

# SANDY BROWN

*Consultants in Acoustics, Noise & Vibration*

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## The Apex, Tribeca, Camden

*Fume extract planning noise assessment*

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## **Disclaimer**

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## Summary

Sandy Brown has been commissioned to provide an assessment of noise in relation to the planning application for the provision of fume extract fans at The Apex, Tribeca, Camden, also known as UBB Plot A.

Plant noise limits have been determined based on the information provided '*Transformation of the Ugly Brown Building – Noise assessment report*' by Waterman Infrastructure & Environment Ltd dated May 2017, that is referred to in planning condition 37 of the permission for the development.

Noise limits of  $L_{Aeq,15min}$  27 dB during the daytime and  $L_{Aeq,15min}$  23 dB at night have been determined for the fume extract fans to ensure that the cumulative impact of all plant serving the development does not increase in combination with the currently permitted plant.

Mitigation measures in the form of in-duct attenuation to the flue and acoustic enclosures to the fume extract fans are required to attenuate the noise from the proposed plant such that it does not increase the impact over the already permitted plant.

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## 1 Introduction

Sandy Brown has been commissioned to provide an assessment of noise in relation to the proposed fume extract fan and flue at The Apex, Tribeca, Camden.

An environmental noise survey has been carried out to establish:

- background sound levels around the site and by nearby noise sensitive premises
- ambient noise levels at the site.

The background sound levels measured during the survey are used as the basis for setting limits for noise emission from the proposed fume extract fans and flue. These limits are set in accordance with the requirements of the local authority.

This report provides details of the noise survey, including measurement results, and provides recommendations.

## 2 Site description

### 2.1 The site and its surroundings

The site, indicated in blue in in Figure 1, is situated on the east side St Pancras way to the west of the Grand Union Canal. in relation to its surroundings is shown in Figure 1.



Figure 1 Aerial view of site (courtesy of Google Earth Pro)

## 2.2 Adjacent premises

Adjacent residential noise sensitive receptors are indicated in pink in Figure 1.

Student accommodation, Beaumont Court, is situated to the west of the site on the opposite side of St Pancras way.

Houses are situated to the east of the site on the opposite side of the grand union canal along Reapers Court.

## 3 Development proposals

The proposed plant is two fume extract fans and a 10 m flue located on the rooftop plant deck of the development at The Apex, Tribeca, Camden. It is understood that the fans will operate during both the daytime and night-time. Drawings of the flue are shown in Figure 2, the flue is marked in orange.

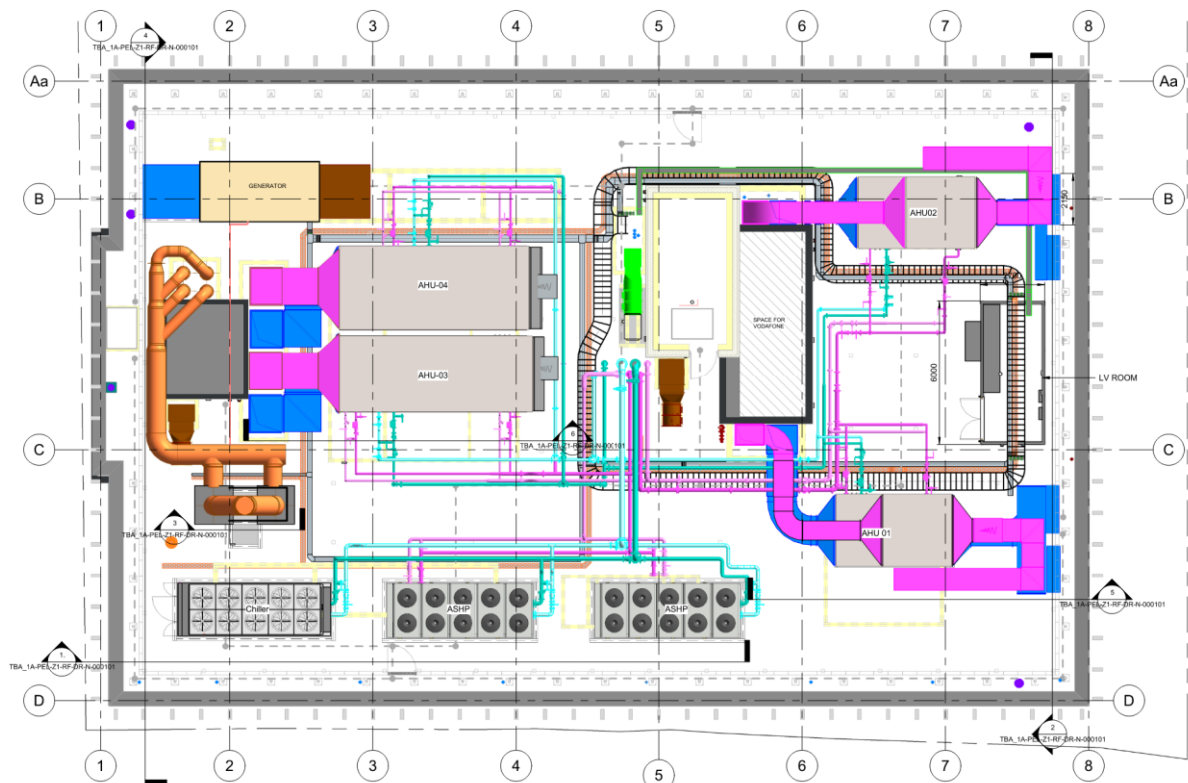


Figure 2 Drawings of the proposed fume extract fans and flue

## 4 Assessment criteria

### 4.1 Noise egress

#### 4.1.1 Local Authority criteria

Planning permission has been granted as part of the planning application for all six plots proposed to be constructed on the wider site under permission reference 2017/5497/P.

Planning condition 37 requires control of noise from fixed items of plant associated with the development, and states:

*Prior to the installation of any items of fixed plant associated with the operation of the development, a noise report shall be submitted to and approved in writing by the local planning authority.*

*The noise report shall demonstrate that cumulative sound levels from external building services and fixed plant are 10dB or more below the lowest background sound level (15dB if tonal components are present) at the nearest sensitive receptor at any time. The report should reference the proposed noise limits included in the planning application noise report, Table 11: Plant Noise Limits at the Nearest Noise Sensitive Premises.*

The planning application noise report referred to is 'Transformation of the Ugly Brown Building – Noise assessment report' by Waterman Infrastructure & Environment Ltd dated May 2017 (Waterman report).

#### 4.1.2 Standard guidance

BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* (BS 4142) provides a method for assessing noise from items such as building services plant against the existing background sound levels at the nearest noise sensitive premises.

BS 4142 suggests that if the noise level is 10 dB or more higher than the existing background sound level, it is likely to be an indication of a significant adverse impact. If the level is 5 dB above the existing background sound level, it is likely to be an indication of an adverse impact. If the level does not exceed the background sound level, it is an indication of having a low impact.

If the noise contains 'attention catching features' such as tones, bangs etc, a penalty, based on the type and impact of those features, is applied.

## 5 Plant noise egress

### 5.1 Cumulative plant noise limits

Based on the above criteria and the measurement results, the cumulative noise level from the operation of all new plant associated with The Apex (Plot A) should not exceed the limits set out in Table 1.

Based on the background noise levels measured at locations LT3 and LT2 set out in Table 7 of the Waterman report, it is noted that the noise limits given in Table 11 are not consistent with the locations where the long-term measurements were undertaken. It is considered that the limits for 'NSR A' and 'NSR C' have been transposed.

The limits for receptors on St Pancras Way have consequently been based on those reported for 'NSR C' in Table 11 and those across Regents Canal are based on based on those reported for 'NSR A'.

The limits at St Pancras Way and across Regents Canal are set a further 1 and 2 dB lower than the overall limits, respectively, to account for the relative level of contribution from plant serving other plots on the development at the receivers and the distances relative to the plant serving The Apex (Plot A).

Table 1 Plant noise limits at 1 m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1 m from noise sensitive premises ( $L_{Aeq,15min}$ dB)	
	Receptors at St Pancras Way	Receptors across Regents Canal
Daytime (07:00-23:00)	39	35
Night-time (23:00-07:00)	37	33

[1] The limits set out in Table 1 do not include any corrections for tonality. If tonal components are present the limits are 5 dB lower, as required by the planning condition.

The fume extract fans are proposed in addition to the current plant items. Specific limits are therefore proposed for these at a level 10 dB below the cumulative plant noise limits so that they do not increase the cumulative impact of plant at the noise sensitive receivers. The resulting fume extract fan limits are shown in Table 2.



Table 2 Fume extract fan noise limits at 1 m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1 m from noise sensitive premises ( $L_{Aeq,15min}$ dB)	
	Receptors at St Pancras Way	Receptors across Regents Canal
Daytime (07:00-23:00)	29	25
Night-time (23:00-07:00)	27	23

The fume extract fans will be attenuated to achieve the night-time plant noise limits in Table 2 as these are the most onerous limits.

## 5.2 Assessment

Calculations have been undertaken to predict the noise levels of the proposed fume extract fans and flue at 1 m from the nearest noise sensitive receptors. Calculations are inclusive of the 3.3 m barrier positioned around the perimeter of the rooftop plant deck.

Distance attenuation has been based on the geometric spreading of sound power.

Barrier attenuation has been based on the Maekawa method.

Based on the above, without mitigation, the proposed plant is predicted to exceed the plant noise criteria. Mitigation measures are therefore recommended.

### Mitigation measures

To achieve the plant noise limits, two attenuators will be required within the flue. The attenuators should be positioned with attenuator 1 at the base of the flue and attenuator 2 to the atmosphere side of the flue, with a minimum of 1.5 m between the two attenuators. The minimum required insertion losses and maximum regenerated sound power levels for the attenuators are set out in Table 3.

Table 3 Flue attenuator performance requirements (dB)

	Octave band centre frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Attenuator 1 Minimum insertion loss	11	21	38	46	49	39	29	19
Attenuator 1 Maximum regen SWL	68	64	65	66	61	61	64	61
Attenuator 2 Minimum insertion loss	9	13	22	36	31	17	13	13
Attenuator 2 Maximum regen SWL	47	42	46	44	46	51	46	38

The insertion losses for attenuator 1 and attenuator 2 can typically be achieved with attenuators 2100 mm in length.

Noise from the casing of the fume extract fans is also required to be mitigated through the use of an acoustic enclosure. Provided that the enclosure achieves the octave band insertion losses outlined in Table 4, the proposed units are compatible with achieving the limits identified in Table 2. Enclosure insertion losses listed in Table 4 can be achieved with an IAC Noise-Lock 5 enclosure.

Table 4 Fume extract fan acoustic enclosure minimum performance requirements (dB)

	Octave band centre frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Fume extract fan enclosure minimum insertion losses	15	20	22	23	24	27	25	20

## 6 Conclusion

An environmental noise survey has been conducted at The Apex, Tribeca, Camden to assess the background noise levels and ambient noise levels at the site.

Plant noise limits have been determined to be achieved by the operation of the fume extract fans to ensure that their contribution does not cause the cumulative impact, in combination with the other rooftop plant items, and other development plots, to exceed the limits required by the planning condition for the development.

Mitigation to achieve these noise limits of  $L_{Aeq,15min}$  27 dB during the daytime and  $L_{Aeq,15min}$  23 dB at night have been determined. The flue requires two attenuators of 2100 mm in length and an acoustic enclosure encasing the fume extract fans.

With the provision of this mitigation the contribution from the fume extract fans will be compatible with achieving the overall plant noise limits for the development.