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7th April 2016

Ref 5267/pja

Dear Andrea,

Application Number	-	0348/15
Proposal	-	Extension to Yennadon Quarry
Applicant Name	-	Mr D Wallace
Site Address	-	Yennadon Quarry, Iron Mine Lane, Dousland

I write with regard to the above planning application and matters relating to noise raised in Stephen Scown LLP's letter dated 14th August 2015. These I quote directly from their letter as being;

- A review of the noise assessment for the proposed Yennadon Quarry extension has indicated that the proposed noise limits for the site may be inflated as a result of an unrepresentative background noise level being considered.
- Furthermore, the addendum report does not contain information on the calculation methodology of the sound power levels used in the assessment. Based on the appropriate assessment methodology for quarries (BS5228) it would appear to underestimate the source levels by approximately 2dB.
- There is also no explanation of the frequency data presented in the addendum report.

I set out below my comments;

Base Line Sound Survey

The survey data relied upon to establish the likely background sound level was recorded over the bank holiday weekend of Saturday 27th to Monday 29th August 2011.

The weather data published by Wunderground.com for Plymouth City Airport (EGHD), at the time, showed daily mean wind speeds of;

Date	Day	wind speed recorded at EGHD	Less than 5 m/s or 18 kmh onset of caution threshold for environmental sound measurements[1]
27th August 2011	Saturday	14 km/h	✓
28th August 2011	Sunday	14 km/h	✓
29th August 2011	Monday	10 km/h	✓

[1] BS4142:2014 Section 6.4 paragraph 1

This shows that wind speeds over the bank holiday weekend were not above the 5 m/s figure referred to in the latest version of BS4142, above which "caution" should be exercised in interpreting the data.

The sound data recorded over the bank holiday week end, when the quarry was not working follows the expected diurnal pattern, where the early mornings are quieter than the main part of the day. There was only a difference of around 10 dB between hourly levels during the body of the day (9am to 5pm) and this falls within the typical range of variation that I would expect in the environs, like that around this quarry, away from immediate dominant sources in open countryside.

On this basis there is no necessity to exclude data for "a-typicality" and the 38 dB L_{A90} can be seen to be robust.

Calculation of quarrying activity sound levels

The calculation of quarry activity sound levels, as set out in our addendum report (dated 21st March 2014), has been based on surveyed equipment sound levels at the quarry, rather than generic levels derived from examples given in BS5228-1:2009 (Code of practice for noise and vibration control on construction and open sites – Noise). The use of actual sound levels from the existing equipment and quarry processes, which will be used in the expanded areas of the quarry, provides a more robust assessment, with lower uncertainty, than the generic adoption of "general " data provided in Table C of BS8233.

Frequency Data

The frequency spectra for each item of equipment have been provided in the tables in Appendices 1 to 3 of our Addendum report.

The sound power levels, for the quarry machinery have been estimated using the calculation procedures set out in ISO 9613 part 2 :1996 Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation.

General methods of calculation referred to in Annex F of BS5228-1: 2009, (F.2.2 to F.2.5) but the standard states that the use of more precise methods are "not precluded". I have adopted the use of ISO 9613 calculation procedure as it provides predictions of sound levels with a lower uncertainty than the simplified calculation procedures contained within Annex F.

Quarry extraction rate

The calculation of maximum quarrying activity levels have been based on the five items of plant running flat out at the same time. This is the worst case scenario.

The method of extract in this small quarry is very reliant on manual work in the sorting and splitting of viable stone at the extract face. Once a batch of stone has been sorted, at the working face, the men then start the slew, riddlier and dumper etc up to carry out the next bout of mechanised work, before the next lot if stone is taken from the working face by hand when the machines will stopped for a while.

The higher proposed annual extract tonnage can be achieved with the same working practice and equipment but with more staff. The effect of this will be to increase the working time of the mechanised equipment, which cannot be greater than the 100% assumed in the prediction calculations.

These calculations therefore provide an estimate of the maximum noise level likely to be generated by the quarrying activity and this is equally true for the higher extraction rate.

From this you can see that the site sound assessment and the prediction of activity sound levels have been carried out appropriately, the conclusion from which that the proposed 50 dB $L_{Aeq,T}$ operational criteria can be achieved, with the mitigation recommended. It should also be noted that this limit is 5 dB lower than the maximum level recommended in the NPPF and can therefore be seen to be robustly protecting the amenity of the neighbours.

Yours sincerely,

Peter Ashford