Condition 19.

3201907637

Justin Swingler
Re: Noise survey at Chatburn
8 Jul 2019 at 14:03:53
Feazer Developments

On 8 Mar 2019, at 15:43, John Houldsworth <noisejohn@gmail.com> wrote:

"Instructed In Feb 19."

Hi Justin,

I have just come off the phone with Nicola Clark at Ribble Valley. She is a very sensible noise person who I have know for years in the Environmental services department and who has latterly been advising Adam Birkett. She is going to send me the text of what she told him about the relevant standards. She only works part-time and is going home to family now so it will be Monday when she sends the stuff through.

However, she also suggested that if I write my assessment of the situation and point out the difficulties of getting any sense out of measurements except a complete lack of data, then she is ***very likely*** ..... (they always leave a chance to say no).... to agree with that and advise Adam that the condition has been discharged - by a "competent person" having said so.

This is currently looking good and should require the equivalent of just a half day of my time at the rate of £250 per half day. No VAT as I have de-registered.

I will be in touch shortly.

Regards,

John.

Sound Advice

Noise and Vibration Consultancy
Surveys and Training

11, Wellington Street, Lytham
Lancashire. FY8 5BZ

Tel: 07957 842765

John Houldsworth BSc MIOA

Email: noisejohn@gmail.com

Mr Justin Swingler.
Feazer Developments Ltd
Feazer Cottage
Slaidburn Road
Waddington, Clitheroe
BB7 3JQ

29th April 2019

Ref: Noise and vibration aspects of the development at land off Ribblesdale View, Chatburn.

Dear Sir,

Further to our conversations and your emails, I have studied the site information and the requirements of the Planning Permission Ref: 3/2018/1179 that was granted on 22nd February 2019.

As you are aware, the Planning Permission requires that.... " *a competent person shall have ensured that the rating level of noise and/or vibration within the proposed dwellings would not cause a nuisance to future occupiers*". To that end, I have contacted Nicola Clark at Ribble Valley Council Environmental Services to discuss the matter and potentially to determine the best method for resolving the theoretical nuisance issues. After we had basically agreed the approach to take, Nicola requested that I consolidate my arguments in written form in order that they could be considered officially and so that she could advise the Planning Department accordingly.

The Planning Permission requirement was that noise and vibration be assessed in accordance with BS 4142:2014. This standard is titled - *METHOD FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND*. The Council concerns about this site are entirely due to the potential for noise and vibration from the adjacent rail track. Therefore, my first concern is that this standard is not particularly appropriate to assess railway noise. A better option would have been the (now defunct) Planning Policy Guidance PPG24 standard that addressed all forms of transport noise. Despite its withdrawal, the guidance offered historically by PPG24 is still often quoted in this field.

NOISE: If we consider using BS4142 to assess the noise then we need to consider the Source noise levels and the Background noise levels. The Source would be the passing freight trains but there are, currently, only about **two** of these a day. Even then this is not every day. Network Rail have reserved the right to increase this as demand requires but equally there is no chance of the trains becoming a regular hourly occurrence.

BS4142 requires the use of a one-hour averaging time in the daytime to compare the calculated site LAeq noise energy average value with the statistical LAF90 Background noise. If the estimated LAeq is not lower than the LAF90 then there is a potential noise issue. **At this site, if a train came past in any given hour then it is absolutely certain that the LAeq would exceed the LAF90.** However, for many other hours in the day this would not be the case. BS4142 does not seem to be the appropriate comparison standard to use.

Use of the old PPG 24 standard would have required a full Daytime Average of 07:00 to 23:00. With this guidance, the noise from just two trains averaged within a full day timescale would hardly change the noise climate at all.

There is another aspect to noise intrusion and that is the maximum level of intrusion when there are unusual events of short duration. However, the guidance on the use of maximum levels suggests that it only be used if there are several intrusions per hour (several meaning more than 2). Again, this would not be relevant.

This is why, in the current BS4142:2014, there is a conditional phrase associated with any of the guidance parameters: **That phrase is "according to context ".** Noise nuisance occurs if a reasonable person is significantly annoyed by a regular or intermittent recurrent noise over a significant time period.

Therefore, in the situation at this site, common-sense tells us that the passing of two trains at some random time in a day cannot be considered a "nuisance". It is likely that more daily noise will be experienced from passing farm, Council or Public Transport vehicles.

VIBRATION: Vibration limits are not mentioned at all in BS4142:2014.

Assessment Methods and Standards Guidance: Vibration:

BS6472:1992 introduced the concept of Acceleration Vibration Dose Value (VDV) averaged over a 16 hour day or an 8 hour night. This parameter is used to measure the annoyance caused to people by vibration carried through the ground. It has been discovered that the subjective response to vibration is proportional to the measured acceleration to the fourth power (ie: a^4). For mathematical reasons, the VDV has units of $m/s^{1.75}$.

BS6472:1992 (Appendix A.2 Table 7) suggests that the VDV_d level below which there is **not even a low probability** of adverse comment in residential buildings during the day is 0.20 $m/s^{1.75}$ (ie. 200$mm/s^{1.75}$). **This corresponds to an RMS vibration level of less than 0.024m/s^2.**

BS6472:1992 (Appendix B.3) also gives guidance on constant and repeated intermittent vibration conditions.

If the measured vibration dose for any period is VDV_1, then the VDV for the entire day (16 hours) is given by $VDV_D = VDV_1 \times (t_D / t_1)^{0.25}$, where t_D is the total period of vibration and t_1 is the intermittent period.

As is clear from the suggested averaging periods referred to above, Vibration Nuisance assessment is aimed at situations of continuous or intermittently occurring periods of regular vibration from industrial premises situated close to dwellings. This form of energy tends to be associated with permanently operating large plant such as drop forge hammers, piling rigs or similar equipment.

Vibration can also be the cause of building damage and the parameter to be measured then is Peak Particle Velocity (PPV) in mm/s. According to BS:7385.1993 *Evaluation and Measurement of Vibration in Buildings* (Paragraph 6.2), this parameter has been found to be the best single descriptor for correlating with case history data on the occurrence of vibration induced damage. Historically, vibration was measured using velocity transducers. Measurement using accelerometers is now the normal form of monitoring. The vibration velocity level can be calculated directly in the instrument or determined from the acceleration value by dividing by the factor $2\pi f$, where f is the main frequency of interest, if there are particular known resonance issues.

Some standards (eg: ISO, DIN) use a "worst case" factor for the conversion from acceleration values to provide a value of PPV that should not be exceeded. As an example of Local Guidance, Preston City Council Guidance Section 4.2 recommends a level of 0.8 mm/s PPV at any time from trains.

Sound Advice has monitored vibration from railway lines around the region for many years including the West Coast main line near Lancaster and Preston on many occasions. The level of vibration detectable is always well below even the lowest threshold of nuisance – even for modern high speed trains passing at ground level at around 25m close to dwellings. In most cases, vibration levels are actually below the measuring threshold of the equipment.

As an example, the following information is extracted from a report from 2014 carried out alongside the West Cost main line at Hest Bank with high speed trains passing regularly. The report is in the public domain in Lancaster City Council files.

".....When trains passed by, the vibration meter showed a variation in the overall three axis PPV level from its quiescent bottom of range state to generally read 0.045mm/s. On one occasion this value increased to 0.137mm/s. It is not entirely certain as to whether this effect was due to actual vibration through the ground, the air movement shaking the seismic block or the observer shuffling around. In any event, it can very safely be stated that the vibration level from trains at this location did not remotely approach the Preston City guidance criterion of 0.8mm/s PPV....."

In the case at the Ribblesdale View site, with the track in a cutting, there is virtually no chance of **any** level of vibration being detected from the slower moving freight trains.

Overall Assessment Conclusions:

There are already dwellings in the area at similar or closer distances to the track and Sound Advice is not aware that there are significant complaints about noise or vibration.

Therefore, on that basis and my extensive knowledge of likely noise and vibration situations, my "competent person's assessment " is that there is very little likelihood of a noise or vibration nuisance in the proposed dwellings.

I trust that this clarifies the position. May I wish you all success with the development.

Please call me if you think that I can assist with any other matter.

Yours sincerely,

John Houldsworth