

PREPARED: Friday, 29 January 2021

YAPTON LANE, WALBERTON: STAGE 1 RISK ASSESSMENT

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AS11980/PROPG	ProPG Stage 1 Risk Assessment Summary
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APPENDIX A	Acoustic Terminology

Project Ref:	AS11980	Title:	Yapton Lane
Report Ref:	AS11980.210126.RA.1.0	Title:	Yapton Lane, Walberton: Stage 1 Risk Assessment
Client Name:	Land Quest UK (Southern) Limited		
Project Manager:	Daniel Saunders		
Report Author:	Daniel Saunders		
Clarke Saunders Acoustics Winchester SO22 5BE		This report has been prepared in response to the instructions of our client. It is not intended for and should not be relied upon by any other party or for any other purpose.	

1.0 EXECUTIVE SUMMARY

- 1.1 Outline planning consent is sought for proposed residential development at the site west of Yapton Lane, Walberton BN18 0AS.
- 1.2 Clarke Saunders Associates have been commissioned by Land Quest UK (Southern) Limited to undertake a ProPG: Planning and Noise [ProPG] Stage 1 Risk Assessment and Level 1 Acoustics, Ventilation and Overheating [AVO] assessment to determine the suitability of the site for its proposed use and inform of relevant noise risk around the site.
- 1.3 A survey of the prevailing noise climate has been undertaken by Clarke Saunders Associates. Measured noise levels were highest towards Yapton Lane, where subsequent ProPG and AVO risk assessments found a Negligible-to-Low risk in terms of likely risk of adverse effects from noise. Noise levels measured further away from Yapton Road tend towards the Negligible risk category.
- 1.4 The ProPG recommends that a Stage 2 Acoustic Design Statement be prepared to consider the noise impact of the site in more detail and to address the requirement for any outline mitigation measures as appropriate for the proposed residential development, with particular attention to dwellings located towards Yapton Lane.
- 1.5 Based upon the risk identified in the AVO guidance, a Level 2 assessment is deemed optional. The document suggests that the measured levels are indicative that *"Use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect"*. Whilst this is likely for the majority of site, it is advised that the developer takes due consideration to mitigation for dwellings with façades directly overlooking Yapton Lane.
- 1.6 This assessment concludes that subject to review of acoustic mitigation measures the site is suitable for residential use.

2.0 INTRODUCTION

- 2.1 Land Quest UK (Southern) Limited is seeking outline planning consent to construct residential dwellings on the land located to the west of Yapton Lane, Walberton BN18 0AS.
- 2.2 Clarke Saunders Associates have been commissioned to undertake an environmental noise survey at the site, which will form the basis of a ProPG Stage 1 Risk Assessment and AVO Level 1 assessment which will inform the developer of the likelihood of adverse impact from noise at the proposed dwellings.
- 2.3 The layout of the site is yet to be determined, which allows for early design input and careful planning based upon the results of any survey work to ensure that 'good acoustic design' principles are followed.
- 2.4 This report presents the results of the ProPG Stage 1 Risk Assessment and AVO Level 1 Assessment which will be used to inform the requirement for a subsequent Stage 2 Acoustic Design Statement.

3.0 SITE DESCRIPTION

- 3.1 The site is currently agricultural land to the west of Yapton Lane and is located around 300 metres south of Walberton, a small village and civil parish within Arun District Council.
- 3.2 The site is located in a rural environment where its boundaries are demarcated in the attached site plan, ASI1980/SP1.
- 3.3 To the north west of the site lies Walberton Place Care Home with a private access road along the northern boundary. To the north-east there is a garden machinery supplier, DM Chainsaws, which specialises in the selling and servicing of chainsaws.
- 3.4 There is a large plant nursery run by The Farplant Group around 300 metres south of the site.
- 3.5 Yapton Lane is a 'B road', where road traffic was noted as relatively infrequent during the site survey visits. However, this road connects surrounding villages to the A27, the nearest main road, where it is anticipated that road traffic flows are higher during "rush hour" periods. Road traffic noise is considered the dominant noise source in this rural environment.

4.0 ENVIRONMENTAL NOISE SURVEY

- 4.1 A survey of the existing ambient noise levels was undertaken at positions LT1, LT2 and LT3 as shown on ASI1980/SP1.
- 4.2 The noise monitors were set to record measurements of consecutive 5-minute L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels between 12:00 hours on Thursday 21st January and 15:00 hours on Monday 25th January 2021.
- 4.3 The following equipment was used during the course of the survey:
 - 1 no. Rion sound level meter type NA28;
 - 1 no. Rion sound level meter type NL32;
 - 1 no. Rion sound level meter type NL52;
 - 1 no. Rion sound level calibrator type NC74.
- 4.4 The calibration of the sound level meters was verified before and after use. No significant calibration drift was detected.
- 4.5 The weather during the survey was generally dry with light or little wind, which made the conditions suitable for the measurement of environmental noise. One period of heavier rain was noted from historical weather data in the late morning of Sunday 24th January 2021, however no significant variation is visible in the time history data.
- 4.6 Measurements were made following procedures in BS 7445:1991 (ISO1996-2:1987) *Description and measurement of environmental noise Part 2- Acquisition of data pertinent to land use*.
- 4.7 The onsite engineer did not observe any chainsaw activity from DM Chainsaws throughout the duration of the site visit. Given that the premises is primarily involved in the selling and servicing of chainsaws, it is expected that chainsaw use would be for testing or trial

purposes only, thus infrequent and for short durations. It is unclear whether any machinery is tested outdoors, however DM Chainsaws buildings located on the shared boundaries will provide a degree of acoustic screening to the proposed development.

- 4.8 Some temporary groundworks using small mechanical earth moving plant to the western side of the DM Chainsaw buildings were observed during the retrieval of the equipment. Elevated baseline noise levels can be seen on the time histories (TH14-TH15) during this period and this has been considered in the analysis of the measurement data.
- 4.9 Please refer to Appendix A for details of the acoustic terminology used throughout this report.

5.0 RESULTS

- 5.1 Figure AST1980/TH1-TH5, TH6-TH10 and TH11-TH15 shows the L_{Aeq} , L_{Amax} , L_{A10} and L_{A50} sound pressure levels as time histories at measurement positions, LT1, LT2 and LT3 respectively.
- 5.2 Other than the temporary localised groundworks noted above, no other extraneous activity is observable within the measured time histories.
- 5.3 The average noise levels for the 'Daytime' and 'Night-time' periods are shown below, as well as the typical L_{AFmax} defined as the 90th percentile of the night-time L_{AFmax} dataset.

MEASUREMENT POSITION	DAYTIME	NIGHT-TIME	TYPICAL NIGHT-TIME
LT1	52 dB $L_{Aeq, 16 \text{ hour}}$	42 dB $L_{Aeq, 8 \text{ hour}}$	64 dB L_{AFMax}
LT2	51 dB $L_{Aeq, 16 \text{ hour}}$	43 dB $L_{Aeq, 8 \text{ hour}}$	65 dB L_{AFMax}
LT3	47 dB $L_{Aeq, 16 \text{ hour}}$	37 dB $L_{Aeq, 8 \text{ hour}}$	52 dB L_{AFMax}

- 5.4 These measured noise data are shown against the risk assessment criteria in AST1980/PROPG and AST1980/AVOG for noise and overheating respectively.
- 5.5 The Stage 1 Risk Assessment shows a negligible to low risk and recommends a Stage 2 Acoustic Design Statement for the low risk areas.
- 5.6 The Level 1 AVO Assessment shows a negligible-to-low risk in respect of overheating without mitigation indicating that a Level 2 Assessment is optional.

6.0 CONCLUSION

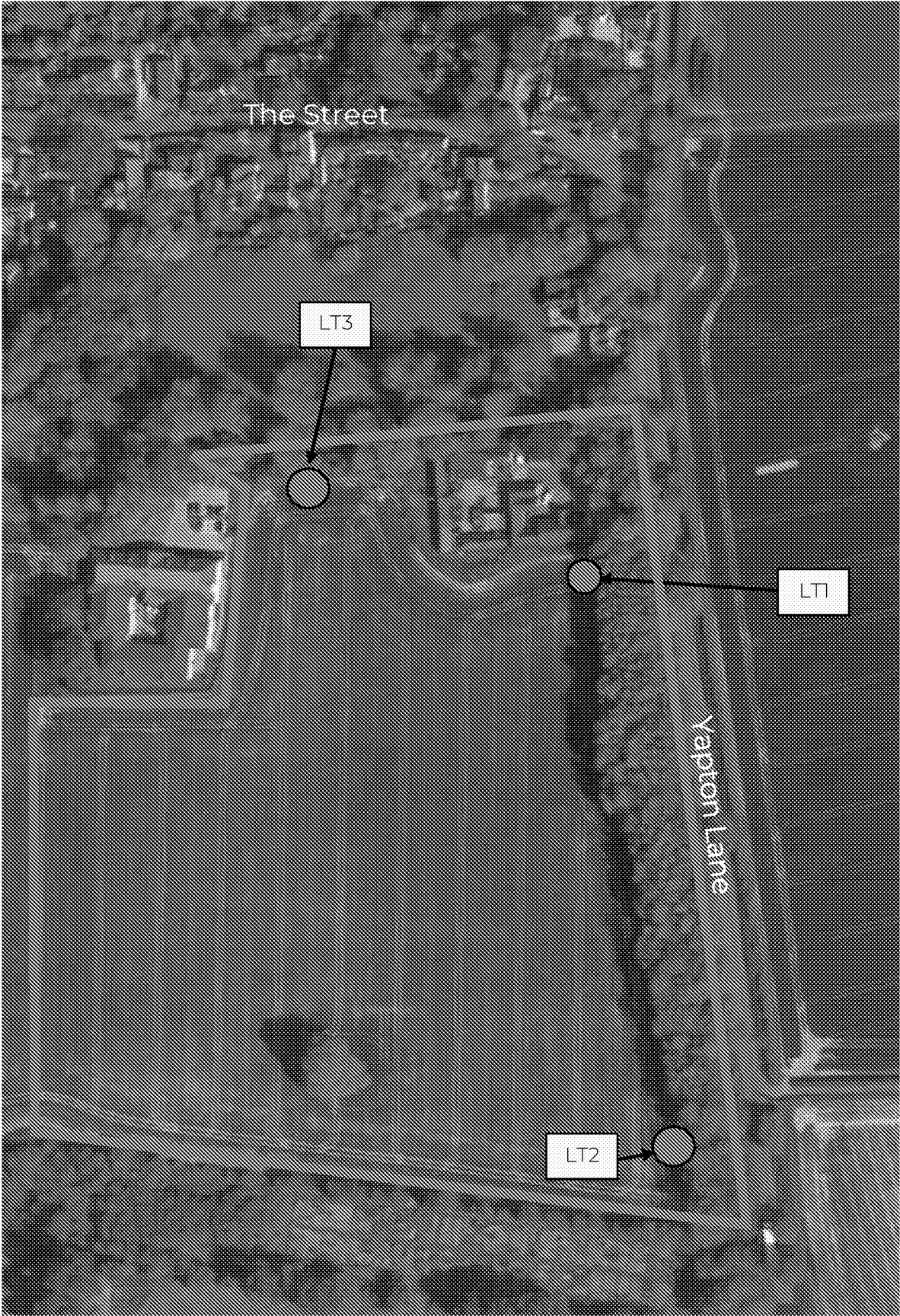
- 6.1 Clarke Saunders has undertaken a noise survey between Thursday 21st January and Monday 25th January 2021 to ascertain the baseline daytime and night-time noise climate and assess the current environmental noise impact on the proposed site.
- 6.2 Noise has been assessed in accordance with the National Planning Policy Framework and Professional Practice Guidance: Planning and Noise: New Residential Development (2017).
- 6.3 The Stage 1 Risk Assessment, following ProPG: Planning and Noise, has shown the prevailing noise climate towards Yapton Lane forms a negligible-to-low risk, where areas to the west of the site tend towards a negligible risk of adverse impact. Due to the higher risk

at the east of the site, the ProPG recommends a subsequent Stage 2 Acoustic Design Statement to detail mitigation for plots closest to the noise source.

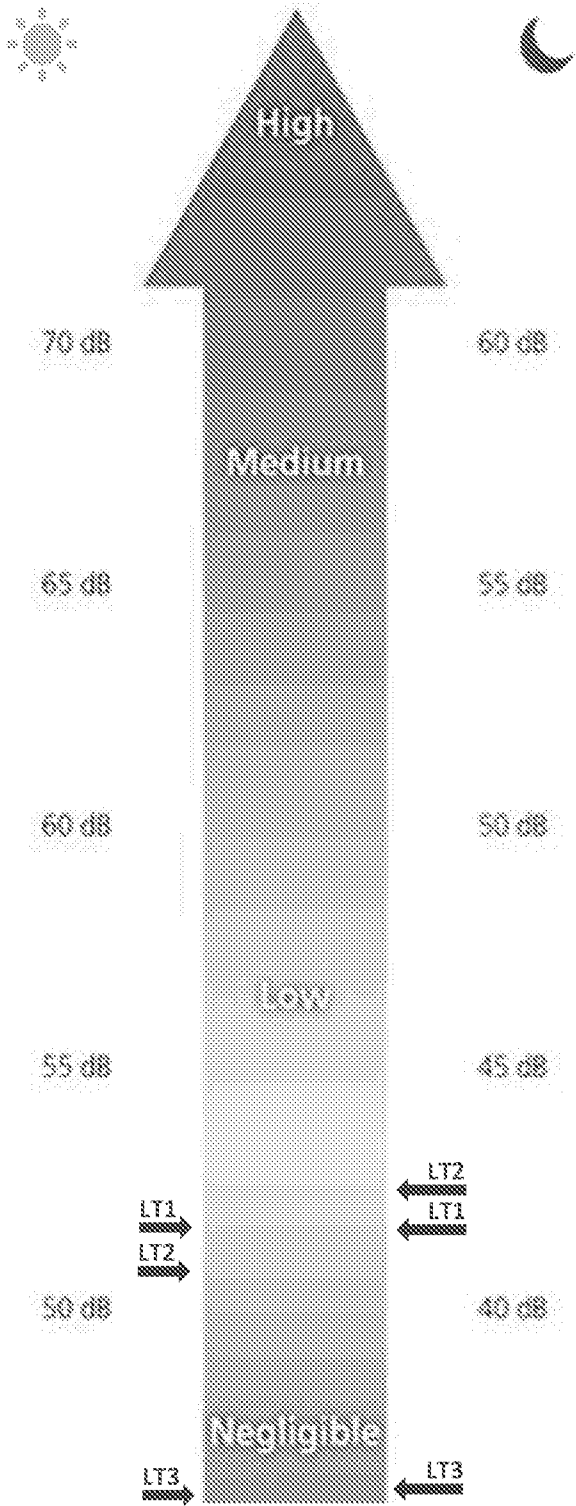
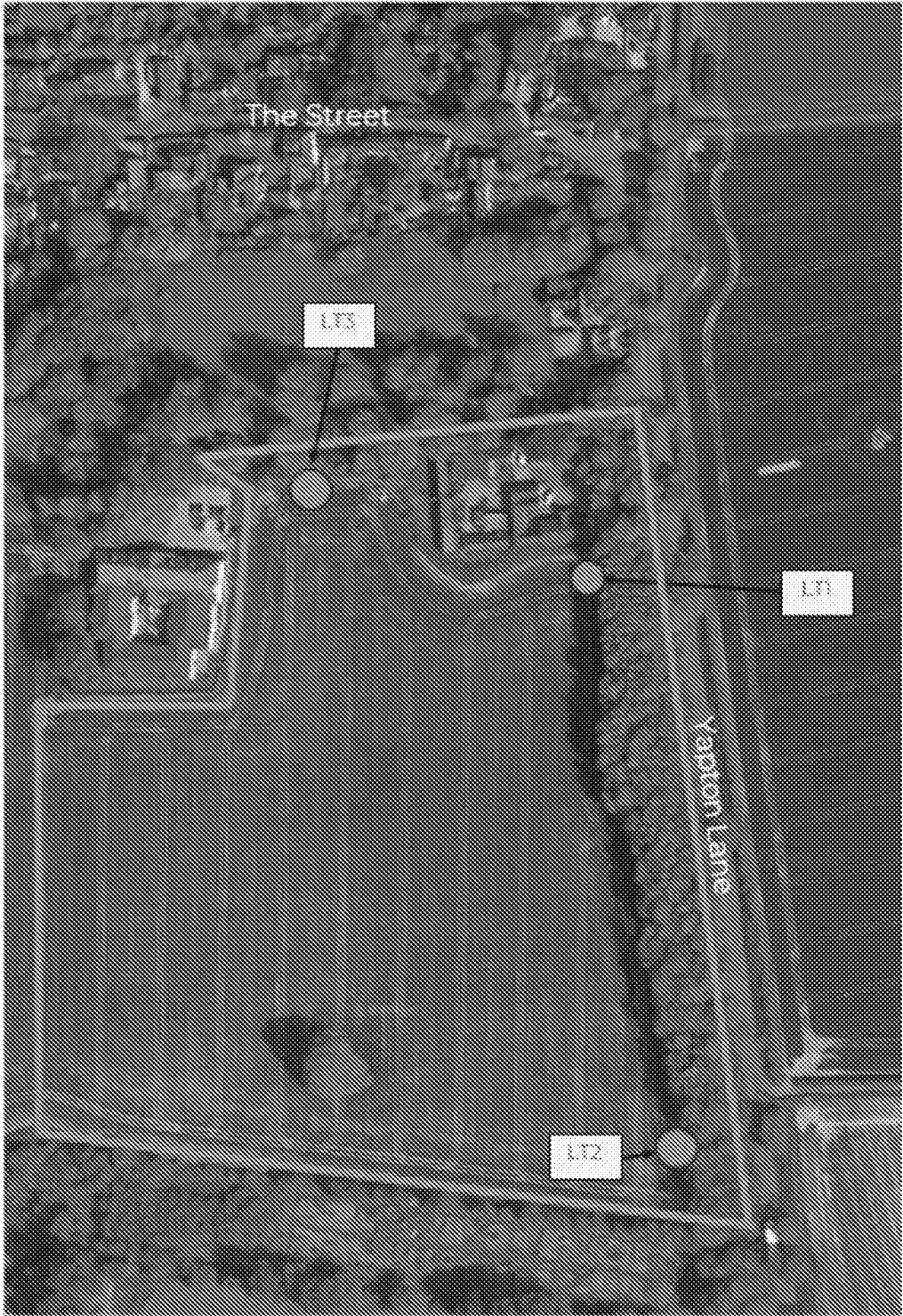
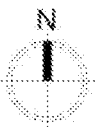
- 6.4 This will utilise iterative 'Good Acoustic Design' to produce sustainable and healthy conditions for future occupants that are sensitive to the specific acoustic characteristics of the location.
- 6.5 With careful space planning, it is likely that acceptable levels of external residential amenity can be achieved without the need for further mitigation.
- 6.6 Risk identified using the AVO guidance suggests that "*Use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect*". As such, a Level 2 assessment is optional, however it is advised that the developer takes due consideration to noise and overheating mitigation for dwellings with façades directly overlooking Yapton Lane.
- 6.7 This assessment concludes that subject to completion of the recommended design studies set out above the site is suitable for residential use.



Daniel Saunders MIOA
CLARKE SAUNDERS ACOUSTICS



ProPG: Planning & Noise – Stage 1 Risk Assessment Summary



Project: Yapton Lane, Walberton
Figure: AS11980/PROPG
Date: 26/01/2021

Position LT1:
Daytime: 52 dB $L_{Aeq,16hour}$
Night-time: 42 dB $L_{Aeq,8hour}$
Night-time: 64 dB $L_{Amax,fast}$

Position LT2:
Daytime: 51 dB $L_{Aeq,16hour}$
Night-time: 43 dB $L_{Aeq,8hour}$
Night-time: 65 dB $L_{Amax,fast}$

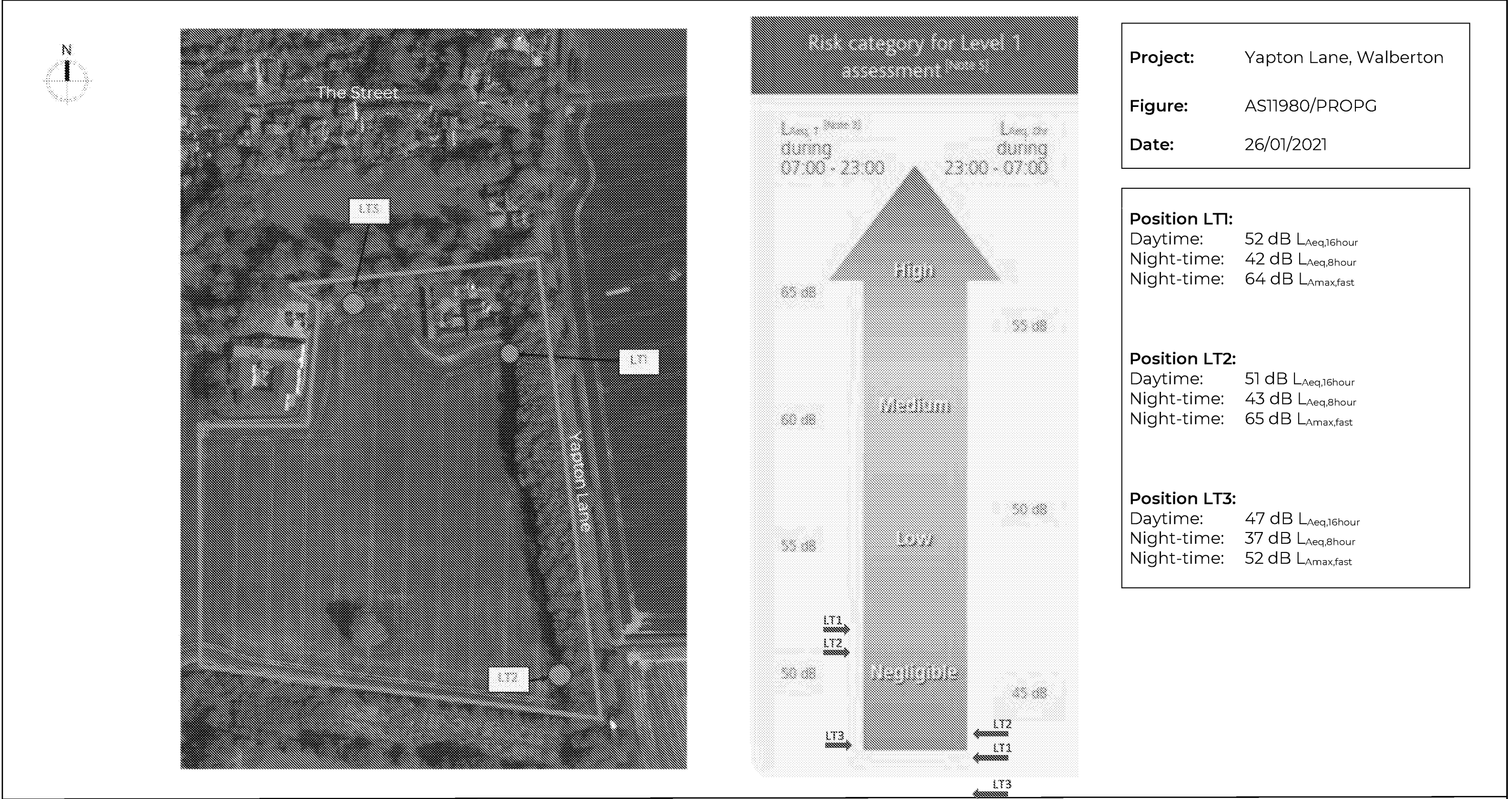
Position LT3:
Daytime: 47 dB $L_{Aeq,16hour}$
Night-time: 37 dB $L_{Aeq,8hour}$
Night-time: 52 dB $L_{Amax,fast}$

Executive Summary

A survey of the existing noise climate was undertaken at the monitoring positions between Thursday 21st January and Monday 25th January 2021.

Noise levels are considered to represent a negligible-to-low risk in terms of adverse impact from noise. Noise levels towards the west of the development are considered acceptable without consideration of further mitigation, however those measured towards the east require further consideration within the layout and design of the development. The ProPG recommends that a Stage 2 Acoustic Design Statement be prepared to consider the noise impact of the site in detail and to address the requirement for any outline mitigation measures as appropriate for the proposed residential development.

AVOG – Level 1 Site Risk Assessment for Overheating Condition Summary



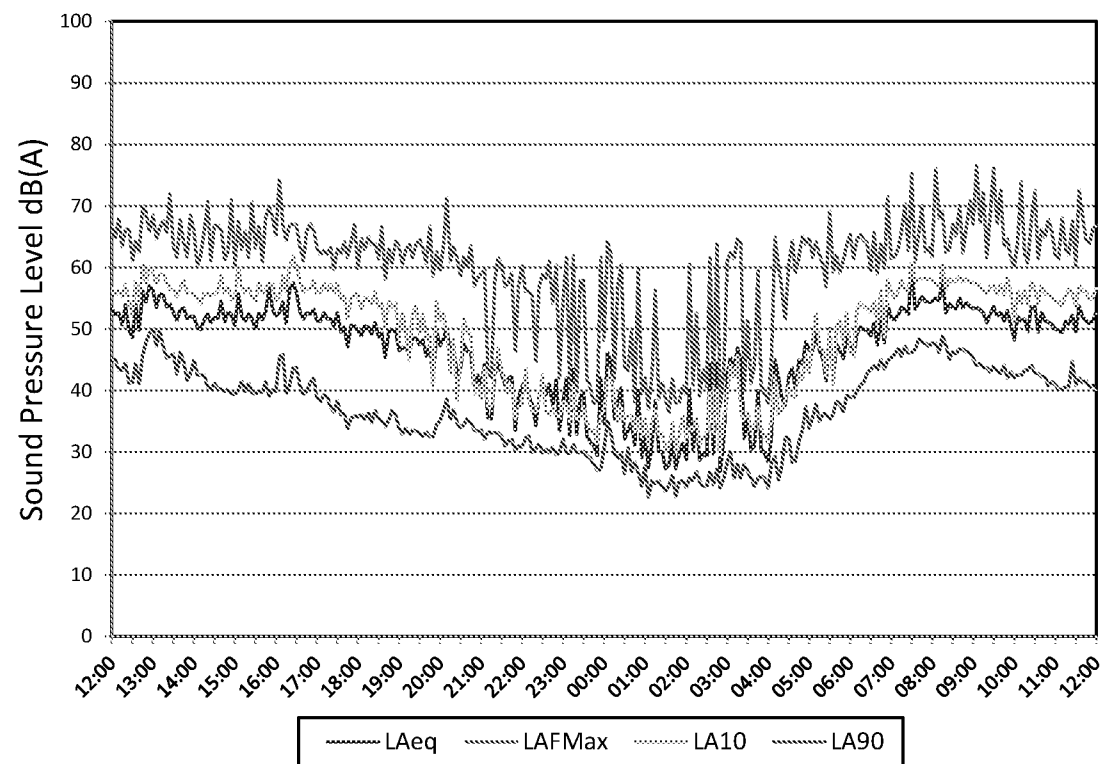
Executive Summary

A survey of the existing noise climate was undertaken at the monitoring positions between Thursday 21st January and Monday 25th January 2021.

Noise levels are considered to represent a negligible-to-low risk indicating a low risk of adverse effect in respect of overheating without mitigation. Based on the assessed risk, the AVO guidance suggests that a Level 2 assessment is optional but not a necessity. Regardless, it is recommended that the developer considers noise mitigation for façades directly overlooking Yapton Lane, where there is increased risk of adverse effect.

Yapton Lane

Environmental Noise Time History: LT1

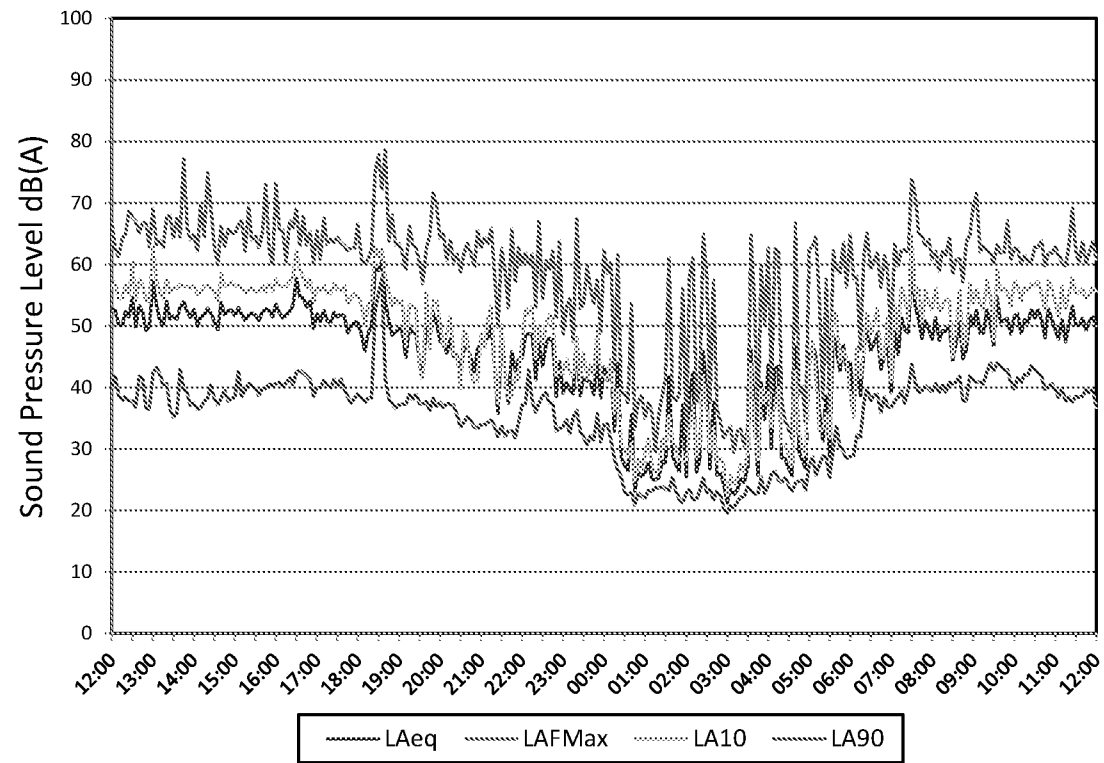


Thursday 21 January to Friday 22 January 2021

Figure AS11980/TH1

Yapton Lane

Environmental Noise Time History: LT1

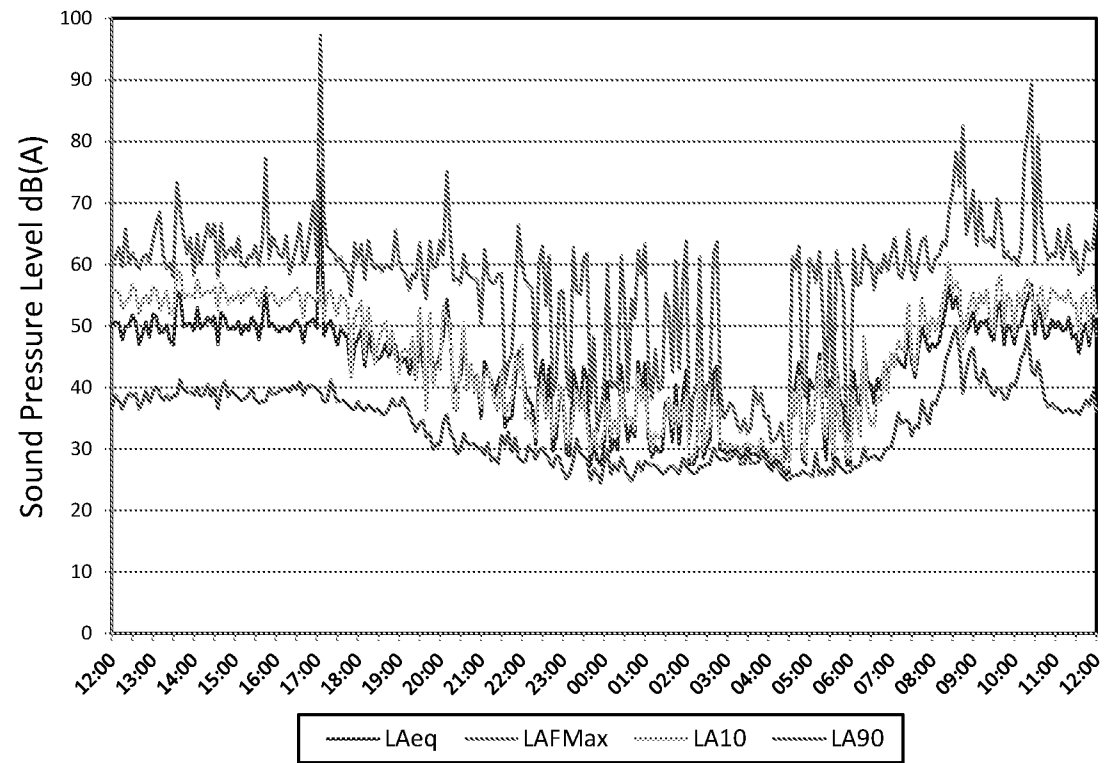


Friday 22 January to Saturday 23 January 2021

Figure AS11980/TH2

Yapton Lane

Environmental Noise Time History: LT1

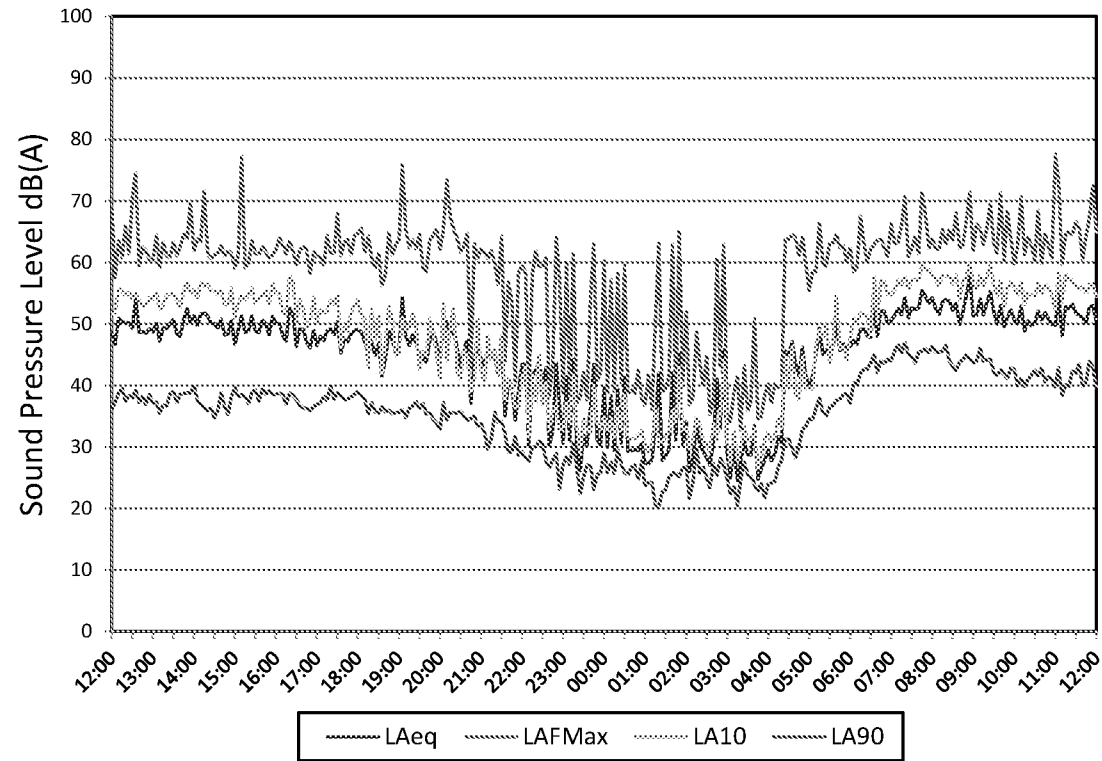


Saturday 23 January to Sunday 24 January 2021

Figure AS11980/TH3

Yapton Lane

Environmental Noise Time History: LT1

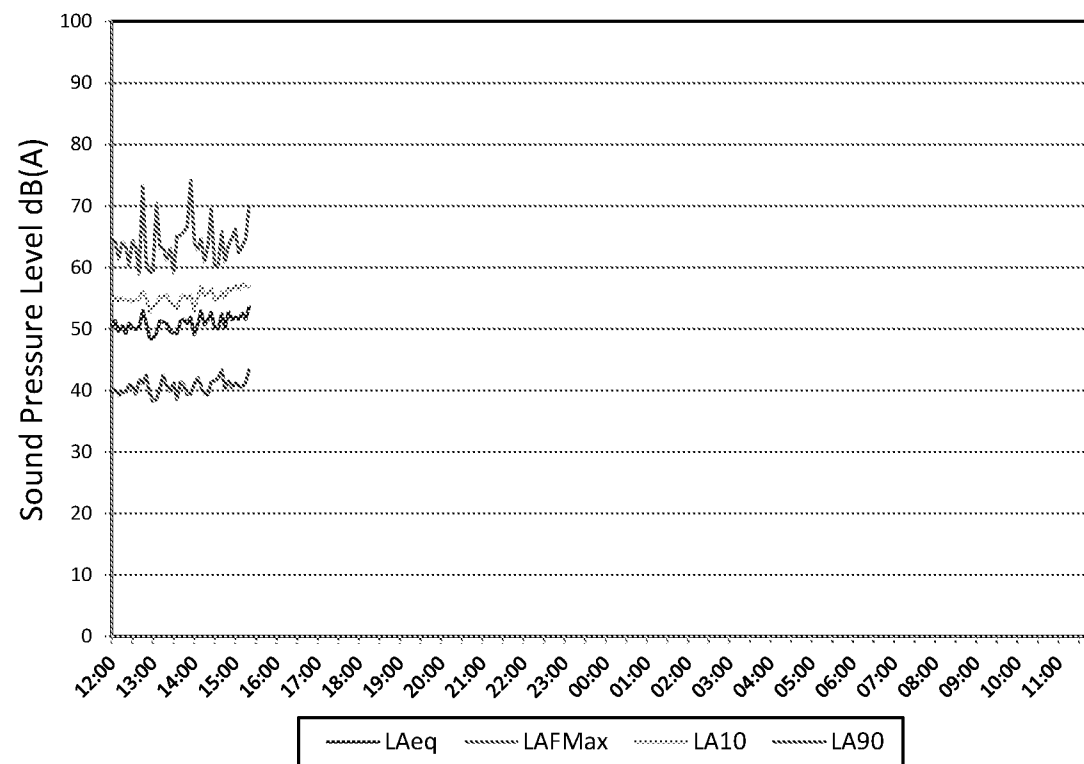


Sunday 24 January to Monday 25 January 2021

Figure AS11980/TH4

Yapton Lane

Environmental Noise Time History: LT1

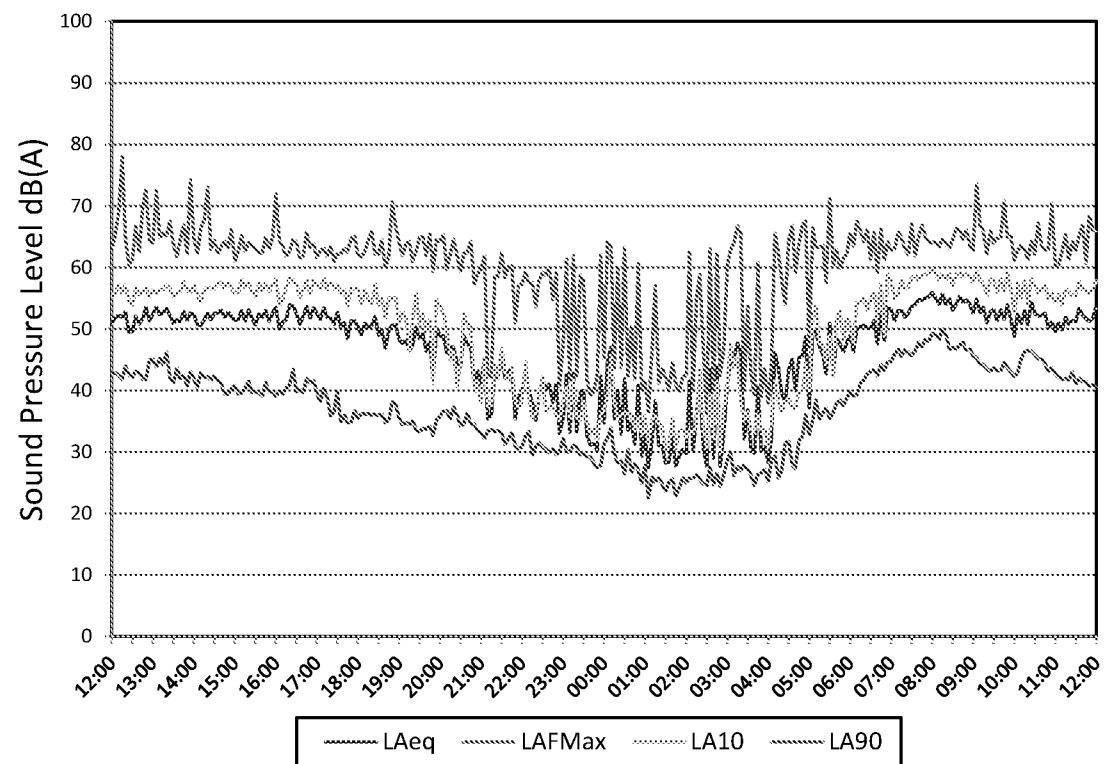


Monday 25 January to Tuesday 26 January 2021

Figure AS11980/TH5

Yapton Lane

Environmental Noise Time History: LT2

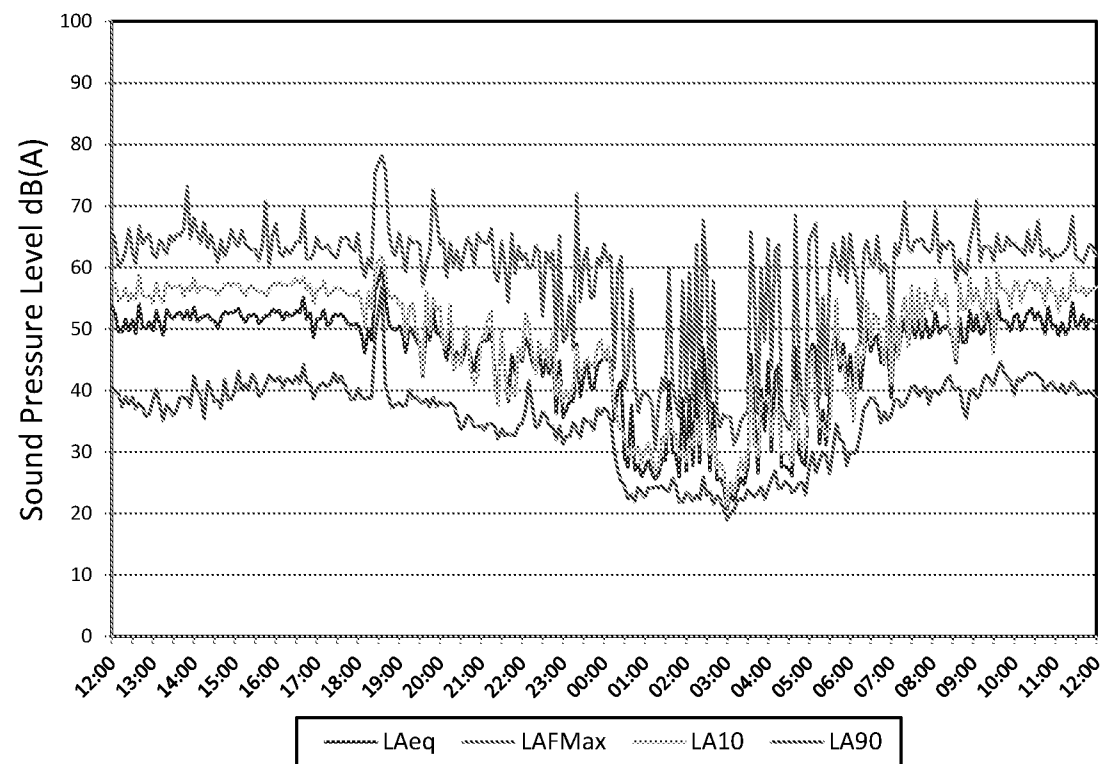


Thursday 21 January to Friday 22 January 2021

Figure AS11980/TH6

Yapton Lane

Environmental Noise Time History: LT2

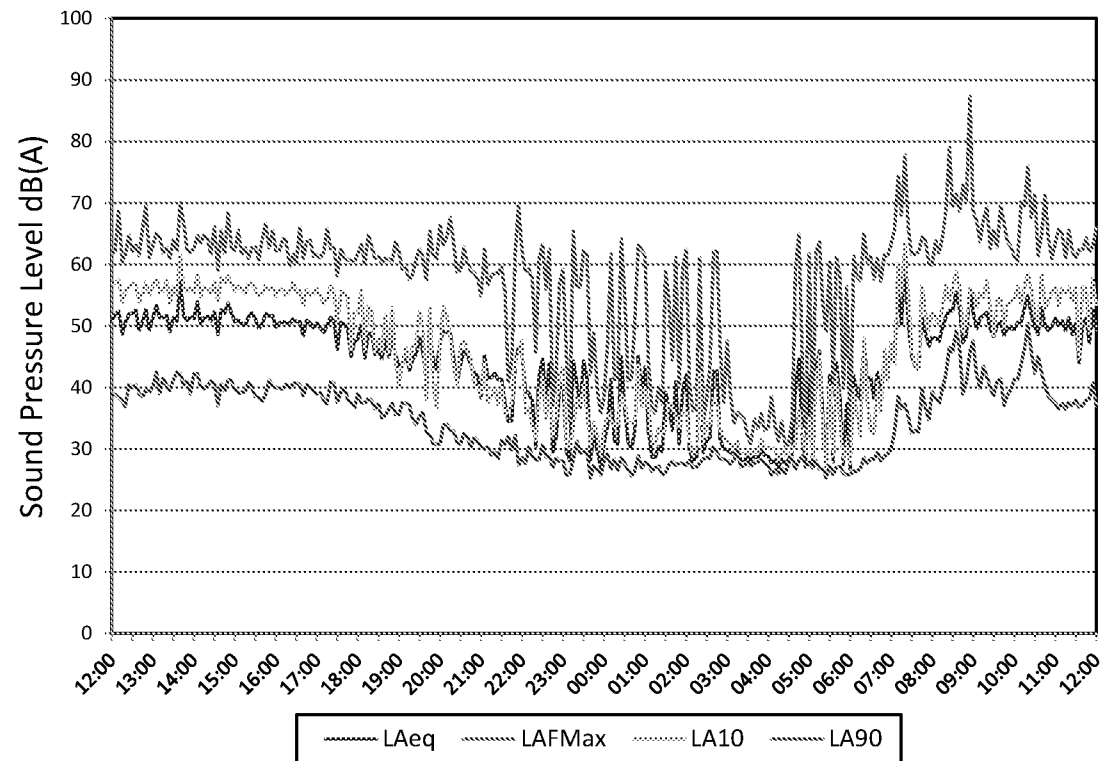


Friday 22 January to Saturday 23 January 2021

Figure AS11980/TH7

Yapton Lane

Environmental Noise Time History: LT2

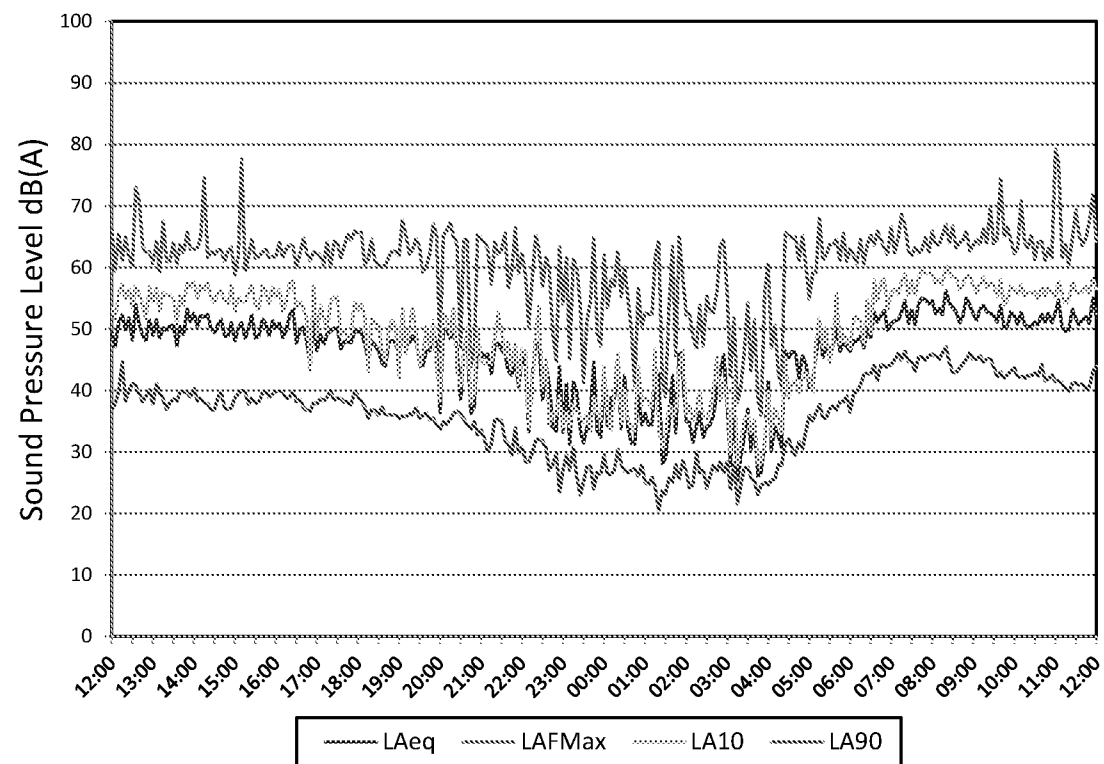


Saturday 23 January to Sunday 24 January 2021

Figure AS11980/TH8

Yapton Lane

Environmental Noise Time History: LT2

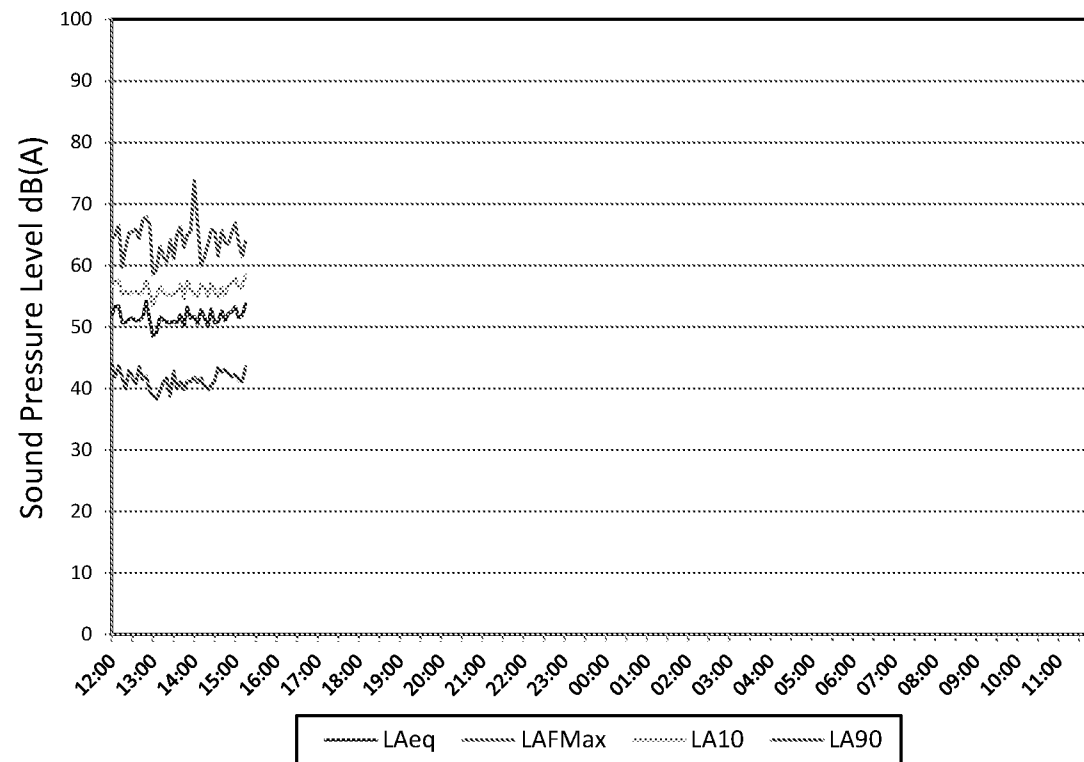


Sunday 24 January to Monday 25 January 2021

Figure AS11980/TH9

Yapton Lane

Environmental Noise Time History: LT2

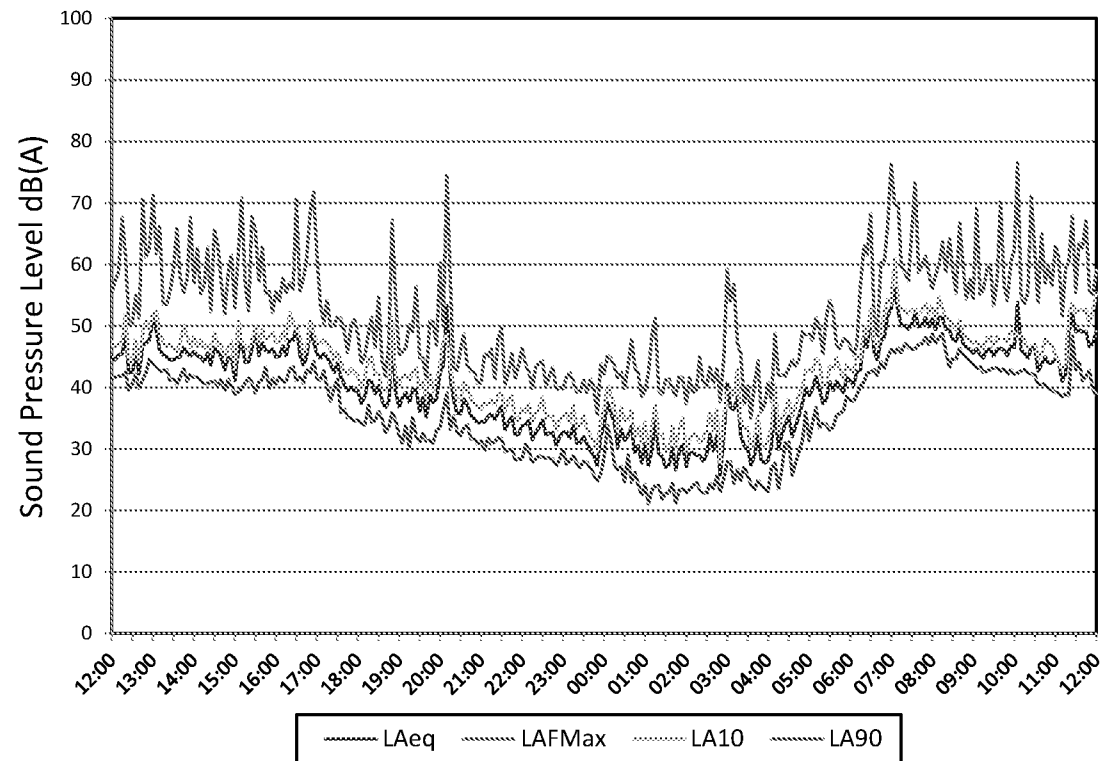


Monday 25 January to Tuesday 26 January 2021

Figure AS11980/TH10

Yapton Lane

Environmental Noise Time History: LT3

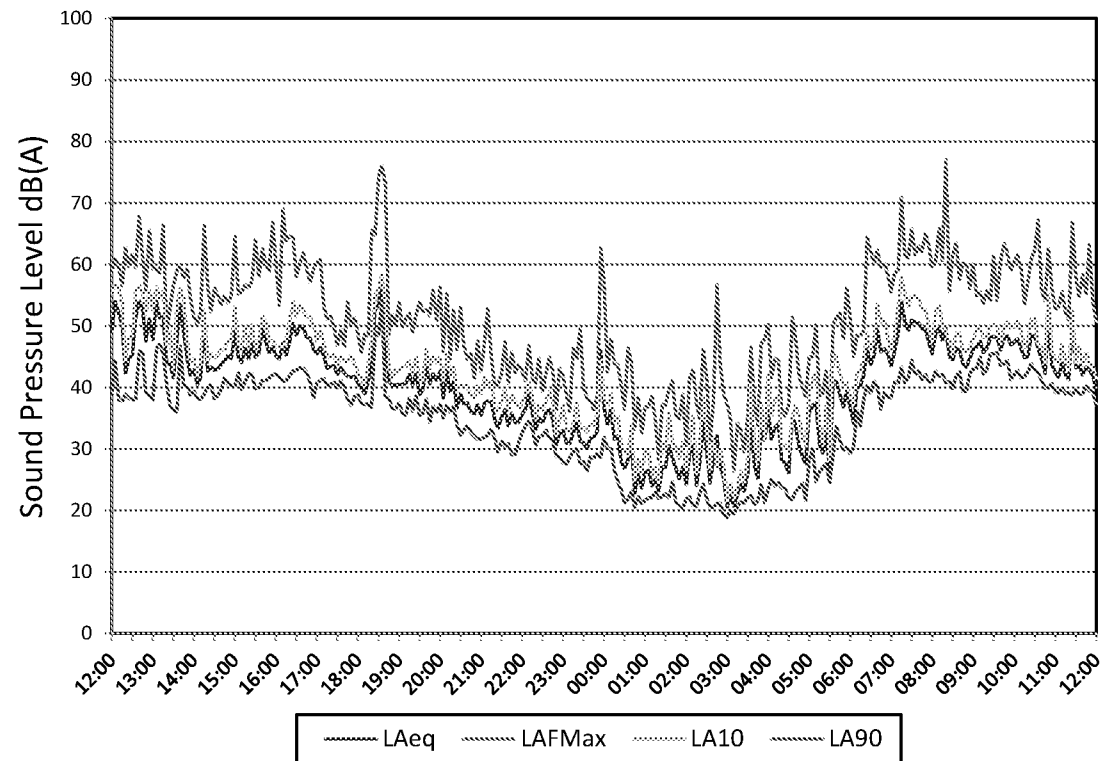


Thursday 21 January to Friday 22 January 2021

Figure AS11980/TH11

Yapton Lane

Environmental Noise Time History: LT3

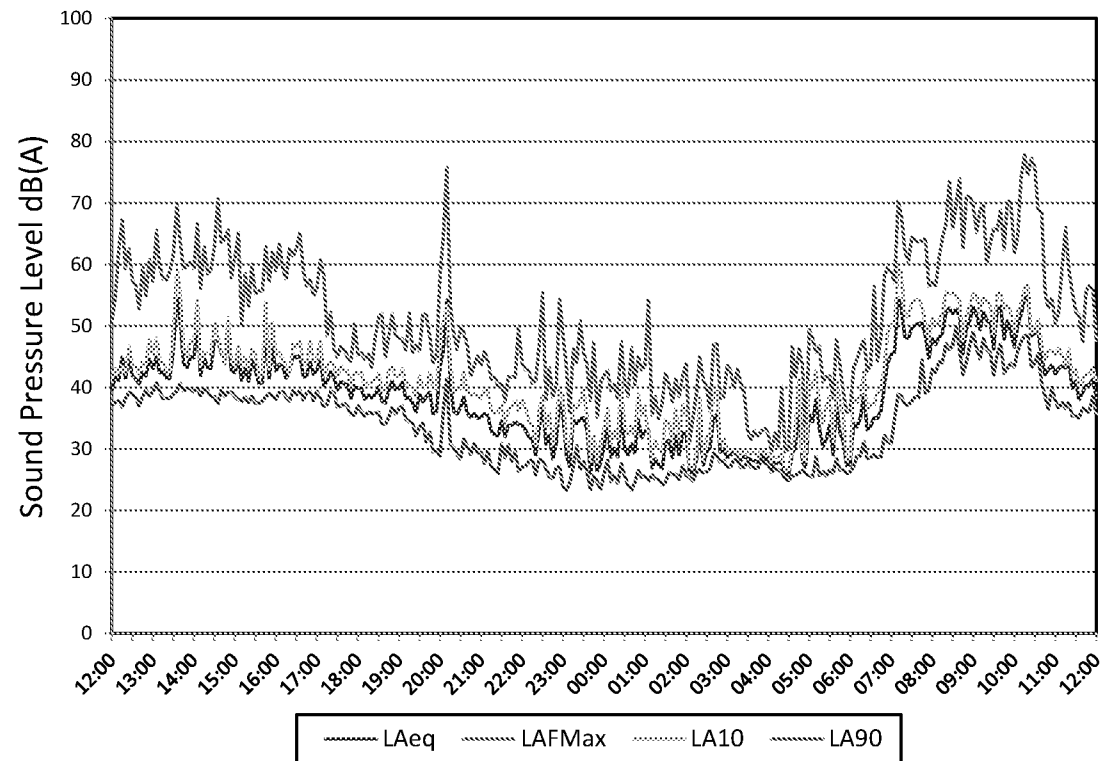


Friday 22 January to Saturday 23 January 2021

Figure AS11980/TH12

Yapton Lane

Environmental Noise Time History: LT3

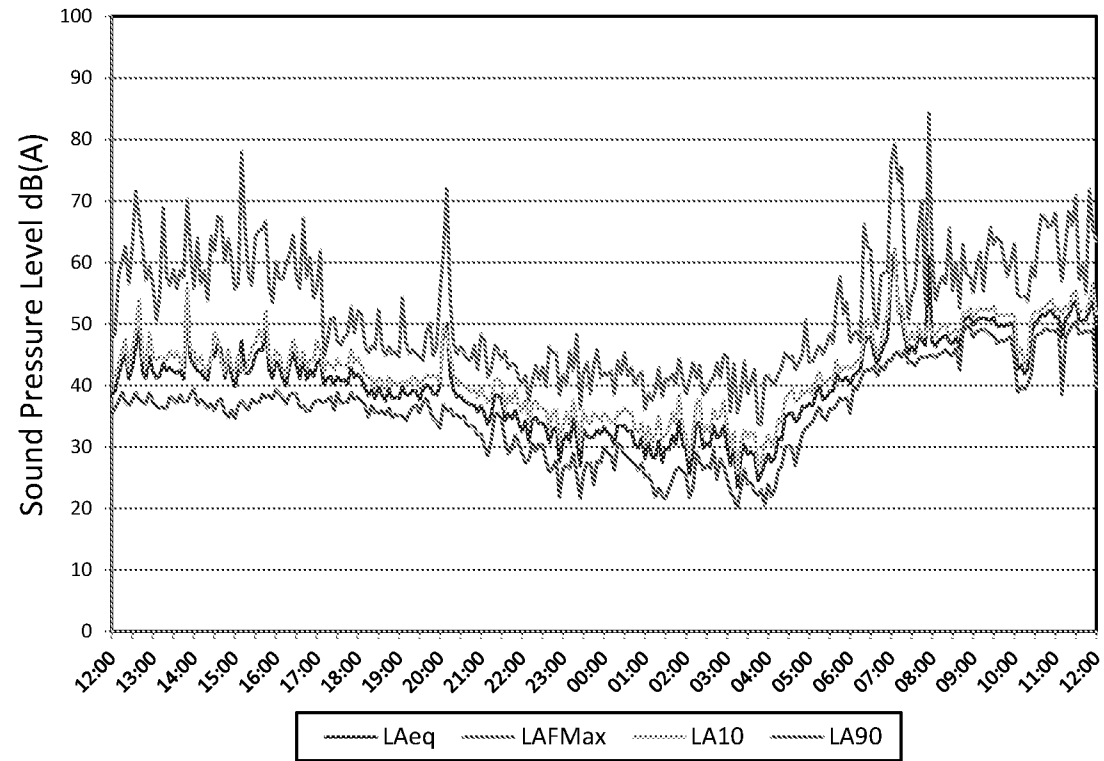


Saturday 23 January to Sunday 24 January 2021

Figure AS11980/TH13

Yapton Lane

Environmental Noise Time History: LT3

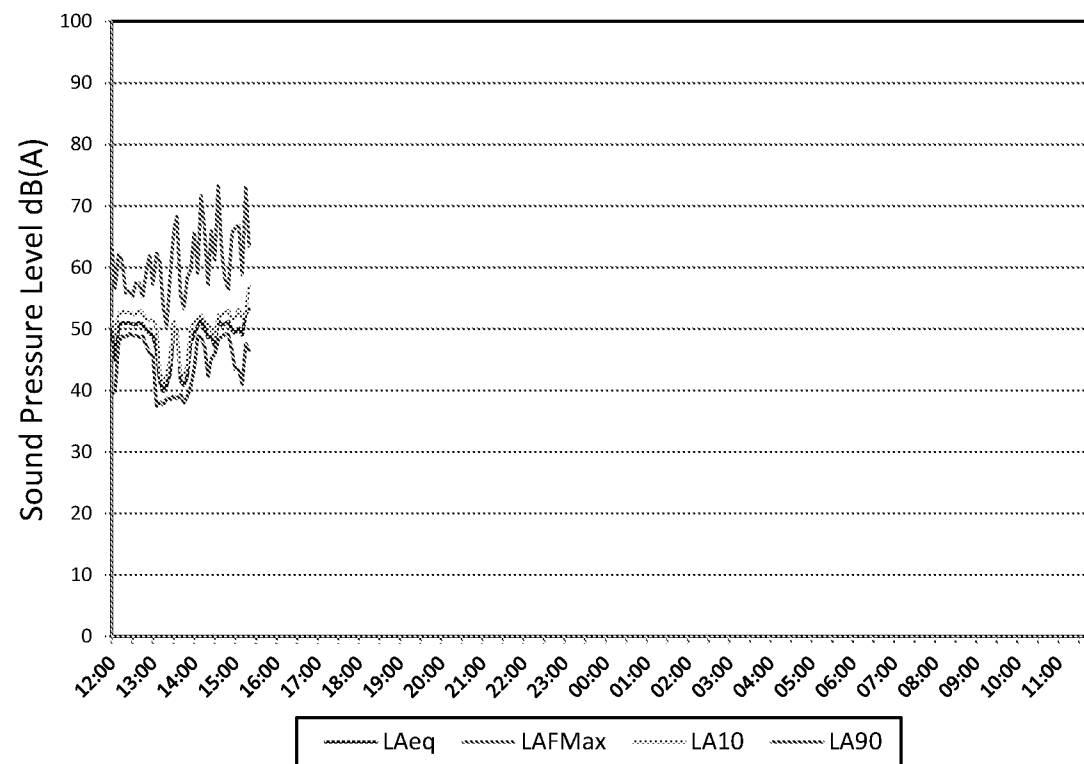


Sunday 24 January to Monday 25 January 2021

Figure AS11980/TH14

Yapton Lane

Environmental Noise Time History: LT3



Monday 25 January to Tuesday 26 January 2021

Figure AS11980/TH15

1.1 Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

Sound	Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.
Noise	Sound that is unwanted by or disturbing to the perceiver.
Frequency	The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.
dB(A):	Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or L_A .
L_{eq}:	A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of L_{eq} (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction. Because L_{eq} is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.
L_{max}:	The maximum sound pressure level recorded over a given period. L_{max} is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged L_{eq} value.

1.2 Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band. In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

Octave Band Centre Frequency Hz	63	125	250	500	1000	2000	4000	8000
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1.3 Human Perception of Broadband Noise

APPENDIX A

ACOUSTIC TERMINOLOGY AND HUMAN RESPONSE TO BROADBAND SOUND

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

INTERPRETATION

Change in Sound Level dB	Subjective Impression	Human Response
0 to 2	Imperceptible change in loudness	Marginal
3 to 5	Perceptible change in loudness	Noticeable
6 to 10	Up to a doubling or halving of loudness	Significant
11 to 15	More than a doubling or halving of loudness	Substantial
16 to 20	Up to a quadrupling or quartering of loudness	Substantial
21 or more	More than a quadrupling or quartering of loudness	Very Substantial

NOISE REPORT AUDIT SHEET

This initiative was developed by representatives of the Hampshire and IOW Environmental Control Advisory Committee (ECAC) and Institute of Acoustics Southern Branch.
As part of this pilot initiative, Clarke Saunders is including this audit sheet for all planning related acoustic reports.

Client Brief

Brief Description	Outline consent sought for proposed residential development in land west of Yapton Lane, Walberton, BN18 0AS. Undertaken ProPG Stage 1 Risk Assessment of the current environmental noise impact and AVOG Level 1 Assessment for overheating.
Design Input	Environmental noise survey undertaken to address the requirement for any outline measures as appropriate for the proposed residential development in the Stage 2 Acoustic Design Statement.

Liaison with LA

Liaison with LA (Name/Date)	Fiona Fitzgerald - 20/01/21
Principles Agreed	Ms. Fitzgerald agreed that we should proceed with survey as "lockdown" noise levels are unlikely to have varied considerably due to rural nature of site. Ms. Fitzgerald informed that she hasn't received any past completes from DM Chainsaws, but may ask for a 4142 assessment in the future. Both parties agreed that the industrial estate to the south is unlikely to be an issue as there is a residential development beside it which hasn't logged any issues so far.

Check List	Page No(s)	Compliance		
		Y	N	N/A
Full site description/map provided	Page 2 & 3, AS11980/SP1	X		
Site history provided	Page 2	X		
Current and potential future acoustic environment identified	Page 2, 3	X		
Identification of relevant legislative framework	Page 2	X		
Conceptual model fully justified	All	X		
Inclusion of reporting elements of BS4142:2014 (Para 12 a to j)				X
Monitoring data fully representative	Page 3	X		
Raw data presented	AS11980/TH1-TH15	X		
ADS included (where ProPG relevant)				X
Calculations and assumptions fully presented and justified				X
Uncertainty assessment provided				X
Clear recommendations and conclusions	Page 4, AS11980/PROPG, AS11980/AVOG	X		
Executive summary included	Page 2	X		

Professional Statement - This report has been prepared independent of influence by the person(s) or instructing party, such that the technical content can be relied upon without knowingly containing altered, manipulated, fabricated or misrepresented data and it has been interpreted using reasonable care, professional knowledge and skill. The report adheres with the principles required by the Institute of Acoustics in their Code of Conduct, and the work is within the author's (including secondary author if relevant) own area of knowledge and expertise. Where opinions have been expressed these represent true and complete professional opinions on the matters to which they refer.

Signed	Position	Dated
Dan Saunders	Director	28/01/2021

v1 First Issue - pilot
v2 Second issue - pilot

24/10/2018
19/12/2018