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Mr Jeremy Mills Designbrook Limited Unit 12 The Granary Bridge Farm Reading Road Arborfield RG2 9HT

24th March 2023

## RE: 262 HIGH HOLBORN, LONDON NOISE SURVEY SUMMARY

Dear Mills,

An unmanned noise survey of the site has been conducted to establish the pre-development background sound levels, to assess the impact of sound from mechanical plant, as required by local authority noise policy and the relevant British Standard.

The 24 hour survey was carried out on Tuesday 7<sup>th</sup> March to Wednesday 8<sup>th</sup> 2023.

Our survey was conducted in a single location representative of the nearest noise sensitive receiver to the proposed plant installation.

A summary of future assessment methodology, derived target noise levels and background sound levels are summarised in the following sections.

# 1.0 BS4142 CRITERIA...

BS4142 presents a method for determining the likelihood of complaints arising from noise levels associated with fixed sources. The procedure set out in the standard involves the comparison of two noise levels at a noise sensitive location, these are:

Rating Level LAr, Tr

Background Sound Level LA90,T

The level of noise produced by the source when it has been corrected for tonal and temporal components.

The background noise measured as an  $L_{A90}$  (the noise exceeded for 90% of the time) when the plant equipment is not operating.

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The assessment periods defined by BS4142 are 1-hour periods during the daytime hours between 07:00 and 23:00, and 15 minute periods at night between 23:00 and 07:00.

If the plant noise has any distinguishing characteristics such as tonal (e.g. whine, hiss, hum etc) or impulsive components (e.g. bangs, clicks, thumps etc), or if the noise is irregular enough to attract attention, then a penalty is applied depending on the severity of the characteristic.

Acoustically Distinguishing Characteristic	Size of Penalty	Assessment Methodologies
		Subjective Method
Tonality	0 dB to +6 dB	1/3 Octave Method
		Reference Method
Impulsivity	Lip to 10 dP	Subjective Method
Impulsivity	Ор 10 +9 ав	Reference Method
Other sound characteristics	3 dB	Subjective Method
Intermittency	3 dB	Subjective Method

TABLE 1: SUMMARY OF BS4142 ACOUSTIC CHARACTERISTIC PENALTIES

To assess the likelihood of complaints, the difference between the *Rating Level* and the *Background Sound Level* is calculated. A simple comparison of these levels provides the outcome of the assessment as shown in Table 2.

Level Difference (Rating – Background) dB(A)	Assessment Conclusion
Around +10 or more	Likely to be an indication of a significant adverse impact, depending on the context
Around +5	Likely to be an indication of an adverse impact, depending on the context
Zero or less	Indication of the specific sound source having a low impact, depending on the context

TABLE 2: SUMMARY OF BS4142:2014 ASSESSMENT METHOD

The assessment conclusions are all subject to taking into consideration the context of the ambient sound at the site, the character of the specific sound and the sensitivity of the receptors.

Where the assessment takes place prior to the specific source of noise being installed, it is permitted to predict the noise level at the noise sensitive location.

# 2.0 OTHER DESIGN CRITERIA...

The review has considered The London Plan 2021. The key policy affecting the proposed development is understood to be as follows:

#### Policy D14 Noise

- A In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:
  - 1) avoiding significant adverse noise impacts on health and quality of life



- 2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change
- mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses
- 4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)
- 5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials in preference to sole reliance on sound insulation
- 6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles
- 7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.
- B Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations.

The review has also considered the Camden Local Plan 2017. The key policy affecting the proposed development is understood to be as follows.

# Policy A4 Noise and vibration

The council will seek to ensure that noise and vibration is controlled and managed.

Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3). We will not grant planning permission for:

- a. Development likely to generate unacceptable noise and vibration impacts; or
- b. Development sensitive to noise in locations which experience high levels of noise unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.

#### Appendix 3: Noise thresholds

A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion).

The document also goes on to state:



There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where achievement of the rating levels (ordinarily determined by a BS:4142 assessment) may not afford the necessary protection. In these cases, the Council will generally also require a NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted Leq,5mins noise levels in octave bands) 1 metre from the façade of affected premises, where the noise sensitive premise is located in a quiet background area.

In addition, we have also considered BS8233:2014 and the World Health Organisation guidance for noise levels which offer good external amenity. A good standard of external amenity is considered to be 50 dB(A)  $L_{Aeq}$  and below.

Furthermore, we would expect neighbouring dwellings to maintain reasonable internal noise levels with windows open for ventilation. The BS8233 guidance for reasonable internal noise during the day within a dwelling is 35 dB(A)  $L_{Aeq}$ . We would normally expect 10-15 dB(A) reduction through an open window and hence we would not expect the noise level from new plant equipment to exceed 45 dB(A)  $L_{Aeq}$  measured 1 m from the external building façade where there is an opening window.

The most onerous of the available criteria are expected to apply. We recommend that a future assessment of the *Rating Level* of the proposed plant target at least 15 dB below the typical *Background Sound Level* at the nearest noise sensitive receiver. This level both accounts for any potential tonal components, and is expected to achieve the NR curve specification of NR35. NR35 is approximately equal 41 dB(A) based on an approximate 6 dB(A) correction between LAeq and NR values as detailed in BS8233:1999. This is for indicative purposes only. The 6 dB(A) correction is, in our opinion often conservative and will be valid provided there are no strong low frequency components in the sound.

# 3.0 EXISTING BACKGROUND SOUND LEVELS...

There are no restrictions on the minimum duration of measurement of the *Background Sound Level* in BS4142, albeit to say they should represent the *"Typical"* background level when the new equipment will be in operation.

A survey of the pre-development noise environment was undertaken in a location which is considered representative of the pre-development *Background Sound Levels* at the nearest noise sensitive receptors, in façade level conditions.

The measurement has been carried out in full accordance with the following standards and guidance:

- BS 7445-1:2003: Description and measurement of environmental noise Part 1: Guide to quantities and procedures
- BS 7445-2:1991: Description and measurement of environmental noise Part 2: Guide to the acquisition of data pertinent to land use.
- BS 4142:2014: Methods for rating and assessing industrial and commercial sound.
- ANC Green Book Guidelines.

Full details of the survey and results are provided in Appendix A.

We understand the equipment is to run during daytime period only (07:00-23:00). We have therefore based our assessment on this period only.

The measurement has been carried out continuously with a logging period of 2 seconds.



Taking into consideration the measured levels we have used a *Background Sound Level* of 55 dB  $L_{A90,1hr}$  during the day at the nearest sensitive neighbour.

The noise exposure of the site is considered to be high in level. The noise exposure is predominantly due to existing building services.

I hope this covers all required points at this stage, but please advise if you require anything further.

Yours sincerely, For Red Twin Limited

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Gavyn Bache B.Sc.(Hons) PgD MIOA Associate



# APPENDIX A – SURVEY DETAILS...

## Address:

262 High Holborn, London, WC1V 7EJ

# Date

Tuesday 7<sup>th</sup> March to Wednesday 8<sup>th</sup> 2023

#### **Measurement Locations**

1. The microphone location was situated outside the rear courtyard at 1 m from a reflecting surface (façade level conditions). The microphone was pole mounted at c. 3 m above the ground.

#### Personnel

The survey was set up and managed by Gavyn Bache of Red Twin Limited.

## Equipment

Brüel & Kjær 2250 G4 hand held analyser, serial No 2832395 with a Bruel & Kjaer Type 4189 Microphone, serial No 3005055. The microphone was fitted with a UA-1404 windshield. The handheld analyser, microphone and calibrator were laboratory calibrated on 29<sup>th</sup> March 2022 (Certificate No. U40608). The hand-held analyser calibration was checked before and after the measurements using the calibrator and a drift of 0.02 dB was observed during the survey and no adjustments to the measurements have been made to the data.

## Weather

We have noted the historic weather data of London from <u>www.timeanddate.com</u>, which is summarised in Table 3. The weather at the measurement location was suitable for noise measurement and was in accordance with BS7445 and ANC Green Book Guidelines for the majority of the survey period.

Date / Time	Temp	Weather	Wind	Direction
07.03.23 / 10:20	4 °C	More clouds than sun.	7 mph	↑
07.03.23 / 10:50	4 °C	More clouds than sun.	9 mph	↑
07.03.23 / 11:20	5 °C	Light rain. More clouds	9 mph	1
		than sun.		
07.03.23 / 11:50	5 °C	More clouds than sun.	7 mph	↑
07 03 23 / 12.20	5 °C	Light rain. More clouds	7 mph	<b>↑</b>
07.03.237 12.20		than sun.		
07 03 23 / 12.50	5 °C	Light rain. More clouds	8 mph	<b>↑</b>
07.03.237 12.30		than sun.		
07.03.23 / 13:50	4 °C	Drizzle. Partly sunny.	8 mph	$\uparrow$
07.03.23 / 14:20	3 °C	Light rain. Partly sunny.	7 mph	$\uparrow$
07.03.23 / 14:50	3 °C	Partly sunny.	6 mph	$\uparrow$
07.03.23 / 15:20	4 °C	Partly sunny.	3 mph	↑
07.03.23 / 15:50	4 °C	Partly sunny.	3 mph	↑
07.03.23 / 16:50	4 °C	Scattered clouds.	2 mph	1
07.03.23 / 17:20	4 °C	Passing clouds.	2 mph	↑
07.03.23 / 17:50	3 °C	Passing clouds.	2 mph	1
07.03.23 / 18:20	3 °C	Clear.	2 mph	1
07.03.23 / 18:50	1 °C	Clear.	1 mph	1
07.03.23 / 19:20	1 °C	Clear.	1 mph	1
07.03.23 / 19:50	0 °C	Clear.	2 mph	1
07.03.23 / 20:20	-1 °C	Clear.	1 mph	<u>↑</u>
07.03.23 / 20:50	-1 °C	Fog.	1 mph	<u>↑</u>



07.03.23 / 21:20	-1 °C	Clear.	2 mph	$\uparrow$	
07.03.23 / 21:50	-1 °C	Clear.	1 mph	$\uparrow$	
07.03.23 / 22:20	-1 °C	Passing clouds.	No wind	1	
07.03.23 / 22:50	-1 °C	Passing clouds.	No wind	$\uparrow$	
08.03.23 / 23:20	-1 °C	Ice fog.	3 mph	$\uparrow$	
08.03.23 / 00:50	1 °C	Overcast.	6 mph	$\uparrow$	
08.03.23 / 01:20	1 °C	Overcast.	7 mph	 ↑	
08.03.23 / 01:50	2 °C	Passing clouds.	9 mph	$\uparrow$	
08.03.23 / 02:20	2 °C	Passing clouds.	9 mph	$\uparrow$	
08.03.23 / 02:50	2 °C	Passing clouds.	9 mph	$\uparrow$	
08.03.23 / 03:20	2 °C	Light rain. Passing	9 mph	↑ (	
00 02 22 / 02.50	1.00	Light rain Low clouds	0 mph	*	
08.03.23/03.30		Show Dorthy cloudy	9 mph	<b>↑</b>	
08.03.23/04.20	1 °C	Show, Low clouds		<b>↑</b>	
00.03.23 / 04.30		Show. Low clouds.	0 mph	<b>↑</b>	
08.03.23 / 05:20		clouds.	9 mpn		
08.03.23 / 05:50	1 °C	Snow. Low clouds.	8 mph	<u>↑</u>	
08.03.23 / 06:20	1 °C	Snow. Low clouds.	12 mph	<u>↑</u>	
08.03.23 / 06:50	1 °C	Light rain. Low clouds.	10 mph	1	
08.03.23 / 07:20	1 °C	Low clouds.	10 mph	1	
08.03.23 / 07:50	1 °C	Light rain. Low clouds.	10 mph	1	
08.03.23 / 08:20	1 °C	Light rain. Mostly	10 mph	↑ (	
08.03.23 / 08:50	1 °C	Light rain. Mostly 13 mph cloudy.		↑ (	
08.03.23 / 09:20	2 °C	Light rain. Mostly cloudy.	14 mph	1	
08.03.23 / 09:50	2 °C	Light rain. Mostly cloudy.	14 mph	↑ (	
08.03.23 / 10:50	2 °C	Light rain. Mostly 14 mph cloudy.		1	
08.03.23 / 11:20	2 °C	Drizzle. Mostly cloudy.	16 mph	↑	

TABLE 3: LONDON HISTORIC WEATHER DATA

# Results

The survey measurements are summarised in the following table. Other parameters can be calculated from the data and the full data set is available upon request.

## **Survey Comments**

The background and ambient sound at site are dominated by existing building services plant.

Location	Stort Time	Duration	Parameter dB(A)			
(Date)	Start Time		L <sub>AFmax</sub>	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>
1 (07.03.23)	10:36:15	00:23:45	87	61	60	56
	11:00:00	01:00:00	83	58	58	55
	12:00:00	01:00:00	76	58	59	55
	13:00:00	01:00:00	82	58	58	55
	14:00:00	01:00:00	78	57	58	55
	15:00:00	01:00:00	83	58	59	55
	16:00:00	01:00:00	73	57	58	55
	17:00:00	01:00:00	88	58	59	56
	18:00:00	01:00:00	79	58	59	56



	40.00.00	04-00-00	70	<b>F7</b>	50	
	19:00:00	01:00:00	73	57	58	55
	20:00:00	01:00:00	70	57	58	55
	21:00:00	01:00:00	75	56	58	55
	22:00:00	01:00:00	71	56	57	54
	23:00:00	01:00:00	78	56	57	54
	00:00:00	01:00:00	71	56	57	54
	01:00:00	01:00:00	71	55	57	54
	02:00:00	01:00:00	78	56	57	54
	03:00:00	01:00:00	69	55	57	54
1 (08.03.23)	04:00:00	01:00:00	70	56	58	55
	05:00:00	01:00:00	77	57	59	55
	06:00:00	01:00:00	78	58	60	56
	07:00:00	01:00:00	78	59	61	56
	08:00:00	01:00:00	92	60	60	56
	09:00:00	01:00:00	69	58	59	56
	10:00:00	00:58:37	120	76	60	56

TABLE 4: MEASURED NOISE DATA – DAY – LOCATION 1 (FAÇADE LEVEL)





FIGURE 1: PHOTOGRAPH OF SURVEY LOCATION 1 LOOKING DUE SOUTHEAST



# APPENDIX B – SITE PLANS...



FIGURE 2: AERIAL VIEW OF SITE INDICATING KEY LOCATIONS (NOT TO SCALE)