



## **Residential Noise Survey**

Client: Mr Y. Patel  
Site Address: 28 Warwick Road  
Batley  
WF17 6BB

Job Reference: 250YP

Date: 05/03/15

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**Quality Assurance**

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## 1. Introduction

NOVA Acoustics Ltd has been commissioned by Mr Y. Patel to assess the suitability of the site at Atlas Mill, Warwick Road, Batley, WF17 6BB, for residential development in accordance with the National Planning Policy Framework published on 27<sup>th</sup> March 2012 (replacing Planning Policy 24).

It is proposed the conversion of the building which is being used as a warehouse into 18 flats. This report presents the result of the environmental noise survey undertaken in order to measure the prevailing ambient noise levels and outlines any necessary mitigation measures.

## 2. Background

The proposed development is located on Warwick Road, Batley, the surrounding area is a mixture of residential and commercial use, and neighbouring Atlas Mill is Batley Foundry Ltd which produces iron castings. The property, Atlas Mill, is currently being used as a storage warehouse and will be converted into 18 dwelling flats with a parking area for the residents at the rear area. Please see the plans in Annex B for further details.

The noise environment in this area is moderate, with the dominant noise sources through the daytime being from traffic noise along Warwick Road and light industrial noise from Batley Foundry Ltd and LGV/HGV's leaving the foundry.

## 3. Environmental Noise Survey

### 3.1. Objectives

The purpose of this report is to:

- Determine the existing noise climate at the dwelling locations due to road noise.
- Predict the noise climate in Bedrooms (night-time) and other habitable rooms of the development.
- Detail the proposed attenuation/design necessary to protect the amenity of the occupants of the new residences (including ventilation).

### 3.2. Measurement Procedure

A long term environmental measurement was undertaken at two positions at the perimeter of the proposed site: one at the rear part of the building as close as possible to the foundry's building and other at the front of the building, at the façade that lies along Warwick Road, as shown in Appendix A. These locations were chosen in order to collect data representative of the ambient noise levels and to ensure a secure monitoring location.

Continuous automated monitoring was undertaken for the duration of the survey as follows:

MP1 Rear Facade – 26<sup>th</sup> February 16:25 – 27<sup>th</sup> February 10:55

MP2 Front Facade – 26<sup>th</sup> February 15:45 – 27<sup>th</sup> February 14:35

Noise levels at the rear measurement position were low, with direct site to the foundry causing minimal impact on the noise levels measured. The noise levels at the front measurement position were moderate being impacted primarily from road traffic noise along Warwick Road.

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise. Periods of precipitation and elevated wind speeds have been removed from the average and not considered in the assessment.

The measurement procedure generally complied with BS7445:1991 "Description and measurement of environmental noise, Part 2 – Acquisition of data pertinent to land use"

### 3.3. Equipment

The equipment was calibrated before and after use and no abnormalities were observed.

The equipment used was as follows:

- Class 1 CESVA SC310 Sound Level Meter
- Class 1 CESVA CB006 Calibrator
- Class 1 Svantek 977 Sound Level Meter
- Class 1 SV31 Calibrator

Traceable calibration certificates can be provided on request.

## 4. Results

### 4.1. Environmental Noise Survey

The  $L_{Aeq, 5min}$  and  $L_{AMax, 5min}$  acoustic parameters were measured for each position through the duration of the survey. The measured noise levels are shown as a time history in Appendix B. A summary is presented in Table 5.1 and 5.2 for day and night time respectively.

#### Measurement Position 1

<b>Period</b>	<b>Ambient Noise Level (<math>L_{Aeq,16hour}</math>)</b>	<b>Ambient Noise Level (<math>L_{Amax,8hour}</math>)</b>
Daytime (07:00 – 23:00)	52.1	-
Night-time (23:00 – 07:00)	40.8	71.7

Table 5.1

#### Measurement Position 2

<b>Period</b>	<b>Ambient Noise Level (<math>L_{Aeq,16hour}</math>)</b>	<b>Ambient Noise Level (<math>L_{Amax,8hour}</math>)</b>
Daytime (07:00 – 23:00)	59.1	-
Night-time (23:00 – 07:00)	50.7	<b>79.1</b>

Table 5.2

Provided adequate mitigation measures are implemented during the design and construction phase of the development the internal noise levels requested by BS8233:2014 and the Local Authority

can be achieved. Outline mitigation measures are described in Section 7.0 to ensure the amenity of residents is not affected.

## 5. Noise Criteria

### 5.1. Internal Noise Criteria

The internal noise criterion has been as taken from BS8233:2014 and WHO Guidelines on community noise these are shown in table 6.1.

Activity	Location	07:00 – 23:00	23:00 – 07:00
Resting	Living Rooms	35dB $L_{Aeq,16Hour}$	--
Dining	Dining Room	40dB $L_{Aeq,16Hour}$	--
Sleeping	Bedroom	35dB $L_{Aeq,16Hour}$	30dB $L_{Aeq,8Hour}$
Sleeping	Bedroom	--	45 dB $L_{Amax,8hour}$

Table 6.1\*

\* Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or  $L_{Amax,F}$ , depending on the character and number of events per night. Sporadic noise events could require separate values.

## 6. Noise Impact Assessment

### 6.1. Internal Noise Impact

The table below compares the actual levels of the site with the target limits within the rooms stated in the standard, thus allowing to know which is the composite site reduction index required for the façade.

#### Measurement Position 1

Area	Period	Noise Levels Measured	Level to be achieved	Composite SRI Required
Living Room	Day time	52.1 $L_{Aeq,16hour}$	35 dB	17.1
Dining Room	Day time	52.1 $L_{Aeq,16hour}$	40 dB	12.1
Bedroom	Night time	40.8 $L_{Aeq,8hour}$	30 dB	10.8
Bedroom*	Night time	71.7 $L_{Amax,8hour}$	45 dB	<b>26.7</b>

#### Measurement Position 2

Area	Period	Noise Levels Measured	Level to be achieved	Composite SRI Required
Living Room	Day time	59.1 $L_{Aeq,16hour}$	35 dB	24.1
Dining Room	Day time	59.1 $L_{Aeq,16hour}$	40 dB	19.1
Bedroom	Night time	50.7 $L_{Aeq,8hour}$	30 dB	20.7
Bedroom*	Night time	79.1 $L_{Amax,8hour}$	45 dB	<b>34.1</b>

Table 7.1

## 7. Recommendations

### 7.1. Specification of Glazing Units

Windows can be considered the weakest point of a façade in terms of noise reduction from external noise. In order to ensure that the internal noise levels according to BS8233:2014 will be achieved; maximum noise levels monitored at night during the environmental noise survey have been taken into account. Specific recommendations regarding each noise monitoring positions are made for the rear and the front façade.

#### Measurement Position 1 (Rear façade)

Glazed elements installed in the rear façade (highlighted in orange in appendix X) require a minimum sound reduction index (Rw) value of 26.7 dB. The glazing unit shown in table 8.1 would provide a suitable sound reduction. Any other window capable of providing an attenuation of 26.7 dB will be suitable. The performance is specified for the whole window unit, including frame and other design features.

Glazing Type	Sound Reduction (Rw)
<b>Double Glazing System</b> (4mmglass/12mm cavity/4mm)	<b>29</b>

Table7.2

Glazing specifications have been taken from *BS 6262 Glazing for buildings*.

#### Measurement Position 2 (Front façade- Warwick Road)

Glazed elements installed in the front façade (highlighted in red in appendix X) require a minimum sound reduction index (Rw) value of 34.1 dB. The glazing unit shown in table 8.1 would provide a suitable sound reduction. Any other window capable of providing an attenuation of 34.1 dB will be suitable. The performance is specified for the whole window unit, including frame and other design features.

Glazing Type	Sound Reduction (Rw)
<b>Double Glazing System</b> (10mmglass/12mm cavity/4mm)	<b>35</b>

Table 7.3

Glazing specifications have been taken from *BS 6262 Glazing for buildings*.

### 7.2. Specification of Ventilation

Considering windows open in the noise impact assessment providing a sound attenuation of 12dB, this would lead to internal noise levels as shown in Tables 7.4 and 7.5.

#### Measurement Position 1 (Rear façade)

Area	Period	Noise Levels Measured	Open window	Internal noise levels	Noise Criteria	Level above criteria
Living Room	Day time	52.1 $L_{Aeq,16hour}$	- 12	40.4	35 dB	<b>5.1</b>
Dining Room	Day time	52.1 $L_{Aeq,16hour}$	- 12	40.4	40 dB	0.1
Bedroom	Night time	40.8 $L_{Aeq,8hour}$	- 12	28.5	30 dB	-
Bedroom	Night time	71.7 $L_{Amax,8hour}$	- 12	59.7	45 dB	14.7

Table 7.4

Measurement Position 2 (Front façade – Warwick Road)

Area	Period	Noise Levels Measured	Open window	Internal noise levels	Noise Criteria	Level above criteria
Living Room	Day time	59.1 $L_{Aeq,16hour}$	- 12	40.4	35 dB	5.4
Dining Room	Day time	59.1 $L_{Aeq,16hour}$	- 12	40.4	40 dB	0.4
Bedroom	Night time	50.7 $L_{Aeq,8hour}$	- 12	28.5	30 dB	-
Bedroom	Night time	79.1 $L_{Amax,8hour}$	- 12	59.7	45 dB	<b>14.7</b>

Table 7.5

Therefore, to ensure adequate ventilation without noise impact, a wall mounted acoustic ventilation system should be installed this will need to provide the following attenuation:

1. Front Facade – 34.1dB
2. Rear Facade – 26.7dB

These should be installed within the bedrooms and living rooms located in both the rear and the front façades. To be able to achieve that, insulation background acoustic ventilation is recommended, either of the two units in table 7.6 will be sufficient or any system capable of providing the required attenuation.

Sound Attenuation level with the system open:	
Passivent TVES4dB	39dB
Titon SFSA Ventilator	40dB

Table 7.6

## 8. Conclusion

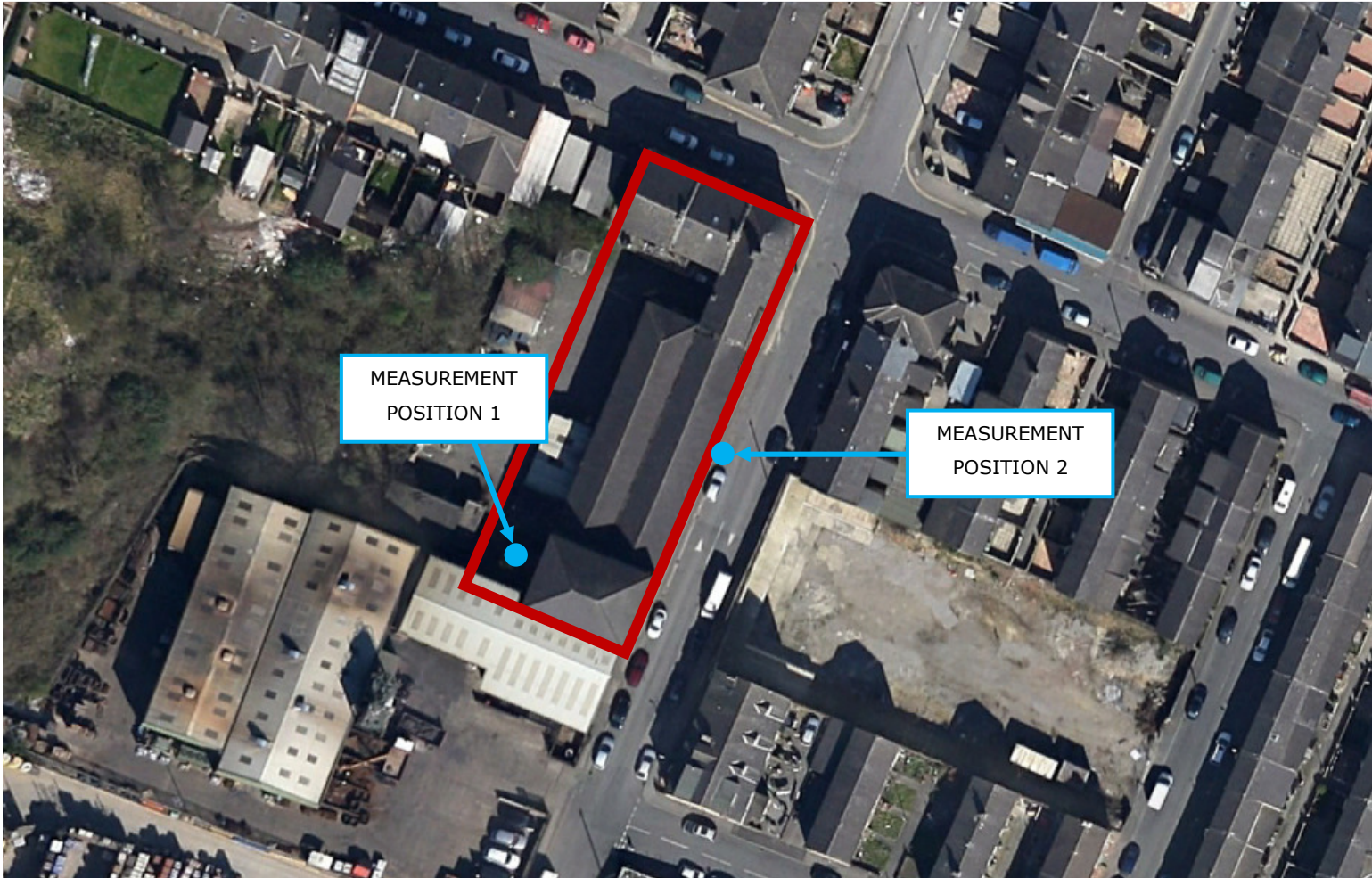
An environmental noise survey has been undertaken at Atlas Mill, Warwick Road, Batley, WF17 6BB in order to measure the ambient noise levels in the development area. The measured noise

levels have allowed an assessment of the level of impact from noise that the proposed development site will receive.

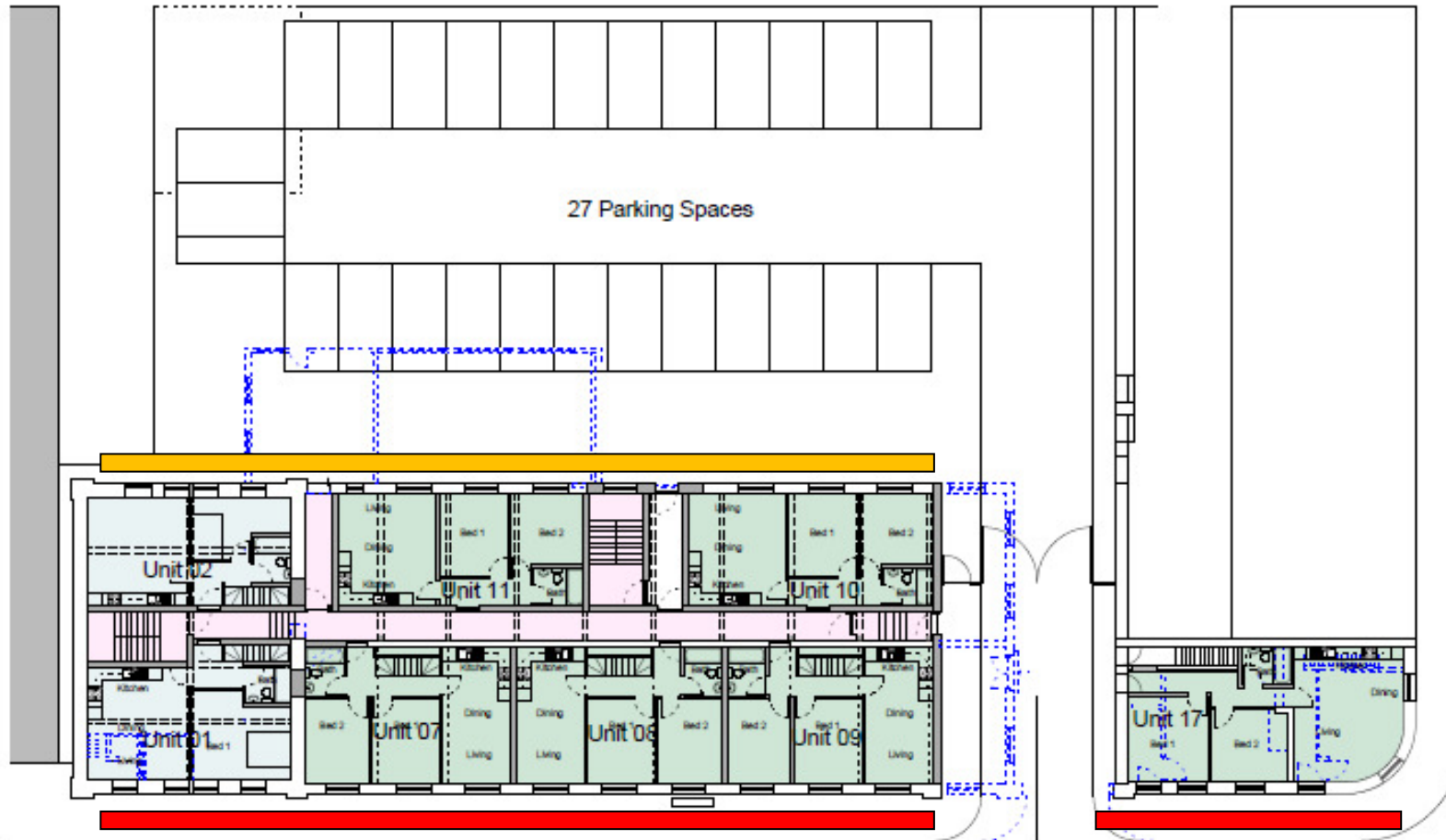
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Outline mitigation measures have been recommended in section 7.0, including glazing and ventilation. These recommendations should be sufficient to achieve the internal noise levels for the proposed development according to BS8233:2014 noise criterion.

**APPENDIX A – Measurement Position**



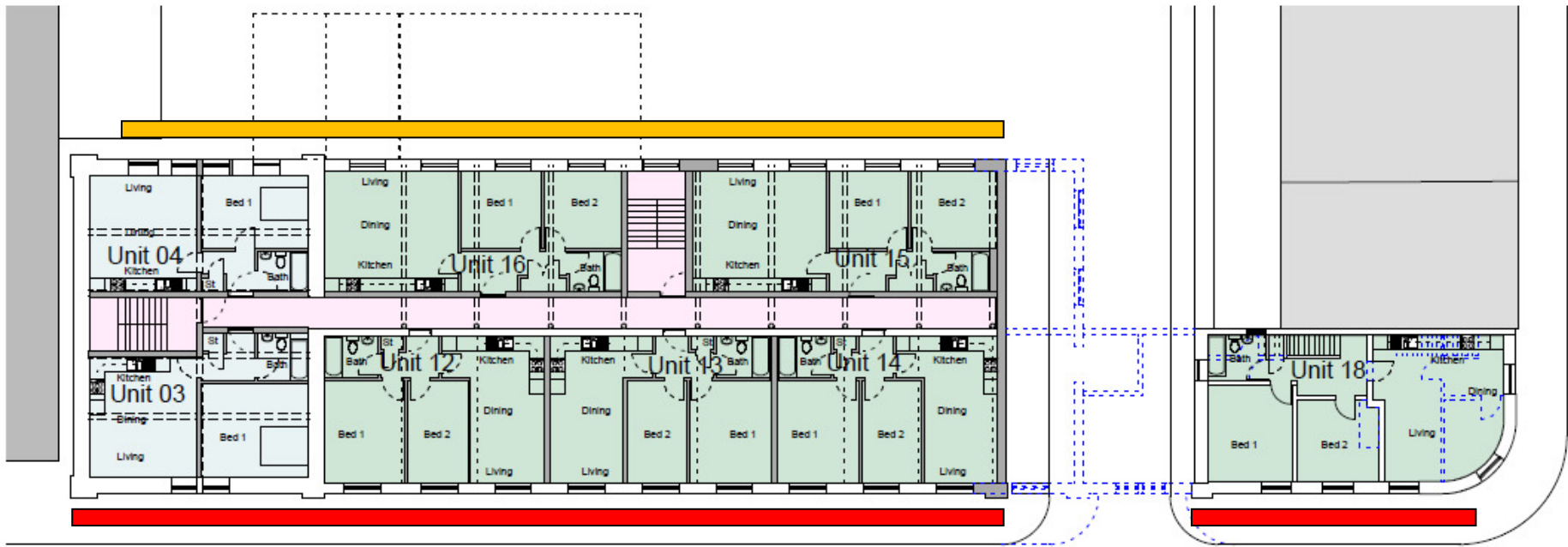
**APPENDIX B – Proposed Plans**



Ground Floor Site Plan As Proposed

Scale 1:200

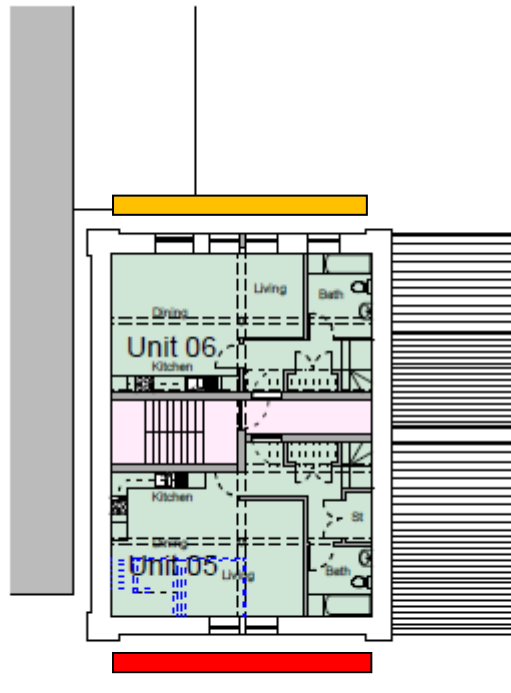




First Floor Plan As Proposed

Scale 1:200

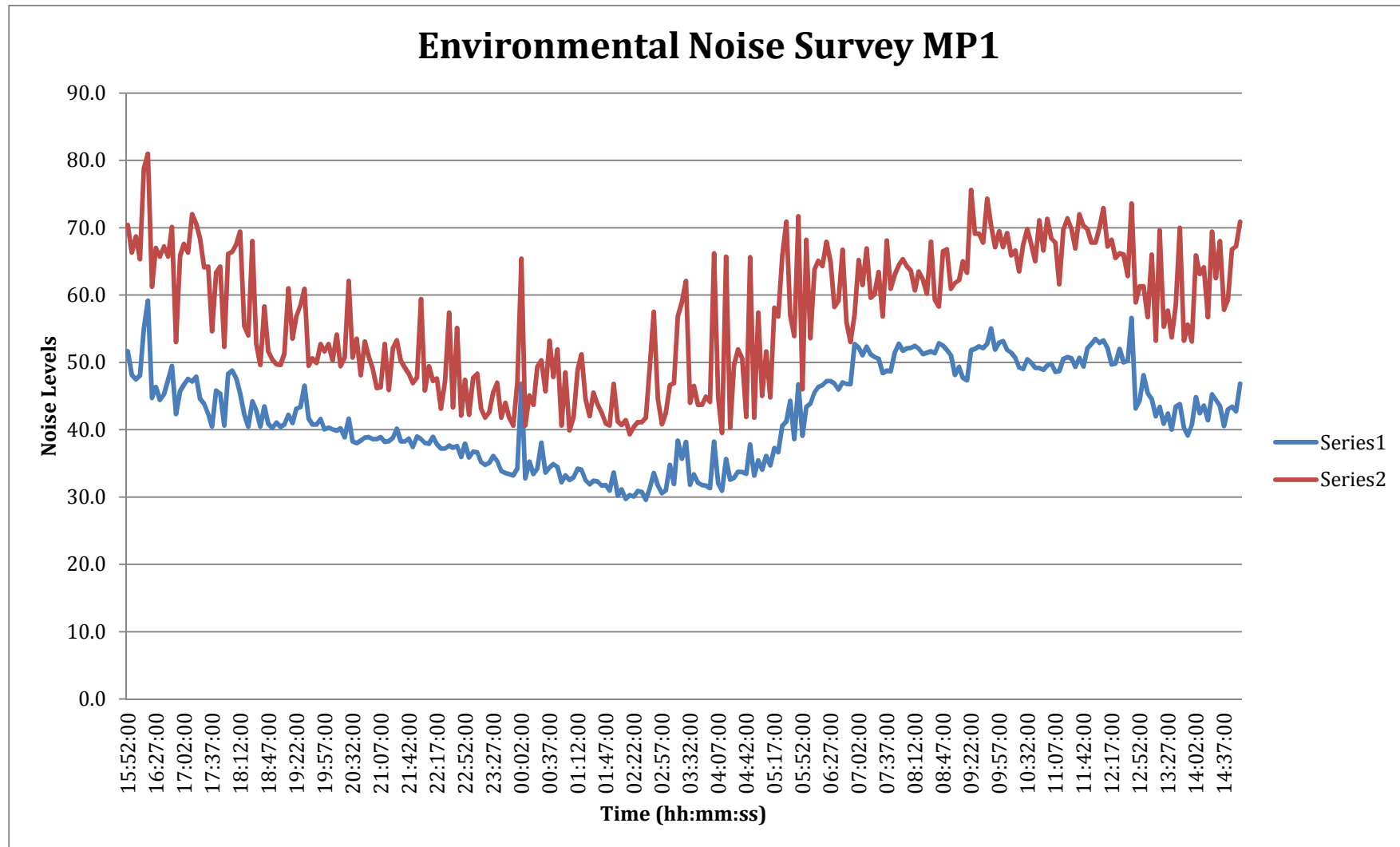




Second Floor Plan As Proposed  
Scale 1:200

0 1 2 3 4 5m 10m

APPENDIX C – Time History Noise Levels - Measurement Position 1



**APPENDIX D – Time History Noise Levels - Measurement Position 2**

