

MPF/PR0538/L08

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Dear Peter

**CIRCLE SQUARE, MANCHESTER – BUILDING 7 & 8, PLANNING CONDITION 20  
(PART 1)**

We write with confirmation of the expected plant noise levels at the nearest sensitive properties due to externally mounted plant at Building 7 & 8, Circle Square, Manchester (Former BBC site, Oxford Road).

**INTRODUCTION**

Fisher Acoustics Ltd has been commissioned by John Sisk & Son Ltd to determine the expected external noise levels generated by the external plant to be installed at Buildings 7 & 8, Circle Square, Manchester and to compare the noise levels to the requirements of planning condition 20, Part 1 of the planning approval.

**PLANNING CONDITION 20, PART 1**

Planning condition 20, part 1 of the planning approval for Buildings 7 & 8, Circle Square, reference 111027/FO/2016/C1, states:

- *'Prior to occupation of the development a scheme for the acoustic insulation of any externally mounted ancillary equipment to ensure that it achieves a background noise level of 5dB below the existing background (La90) in each octave band at the nearest noise sensitive location shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the equipment.'*

Planning conditions 20 makes reference to octave band noise levels. However, the latest guidance from Manchester City Council relating to noise in a planning context 'Planning & Noise: Technical Guidance', issued in December 2015 states that:

- any application for fixed plant, equipment or machinery must demonstrate that: 'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location'.

By designing the sound pressure level of any plant items to generate a noise impact of at least 5dB below the existing background level, any plant noise impact should be of a negligible level which should not give rise to complaints from users or occupiers of existing noise-sensitive usages.

To be in line with the above guidance, it is proposed that the broadband (dB(A)) noise criterion stated in 'Planning & Noise: Technical Guidance' be referred to in this assessment.

#### PRE-EXISTING NOISE LEVELS & ENVIRONMENTAL NOISE STUDY

The Noise and Vibration section of the Environmental Assessment prepared for the planning submission for Circle Square Buildings 5&6 and 7&8 identifies the results of daytime and night time environmental noise surveys at and around the Circle Square site.

The results of the noise surveys can be used to establish the allowable noise levels due to the external plant at the Buildings 7 & 8

#### Non-emergency building services plant

The closest noise sensitive residential properties to the external plant at Circle Square, Building 7 & 8 are:

- Circle Square, Building 7 & 8 residences
- Circle Square Buildings 10 & 11
- Circle Square Buildings 5 & 6
- Circle Square Building 9
- Montana House
- Princess House

With reference to the results of the environmental noise surveys at and around the site, Table 1 identifies the maximum allowable noise levels at the nearest noise sensitive receptors to comply with the above stated plant noise criterion.

| Location                                    | Rating Noise Level (dB LAeq)        |                                        |
|---------------------------------------------|-------------------------------------|----------------------------------------|
|                                             | Daytime<br>(07:00 hrs to 23:00 hrs) | Night time<br>(23:00 hrs to 07:00 hrs) |
| Circle Square, Buildings 5&6, 7&8, 9, 10,11 | 47                                  | 38                                     |
| Montana House                               | 47                                  | 38                                     |
| Princess House                              | 47                                  | 39                                     |

**Table 1:** Environmental noise limits for non-emergency building services plant

### Noise limit for Emergency Building Services plant

The proposed rooftop emergency plant at Buildings 7 & 8 is a smoke extract fan.

It is expected that the smoke extract fan would only operate during emergencies and during periodical test runs (perhaps test runs of thirty minutes every two weeks).

On this basis, it is not considered appropriate to require the smoke extract fan to comply with the noise limits for continuously operating non-emergency plant. It is therefore suggested that the operational noise level at residential properties at and around the site due to operation of the generator and smoke extract fan is no more than 10dB(A) greater than the pre-existing ambient noise level (measured as an  $L_{Aeq}$ ).

With reference to the results of the environmental noise surveys, it is therefore recommended that the noise level at the residential receptors at and around Buildings 7 & 8 during operation of the smoke extract fan does not exceed a daytime noise level of 71dB  $L_{Aeq}$ .

### PROPOSED BUILDING SERVICES PLANT (NON-EMERGENCY)

The proposed external non-emergency plant items which are to be installed on the roof of Buildings 7 & 8 Circle Square, are as follows:

- 2 no. Heat Recovery Units
- 1 no. Corridor Ventilation Extract Fan Unit

Table 2 identifies the reported sound pressure levels of the heat recovery units.

| Building services plant item                                                              | Sound Pressure Level (dB re $2 \times 10^{-5}$ Pa) |                                   |     |     |     |    |    |    |
|-------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------|-----|-----|-----|----|----|----|
|                                                                                           | dB(A)                                              | Octave Band Centre Frequency (Hz) |     |     |     |    |    |    |
|                                                                                           |                                                    | 63                                | 125 | 250 | 500 | 1k | 2k | 4k |
| Heat Recovery Unit<br>Model: LGH200RVX-E (2 no.)<br>SPL at 1.5 m,<br>anechoic measurement | 40                                                 | 58                                | 49  | 42  | 39  | 32 | 26 | 22 |

**Table 2:** Sound pressure levels of non-emergency building services plant at Building 7 & 8

Table 3 identifies the reported sound power levels of the corridor ventilation extract fan.

| Building services plant item                                            | Sound Power Level (dB re $1 \times 10^{-12}$ W) |                                   |     |     |     |    |    |    |
|-------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------|-----|-----|-----|----|----|----|
|                                                                         | dB(A)                                           | Octave Band Centre Frequency (Hz) |     |     |     |    |    |    |
|                                                                         |                                                 | 63                                | 125 | 250 | 500 | 1k | 2k | 4k |
| Corridor Ventilation:<br>Hunters, Model: SLC450/2A-3AC, exhaust (1 no.) | 93                                              | 91                                | 86  | 83  | 89  | 86 | 87 | 84 |

**Table 3:** Sound power levels of non-emergency building services plant at Building 7 & 8

Table 4 identifies the reported dynamic insertion loss of the atmosphere-side attenuators to the corridor extract fan and heat recovery units.

| Building services plant item                                                        | Dynamic Insertion Loss (dB)<br>@ Octave Band Centre Frequency (Hz) |     |     |     |    |    |    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-----|-----|----|----|----|
|                                                                                     | 63                                                                 | 125 | 250 | 500 | 1k | 2k | 4k |
| Atmosphere-side attenuator (by 'Acoustica') to corridor extract fan, Block 7&8      | 7                                                                  | 10  | 12  | 21  | 26 | 26 | 24 |
| Atmosphere-side attenuator (by Allaway Acoustics) to heat recovery units, Block 7&8 | 3                                                                  | 7   | 13  | 26  | 37 | 30 | 26 |

**Table 4:** Insertion Loss of atmosphere-side attenuators

### PROPOSED BUILDING SERVICES PLANT (EMERGENCY)

The external emergency building services plant items which are to be installed at Buildings 7&8 are as follows:

- 1 no. Smoke Extract Fan

Table 5 identifies the reported sound power levels of the proposed smoke extract fan.

| Building services plant item                                                     | Sound Power Level (dB re 1 x 10 <sup>-12</sup> W) |                                   |     |     |     |     |     |     |
|----------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------|-----|-----|-----|-----|-----|-----|
|                                                                                  | dB(A)                                             | Octave Band Centre Frequency (Hz) |     |     |     |     |     |     |
|                                                                                  |                                                   | 63                                | 125 | 250 | 500 | 1k  | 2k  | 4k  |
| Smoke Extract Unit:<br>Hunters, Model: LCS071-717-IE2-112.5-2-181-28RA6, (1 no.) | 110                                               | 101                               | 99  | 101 | 104 | 105 | 105 | 101 |

**Table 5:** Sound power levels of non-emergency building services plant at Building 7 & 8

### EXPECTED NOISE LEVELS DUE TO BUILDING SERVICES PLANT

Based on the reported sound level data for the external plant, the expected noise levels at the nearest existing noise sensitive properties have been calculated. **Error! Reference source not found.** identifies the calculated noise levels.

| Noise Sensitive Property | Sound Pressure Level                        |                                                |                              |
|--------------------------|---------------------------------------------|------------------------------------------------|------------------------------|
|                          | Daytime<br>Non-emergency Plant<br>(dB LAeq) | Night time<br>Non-emergency Plant<br>(dB LAeq) | Emergency Plant<br>(dB LAeq) |
| Plot 7&8                 | 33                                          | 33                                             | 69                           |
| <b>Noise Limit</b>       | <b>47</b>                                   | <b>38</b>                                      | <b>71</b>                    |

**Table 6:** Calculated building services noise levels at the nearest noise sensitive properties

By virtue of the greater distance from the rooftop plant at Buildings 7 & 8 to the other residential receptors around the building, the noise levels at these other residential receptors around the buildings 7 & 8 will be lower than those identified noise levels in Table 6.

With reference to Table 6, it can be seen that the calculated cumulative non-emergency plant noise levels at the closest residential properties at and around the site comply with the recommended noise limits given in Table 1 above.

Therefore, compliance with Manchester City Council's published guidance on environmental noise limits at the sensitive receptors is expected in relation to operation of the proposed non-emergency building services plant.

The calculated noise levels at the sensitive receptors due to the operation of the emergency services plant is lower than the suggested noise limit. It is therefore considered that the expected noise levels due to the operation of emergency building services plant is appropriate and would maintain residential amenity.

## CONCLUSION

The calculated noise levels at the nearest existing noise-sensitive properties due to the proposed non-emergency building services plant serving the Development are considered to be compliant with the requirements of Planning Condition 20 of the Planning Approval.

The expected noise level at the nearest existing noise-sensitive properties due to the operation of all emergency building services plant is commensurate with the maintenance of residential amenity.

I hope that the above is helpful, but if there are any aspects that you would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Matt Fisher', is written over a light blue rectangular background.

MATT FISHER BEng(Hons), CEng, MIOA  
For and on behalf of Fisher Acoustics Limited