

Memorandum

Project: Land at Maple Lodge Close, Maple Cross
Subject: Response to Cass Allen Report
Prepared: Richard Masey
Date: 1st July 2021
Reference: 19/0333/M02 **Revision:** 1 **Approved:** MH

1 Overview

- 1.1 This memorandum provides commentary in respect to a letter submitted by Cass Allen (On behalf of The Maple Cross and West Hyde Residents Association) regarding the noise assessment (report reference 19/0333/R2//2) prepared by *Cole Jarman* (now known as *RSK Acoustics*), to support a planning application with Three Rivers District Council reference 21/0573/FUL.
- 1.2 The above application comprises a “*comprehensive redevelopment to provide 2 no. warehouse Class E(giii)/B2/B8 units comprising a total of 16,115 sqm including 1,882 sqm ancillary E(gi) office space, access, landscaping and associated works*”.
- 1.3 The *Cass Allen* (CA) letter (with reference LR01-21247-R0) suggests that the assessment work undertaken by *Cole Jarman* to date “*does not fully consider or underestimates the potential noise impact*” of the proposed development. *Cole Jarman* (CJ) disagree with the above statement and the reasoning why the assessment approach adopted to date is robust and valid is set out in the following sections.

2 Noise Limits

- 2.1 *Cass Allen* have incorrectly suggested that the assessment methodology and criteria adopted by *Cole Jarman* do not follow the guidance within BS 4142¹. It is important to highlight that the *Cole Jarman* assessment criteria are in full accordance with BS 4142 as detailed in the following sections and justified within our previous report.
- 2.2 The appeal decision which CA note in their letter (reference APP/Y0435/W/20/3252373 – Blake lands, Milton Keynes Council), does not provide any justification as to why the assessment methodology and criteria used by *Cole Jarman* is not appropriate. The appeal decision simply sets out that BS 4142 is the correct standard which should be followed when

¹ British Standard BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound



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assessing noise from the industrial activity, which is exactly what CJ have used to assess the noise impact.

2.3 The basis for the assessment methodology adopted by CJ has been fully justified within Appendix A of the CJ report (not repeated here for the sake of brevity), but can be briefly summarised as follows:

- BS 4142 is the correct assessment standard to used and must be followed precisely;
- BS 4142 states that when background noise levels are low (i.e. when assuming a worst case in terms of the potential for impact at a receptor) it is relevant to consider absolute noise limits;
- The above standard does not provide quantitative guidance on what constitute a low background noise level. World Health Organisation (WHO) guidance has therefore been used as a basis (noting that the current WHO *Environmental Noise Guidelines* document specifically refers to 1999² and 2009³ guidance, in respect to industrial noise). This is not considered an “addition” to the standard, rather it is using other robust, current and relevant guidance to increase the precision of the part of the assessment relating to low background noise levels. The WHO guidance above is in fact cited in the “Further reading” section toward the end of BS 4142:2014;
- Thresholds for LOAELs and SOAELs have been set in line with the above (in accordance with BS 4142 as discussed later), against which noise from the proposed development site has been assessed against.

2.4 The BS 4142 assessment methodology is summarised by Cass Allen as replicated below:

1. Measure the existing background noise levels (LA_{90,T} dB) at the locations of nearby noise sensitive receptors during the quietest periods when the noise source(s) under investigation will operate;
2. Predict or measure the noise emissions (LA_{eq,T} dB) from the noise source(s) under investigation at the location(s) of the nearby sensitive receptors, and add corrections for any distinguishable acoustic features (e.g. tones, whines, screeches, hisses etc);
3. Subtract the measured background noise levels (Item 1 above) with the measured or predicted rating noise levels (Item 2 above) at each sensitive receptor. BS4142 states that:
 - a) Typically, the greater this difference, the greater the magnitude of the impact.
 - b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

² Guidelines for Community Noise, 1999 – World Health Organisation

³ Night Noise Guidelines for Europe, 2009 - World Health Organisation



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c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

NOTE Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

2.5 Section 11 of BS 4142 however notes the following (with key text emboldened for emphasis):

*“The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level **and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur.** When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.*

*Obtain an **initial estimate** of the impact of the specific sound by subtracting the measured background sound level”*

2.6 In summary therefore it is not simply the difference between specific and background noise level that is an important factor when assessing impact – this is only intended to provide an initial estimate of impact. Context must be taken into account when determining the actual expected impact.

2.7 BS 4142 provides the following guidance (in section 11) following on from the above, which is not noted by Cass Allen:

Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following.

- 1) **The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.**

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.



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- 2) The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.

NOTE 3 Consideration should be given to evidence on human response to sound and, in particular, industrial and/or commercial sound where it is available. A number of studies are listed in the "Effects on humans of industrial and commercial sound" portion of the "Further reading" list in the Bibliography.

- 3) The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:
- i) facade insulation treatment;
 - ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
 - iii) acoustic screening.

2.8 Clause 1 above shows that absolute noise levels should be considered where the background sound levels and rating levels are low. Not undertaking a survey but assuming low background noise levels forms the basis of a robust assessment, when activity noise limits are set at the lowest level deemed reasonable.

2.9 The use and basis of absolute thresholds have been fully justified within Appendix A of the CJ report (not repeated here for the sake of brevity) and would be the lowest thresholds used, whatever the results of a noise survey were. Therefore, that fact that a noise survey was not undertaken in this instance is not significant and the adopted assessment methodology is in accordance with the relevant standard and guidance.

2.10 When establishing noise limits, Cass Allen suggest that the Lowest Observed Adverse Effect Level (LOAEL) should be set at a figure equal to background noise. BS 4142:2014 states that (with key words embolden for emphasis):

*"A difference of around +5 dB is likely to be an indication of an **adverse** impact, depending on the context."*

2.11 but goes on to say:

*"where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a **low impact**, depending on the context,"*



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- 2.12 The Planning Practice Guidance⁴ defines the LOAEL as “the level of noise exposure above which **adverse** effects on health and quality of life can be detected”. Considering the wording of BS 4142 again, it is clear that a rating level equal to background does not constitute an adverse impact, simply a low impact. It is a rating level 5 dB above background which is an indication of adverse impact and is therefore concurrent with the definition of a LOAEL.
- 2.13 The above commentary is relevant to consider in relation to how absolute limits have been set by Cole Jarman when taking into account low background noise levels, and we do not suggest that a background noise level relative assessment is relevant in this case.

3 Use of Acoustic Characters Corrections

- 3.1 Character corrections have been applied to the specific noise levels predicted by CJ to determine expected rating levels at the facades of the nearest receptors. These acoustic character corrections have been applied in line with BS 4142.
- 3.2 The standard permits a subjective approach to applying character corrections:
- “Consider the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention.”*
- 3.3 In the case of the proposed development at Maple Cross, the expected noise sources will be either completely screened from nearby receptors by buildings of circa 12.5m in height (to haunches, which can be expected to offer significant noise mitigation), or at a distance of circa 560 m away, when considering the properties noted by Cass Allen at their position L2.
- 3.4 At the magnitude of specific levels that are assessed at the receptors and taking into account the significant inherent mitigation measures that will exist between the sources and receptors, we suggest that the 3 dB character correction applied to **all** noise from expected activities on the proposed development site is reasonable.
- 3.5 The library data used for the purposes of assessment was measured by Cole Jarman and we have significant experience of noise climates at distribution centre sites. The corrections have been applied drawing upon experience of such sites and how the understanding how the data best applied at Maple Cross.
- 3.6 As an aside, it is noteworthy that the Cole Jarman assessment assumes that all expected vehicle movements go to **both** units. This operational regime would never happen in reality, but the pessimistic assessment approach ensures that noise from the individual units is not underpredicted through the use of an arbitrary data split. It can therefore be inferred that

⁴ Planning practice guidance, 2016 - Ministry of Housing, Communities & Local Government



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actual noise levels would be less than predicted once the site comes into operation, meaning there is expected to be greater tolerance between limits and site actual noise emissions.

4 Consideration of Residences to the East of the Site

- 4.1 The receptors identified by CA to the east of the proposed development site, beyond Thames Valley Estate Road) are located at a distance of circa 560 m. The topography of the land to the east of the site and the positions of an existing retaining wall and embankment are such that significant screening exists between the proposed development and receptors in that direction (the image below shows a section of the above retaining wall as an example).



Retaining wall adjacent to Thames Valley Estate Road

- 4.2 Where there is no wall or embankment adjacent to Thames Valley Estate Road, the land to the east raises up by a height of circa 3 metres relative to the site then falls again toward the properties at L2. This topography can be expected to provide a degree of screening between the proposed development site and properties to the east.
- 4.3 Taking into account the effects of distance attenuation, screening and ground absorption, we maintain that potential that noise effects at the receptors identified by CA to the east would not be significant. Supporting calculations and more detail on the intervening topography can be provided on request but are not included here for the sake of brevity.



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- 4.4 It is also noteworthy that the receptors at L2 are adjacent to the Old Quarry Business Park, which may be contributing to the character of the noise climate at some of the receptors to the east, again potential making the effects of distribution centre activity circa 560m away less significant.

5 Proposed Planning Condition

- 5.1 As per the commentary in this memorandum, the wording of the planning condition proposed Cole Jarman is fully in line with the relevant standards and guidance.
- 5.2 It meets the 6 tests for the use of planning permissions and contrary to what is suggested by CA, permits the use of limits set relative to background noise levels if relevant and appropriate. It goes further that the CA proposed condition by suggesting more stringent limits when setting them in relation to background noise levels.
- 5.3 If deemed necessary, the following text could be added to the end of the first paragraph of the CJ proposed condition (noting this does not materially change the requirements of said condition):

“The assessment should be undertaken in accordance with the methodology set out in British Standard BS 4142:2014 (or more recent, current version)”

6 Conclusion

- 6.1 Cass Allen have prepared a letter which sets out a peer review of the noise assessment undertaken by Cole Jarman for the proposed development at Maple Cross. This memorandum provides commentary on the above and sets out the basis for why the Cole Jarman assessment has fully and properly considered the noise impact of the proposed development.
- 6.2 The assessment of noise from the proposed development was undertaken against limits derived wholly in accordance with the relevant standard (BS 4142:2104) and associated guidance. The proposed noise limits are robust and meeting them will ensure impacts are sufficiently mitigated to the protect the amenity of existing receptors.
- 6.3 Character corrections have been applied in a reasonable and robust manner, considering the relevant guidance. It is noted that the assessment of vehicle movements is pessimistic which adds further robustness to the assessment.
- 6.4 Receptors to the east of the site are inherently protected from noise emanating from the proposed development site due to significant distance attenuation (circa 560m), screening and ground absorption effects. Assessing to the receptors originally identified by Cole Jarman represents a robust approach.



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- 6.5 The planning condition proposed by Cole Jarman is wholly appropriate and in line with the relevant standards and guidance.
- 6.6 Further consideration has been given to the appropriateness of the proposed activities and mitigation requirements for all surrounding receptors. The outcomes of the Cole Jarman noise assessment report 19/0333/R2//2 are found to be valid and wholly sufficient to ensure existing receptors will be protected from adverse noise impacts/effects.

 End of Section