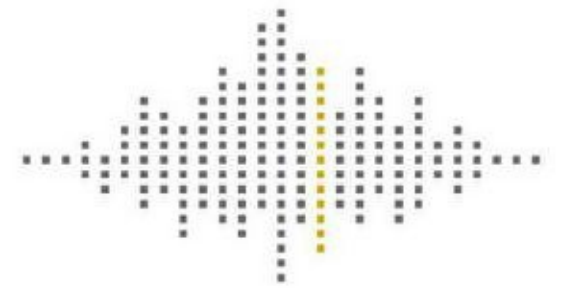


SHARPS REDMORE

ACOUSTIC CONSULTANTS ▪ Established 1990



Report

Iceni Park, Haverhill – Unit 1

Environmental Noise Report

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Date 28 February 2020

Project No 2019436

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This report has been prepared with all reasonable skill, care and diligence commensurate with an acoustic consultancy practice under the terms and brief agreed with our client at that time. Sharps Redmore provides no duty or responsibility whatsoever to any third party who relies upon its content, recommendations or conclusions.

1.0 Introduction

- 1.1 Sharps Redmore have been instructed to carry out a noise assessment of the proposed relocation of TAIT Technologies Ltd from the existing premises in Homestead Road, Haverhill to a new unit at Icen Industrial Park, Haverhill.
- 1.2 Outline planning (OP) permission (Ref: DC/15/242/OUT) exists for development of the site for up to 46,000 sqm of floor space for uses within B1, B2 and B8 of the Use Classes Order. The outline consent was granted subject to planning conditions. A further reserved matters application is currently being sought to take into account changes to unit 1. It is likely that if granted the application would be subject to similar conditions to the existing consent.
- 1.3 TAIT Technologies Ltd is an engineering company (B2 use) specialising in the design and manufacture of automated platforms in the entertainment industry. The purpose of this report is to consider the noise impact of relocating on the adjacent residential properties in Bumpstead Road and Ashlea Road to the north of the site.
- 1.4 This report is based on the noise levels measured at the existing TAIT Technologies premises in Homestead Road and from information received regarding the likely operation of the unit.
- 1.5 SR understands that the existing premise operates during 0600 – 1730 hours with core working hours between 0800 – 1630 hours. However as a result of the relocation flexibility is required to work for occasional work (albeit reduced activity) during the night time period. It is understood that with the exception of some of the larger rigs all materials will be stored within the Unit. The larger rigs will only occasionally be required and will only be moved during daytime hours.

2.0 Noise from fixed plant

- 2.1 In relation to the previous reserved matters application Condition 3 which stated the following:

“Further to the proposed noise levels contained in the Environmental Noise Report – Reserved Matters submitted by Sharps Redmore on the 18th July 2019, Project No 1919017, the combined noise levels emitted from any external mechanical plant and internal operations, at each Unit, installed or operated in connection with the carrying out of this permission, shall be enclosed and/or attenuated and maintained so as to ensure that the noise generated by the permission shall not exceed:

35 dB(A) L_{A90} (1 hour daytime 07:00 – 23:00) at the boundary of the nearest residential property (that being 10dB(A) below the daytime noise levels measured as 45 dB(A) L_{A90})

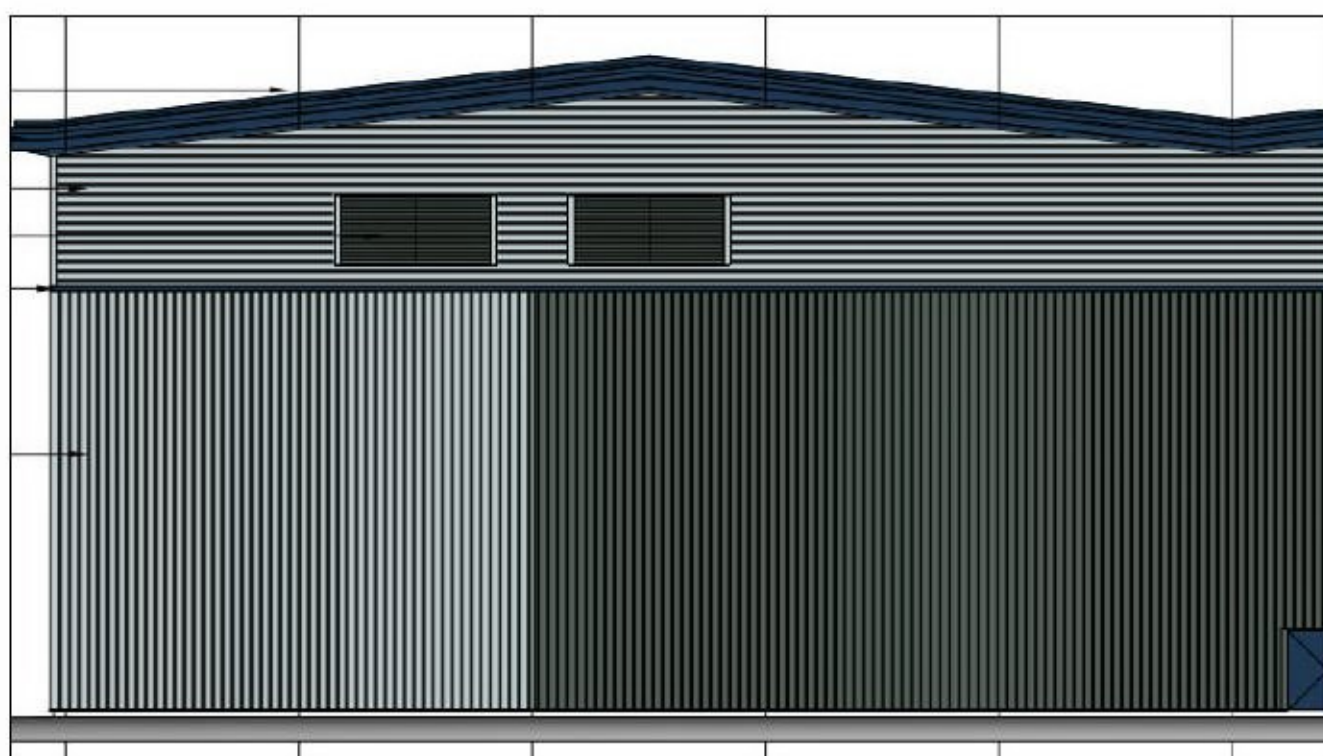
25 dB(A) L_{A90} (15 min night time (23:00 – 07:00) at the façade of the nearest residential property (that being 10dB(A) below the night time noise level measured as 35 dB(A) L_{A90})

No plant, machinery and equipment, including any proposed sound proofing shall be installed until details have been submitted to the Local Planning Authority for approval.

Noise measurements for the purposes of this condition shall be pursuant to BS 4142:2014”

- 2.2 SR has been advised that the only plant likely to discharge externally is the extract system which serves the paint room. The inlets and outlets for the extract system will be at a high level on the eastern elevation of the building as shown in Figure 1 below:

FIGURE 1: Paint Room Extraction System



- 2.2 To determine the impact of the proposed extract system, measurements were taken at the existing TAIT Technologies site in Homestead Road. SR understands that a similar system will be installed at the new unit. The measured noise levels are shown below:

TABLE 2: Paint Extract System

	Octave Band Centre Frequency Hz								dBA
	63	125	250	500	1k	2k	4k	8k	
Exhaust at 1m	77	82	81	80	83	82	75	69	84
Inlet at 1m	80	79	76	77	78	78	70	77	79
Combined	82	84	82	82	84	84	76	78	85
Distance attenuation ($20\log^{1/275}$)	-45	-45	-45	-45	-45	-45	-45	-45	40 dB

- 2.3 The assessment is based on the existing plant however SR is advised that a new extract system will be installed at the site. Noise levels from the new system may differ from those measured on site, however it is likely that any new system will require mitigation to reduce noise levels such as in-line attenuators. The exact specification will depend on the plant to be installed, however based on experience of similar sites it is likely that the noise levels required by the planning condition during the day and night time period can be met.
- 2.4 SR understands that in addition to the above plant a/c units may be located externally. The location of the units is not known however taking into account the distance to the nearest properties the impact from the a/c units is likely to be negligible.

3.0 Noise break-out from unit

3.1 To determine existing noise levels SR has considered the ambient noise levels measured in the Fabrication/Assembly and Testing area. Typical reverberant noise levels measured in this area are shown in Table 3 below.

TABLE 3: Reverberant Noise Levels

	Octave Band Centre Frequency Hz								dBA
	32Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	
Fabrication Area	67	67	72	70	74	78	76	73	82

3.2 This level included all sources, grinding, cutting and banging of metal and is consistent with that measured by TAIT Technologies in relation to Noise at Work Regulations. Reverberant noise levels are slightly higher than those assumed by SR in relation to the outline consent.

3.3 Using the above data and the construction details as shown on the drawing prepared by Aja architects (Drawing Nos: 6502-SK10B Preliminary) noise break-out from the building has been calculated. As advised by TAIT the calculations assume that doors will generally be closed with the exception of times when deliveries are being received.

3.4 It has been necessary to make some assumptions as to the performance of northern elevation and for the purposes of the assessment it has been assumed that it will be 0.7mm steel sheet. Based on this predicted noise level from internal activity at the nearest residential properties will be 29 dBA. This is the same as predicted in the SR report for the reserved matters consent.

3.5 Predicted noise levels during the day will be below the recommended criteria required by the planning condition, however will exceed the night time criteria. However based on information provided by TAIT Technologies it is likely that night time activity would be lower than that measured during the survey and used in the assessment above.

4.0 Noise delivery activity

- 4.1 The original SR assessment was based on potential B8 use and as a result predicted servicing activity was significantly higher than that advised by TAIT. Based on information provided there will be approx. 15 deliveries a day, consisting of flatbed deliveries of steel which will take place within the building, deliveries of supplies which will be unloaded through the level dock, and curtain sided vehicles which will be unloaded within the service yard with an electric fork lift truck.
- 4.2 At the time of the visit to no deliveries took place, therefore to assess noise from delivery activity Sharps Redmore has measured noise levels at similar sites. Noise levels from vehicles being unloaded using a fork lift truck were typically 65 dB $L_{Aeq,1hr}$ and 79 dB L_{Amax} at a distance of 10m.
- 4.3 Based on these noise levels the predicted noise levels from delivery activity at the nearest receptors in Bumpstead Road have been calculated. For the purposes of the assessment it has been assumed that two deliveries will be handled in any one hour.

TABLE 4: Predicted noise levels – Service Yard activity

Period	Bumpstead Road	
	$L_{Aeq,1hr}$	L_{Amax}
Source Noise Level @ 10m	65 dB	79 dB
Distance to receptor	180m	180m
Distance attenuation	25 dB	25 dB
Screening loss ¹	5dB	5dB
Resultant Noise Level	35 dB L_{Aeq1hr}	49 dB

- 4.4 Predicted noise levels from service yard activity are significantly below the background noise levels measured by Sharps Redmore in relation to the original reserved matters application.

Maximum noise levels (L_{MAX})

- 4.6 Whilst is not intended to receive any deliveries at night should this occur of primary concern will be maximum, L_{Amax} , levels from bangs and crashes at night. The L_{Amax} is the highest instantaneous noise level during the measurement period. As referred to in Table 3.1 of the SR report which accompanied the planning application the World Health Organisation (WHO) have set guidelines to what are termed 'critical health effects'. This means that the limits are at the lowest level that would result in any psychological or physiological effect. They are, as defined by the NPSE, set at the lowest level observed adverse effect level (LOAEL). They do not define the level at which effects are considered significant and therefore compliance with the LOAEL should be seen as a robust aim.
- 4.7 To prevent disturbance of sleep the WHO guideline values recommend an external level of 60 dB L_{Amax} . As shown in the table above the predicted maximum noise level from delivery activity will be significantly below the WHO criteria.

APPENDIX A

ACOUSTIC TERMINOLOGY

Appendix A: Guide to Acoustic Terminology

Ambient noise:

The totally encompassing sound in a given situation at a given time. Most often described in terms of the index L_{AeqT} .

Atmospheric absorption:

The excess acoustic attenuation, over and above that caused by distance attenuation, due to the interaction of an acoustic wave with air molecules.

A-weighting:

A frequency weighting which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Units may be denoted as dB(A) or as sound pressure levels L_{pA} in dB. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound.

Background noise:

See L_{A90} .

Correction (for characteristic features of noise source):

A 5 dB penalty applied to the specific noise level if the noise being assessed “contains a distinguishable, discrete continuous note”, contains “distinct impulses”, or is “irregular enough to attract attention” (ref BS 4142:1997).

Decibel (dB):

A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μ Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

Façade noise level:

The noise level adjacent to the façade of a building, usually at a distance of 1 metre.

Free-field noise level:

The noise level away from the façade of a building or other structure.

Hertz (Hz):

Unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

- L_{A10T} : The A weighted level of noise exceeded for 10% of the specified measurement period, T. It gives an indication of the upper limit of fluctuating noise such as that from road traffic. $L_{A10,18hr}$ is the arithmetic average of the 18 hourly $L_{A10,1hr}$ values from 0600 hrs to 2400 hrs.
- L_{A90T} : The A weighted noise level exceeded for 90% of the specified time period, T. In BS 4142:1997 it is used to define background noise level.
- L_{AeqT} : The equivalent continuous sound level - the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period, T. This period is taken to be 16 hours (0700 hrs to 2300 hrs) and 8 hours (2300 to 0700 hrs) to describe day and night, in PPG 24 L_{AeqT} is used to describe many types of noise and can be measured directly with an integrating sound level meter.
- SEL or L_{AE} : The sound exposure level is the A-weighted sound energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparisons to be made between different noise events which occur for different lengths of time.