7
	10:00	48.4	68.2	49	42.3	39
	10:15	45.3	64.7	46.9	41.9	38.5
	10:30	48.6	72.5	51.3	43.5	40
	10:45	51	78.1	51.9	43.2	39.3
	11:00	55.1	67	59.5	45.3	41.1
	11:15	52.2	73.8	54.5	48	45.1
	11:30	51.4	69	52.8	48.1	46.3
	11:45	55.1	67.7	56.1	53.4	47
	12:00	54.7	74.8	55.9	47.5	42.5
	12:15	50	69.9	53.1	44	41.3

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Tuesday	12:30	47.4	68	47.7	42.3	38.9
04/09/2007	12:45	52.9	72.5	52.6	43.1	37.9
	13:00	53	72.1	52.4	43	38.3
	13:15	47	62.9	48	42	38.2
	13:30	54.5	70	55.1	44.8	40.5
	13:45	54.8	73.8	55.8	52.9	51
	14:00	52.3	68.5	54.9	47.4	44.9
	14:15	53.6	60.5	54.7	50	46.3
	14:30	52.8	73.5	54.9	47.5	44.9
	14:45	50	69.1	52.5	43.5	39
	15:00	47.7	71.8	48.8	42.6	37.7
	15:15	49.6	70.7	52.2	43.3	39.4
	15:30	52	66.6	54.8	46.9	45
	15:45	51.4	65.9	53.5	47.1	44.9
	16:00	53	61.8	54.1	51.6	49.6
	16:15	53.5	70.1	54.5	51.9	50.3
	16:30	51.8	73.2	54.2	46.1	40.3
	16:45	50	66.4	51.4	43.5	41.4
	17:00	49.7	66.4	51.3	43.3	39.8
	17:15	49.2	62.1	52	43.5	40.8
	17:30	48.5	61.7	50.9	43.9	40.1
	17:45	46.7	58.4	48.6	43.8	39.3
	18:00	47.1	59.3	48.5	43.7	38.5
	18:15	48.2	66.6	48.5	42.3	38.5
	18:30	46.4	63.4	47.2	41.7	38.4
	18:45	45.2	61	47.4	40.7	35.8
	19:00	46.8	62.3	48.4	41.1	36.2
	19:15	46	64.7	46.9	38.8	31.6
	19:30	45.8	71.5	48.2	39.4	31.8
	19:45	43.5	55.6	46.5	37.5	31.6
	20:00	43	52.4	46	35.7	30.5
	20:15	45.2	71.8	46.8	36.8	31.9
	20:30	44.1	56.8	46.1	36.6	31.6
	20:45	42.6	50.2	45.3	37.3	34.2
	21:00	42.5	59.9	44.4	37.4	34.1
	21:15	42.9	57.8	45.4	37.8	33.7
	21:30	41.9	50.9	44.4	37.6	34.9
	21:45	43.9	56.4	46	38	34.5
	22:00	42.1	51.2	44.7	38	34.6
	22:15	41.4	50.4	44.2	37	33.3
	22:30	46.6	63.1	46.4	36.8	32.8
	22:45	41	54.6	44.1	34.9	30.4
	23:00	41.9	52.7	45.1	34.6	28.9
	23:15	40.8	53	44.1	34.7	31.1
	23:30	40	54.3	43.3	32.2	29.5
	23:45	39	50.7	42.5	31.8	28.8

Table B1: Continuous Noise Monitoring Results

Date	Start Time hrs	Measured Noise Levels dB				
		$L_{Aeq,T}$	$L_{Amax,F}$	$L_{A10,T}$	$L_{A90,T}$	$L_{Amin,F}$
Wednesday	00:00	36.2	46.4	39.4	30.4	28.4
05/09/2007	00:15	40	51.5	43.7	32.1	29.3
	00:30	37.3	55.3	41.3	30	27.8
	00:45	36.2	48.9	39.7	31.6	29.9
	01:00	35.7	49.8	38	31.6	29.9
	01:15	36.1	49	38.5	32.4	30.6
	01:30	40.3	54.9	43.1	32.8	31.2
	01:45	35.5	52.1	37.9	31.7	29.8
	02:00	36.6	49.3	39.8	32.1	30.4
	02:15	37.6	49.5	40	32.6	30.9
	02:30	35	48.2	36.7	32.2	30.3
	02:45	35.3	47.9	36.8	31.9	29.8
	03:00	35.2	48.4	37.7	30.7	28.9
	03:15	37.1	50	40.8	30.5	28.1
	03:30	36.3	67.7	37.8	30.7	28.7
	03:45	37.1	53.9	39.7	31.7	30.2
	04:00	37.3	48.9	40.9	31.6	29.2
	04:15	37.3	49	41.1	31	28.7
	04:30	37.3	48.2	40.8	31.9	29.6
	04:45	38.9	55.2	42.3	31.8	30.1
	05:00	40	60.1	43	31.9	29.7
	05:15	40.2	52.6	44.1	32.7	29.9
	05:30	43.5	63.3	46	35.1	31
	05:45	45.1	66.8	46.9	37.4	34.2
	06:00	45.3	66.4	48	36.6	33.6
	06:15	46.5	64.8	49	38.3	33.9
	06:30	47	71.4	47.7	41.1	37.4
	06:45	46.4	60.1	48.7	42.7	40.1
	07:00	46.6	59.2	48.7	43.1	39.3
	07:15	48.4	61.2	50.2	44.4	41.3
	07:30	46.7	62.9	48.2	44.1	40.5
	07:45	46.8	55.9	48.3	44.3	40
	08:00	47	55.5	49.2	44	39.9
	08:15	47.4	67	49.7	43.9	40.2
	08:30	51	65.1	54.7	44.7	39.7
	08:45	52.8	69.1	55.7	46	41.8
	09:00	52.2	63.2	55.7	45.3	39.3
	09:15	55.5	66.1	57.6	53.4	51.3
	09:30	54.7	82	56.8	49.4	46.6
	09:45	51.8	60.6	54.4	45.7	38.2
	10:00	46.5	69.4	48.3	42.4	39.1
	10:15	45.3	63.1	46.5	40.7	37.2
	10:30	51.3	79.9	51.4	41.8	38.6
	10:45	51.8	66.9	55.4	42.7	38.3
	11:00	57.2	80	58.2	46.7	40.9
	11:15	50.4	61.6	54.7	43.7	41.3
	11:30	57.7	73.5	59.6	45.3	41.8
	11:45	58.2	76.1	59.2	54.5	38.9

Table B2: Garden Ambient Noise Measurements – Machinery Operating

Measurement	T, mins	dB $L_{Aeq,T}$	dB $L_{A90,T}$	Third Octave Band Centre Frequency - Hz																						
				50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
1	5	52	49	60	55	53	52	48	52	46	44	49	42	42	41	40	40	46	42	38	34	28	25	24	21	17	14
2	5	53	47	56	53	46	49	48	52	44	44	49	42	40	41	39	40	43	48	40	33	27	25	24	21	18	15
3	5	52	48	60	56	52	52	48	57	47	45	53	43	42	43	40	39	40	39	39	33	27	24	23	21	26	18
Av		**52**	**48**	**59**	**55**	**50**	**51**	**48**	**54**	**46**	**44**	**50**	**42**	**41**	**42**	**40**	**40**	**43**	**43**	**39**	**33**	**27**	**25**	**23**	**21**	**20**	**15**

Table B3: Garden Ambient Noise Measurements – Tea Break

Measurement	T, mins	dB $L_{Aeq,T}$	dB $L_{A90,T}$	Third Octave Band Centre Frequency - Hz																						
				50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
1	5	46	41	60	53	47	48	45	43	40	42	42	40	38	37	36	35	34	33	32	27	27	24	24	18	15	12
2	5	44	41	58	54	48	47	46	45	42	40	40	38	37	35	34	34	33	31	29	25	21	20	19	26	25	11
3	5	46	42	59	54	47	49	45	44	44	41	41	39	37	36	35	36	35	36	36	31	30	25	19	16	14	10
4	5	47	40	60	55	49	50	47	45	41	42	40	40	39	38	37	36	35	36	34	29	24	21	19	17	15	11
5	5	42	40	56	54	45	45	42	39	37	38	36	35	34	33	33	33	32	29	26	24	22	22	21	23	22	13
6	5	43	40	60	54	47	48	45	42	40	41	38	36	35	33	33	33	32	29	27	25	22	21	20	20	19	10
7	5	42	39	56	51	46	47	43	39	38	38	37	36	35	34	34	33	32	29	26	24	21	20	19	18	17	10
8	5	46	40	59	55	49	51	48	43	42	41	41	39	38	37	36	35	34	32	33	33	27	26	26	24	24	17
Av	**5**	**45**	**40**	**59**	**54**	**47**	**48**	**45**	**42**	**41**	**40**	**39**	**38**	**37**	**36**	**35**	**35**	**33**	**32**	**30**	**27**	**24**	**22**	**21**	**20**	**19**	**12**

Table B4: Garden Noise Measurements - Fine dust extract, planer, thicknesser, cross-saw and wood-chip extractor operating

Measurement	T, secs	dB $L_{Aeq,T}$	Third Octave Band Centre Frequency - Hz																						
			50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
1	60	58	75	59	49	52	52	62	53	55	55	51	52	46	47	46	47	47	46	41	34	31	27	23	20	14
2	60	59	75	57	53	54	52	62	54	55	55	51	52	46	47	46	48	48	47	42	35	32	28	24	20	15
3	60	59	75	55	50	52	52	62	53	55	55	52	53	47	47	46	48	49	48	42	36	33	29	28	28	17
Average		**59**	**75**	**57**	**51**	**53**	**52**	**62**	**53**	**55**	**55**	**51**	**53**	**47**	**47**	**46**	**48**	**48**	**47**	**42**	**35**	**32**	**28**	**25**	**23**	**15**

Table B5: Internal Machine Noise Level Measurements

Machine	T, secs	dB $L_{Aeq,T}$	Third Octave Band Centre Frequency - Hz																						
			50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
Cross-saw	15	83	48	57	57	57	57	59	57	60	65	65	63	61	65	68	69	73	72	73	76	73	73	70	67	65
Planer	15	85	57	73	68	55	62	83	68	66	82	70	71	74	76	73	75	73	71	75	75	70	65	64	61	59
Thicknesser	15	79	55	62	62	66	68	73	65	67	70	67	70	71	67	66	68	67	65	67	68	68	68	67	65	63
Cross-saw	15	85	52	58	52	61	61	60	60	61	63	64	67	67	66	68	68	74	79	75	75	75	71	67	66	63
Band-saw	15	77	47	46	51	59	59	55	57	57	63	63	62	60	62	64	64	68	67	63	67	66	64	62	60	59
Belt sander	15	69	51	58	49	56	49	54	52	54	62	62	59	62	60	59	59	57	58	57	55	54	53	52	50	47
Belt sander & Fine Dust Extract	15	87	84	68	67	73	77	76	77	84	87	81	80	77	78	77	76	73	71	70	69	68	65	62	59	56
Spindle	15	90	51	59	63	63	69	70	69	84	86	75	82	85	81	76	77	77	75	76	76	74	72	69	64	59
Little band saw	15	75	51	55	48	50	55	59	56	57	61	62	58	64	59	61	61	66	61	64	63	60	67	59	60	66
Borer	15	85	53	59	69	74	72	68	66	67	69	72	71	73	74	76	79	78	77	72	68	65	60	57	52	46
Wood chip extractor	15	76	69	67	69	72	73	72	67	69	74	67	67	68	67	66	66	62	61	60	59	58	58	57	54	52