

Additional information
2015/00031/OUT
Rec'd 13-03-2015

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Ref: BARRY_Noise Background Survey Letter 13.03.15

Friday 13 March 2015

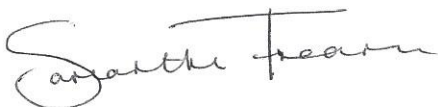
Dear Sirs,

Noise Background Survey – Woodham Road, Barry

Please find the attached Noise Background Survey for the proposed Woodham Road Renewable Energy Plant in Barry, as requested by the Vale of Glamorgan Council in support of our Noise Assessment dated December 2015.

Also attached is a letter from AB Acoustics, which refers to the above and confirms that their original findings are still valid.

Yours truly,



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Operations Director

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UK Power Development Partners

11 March 2015.

For the attention of Mr R Frearson

Dear Sirs

Reference ; Woodham Road Barry

With reference to the above proposed plant and our original report dated 23 December 2008 – it is understood that the permission relating to the application for which the above report was prepared has expired.

Due to this an additional background noise survey has been undertaken by Hurter Acoustics to re-measured the background noise levels at the locations used in the original report – a copy of this report (Environmental Noise Survey 3679/ENS1) is available .

It is assumed in the following that the proposed operation of the Biomass Plant has not changed in any way from that detailed in the December 2008 report and subsequently approval was granted.

The purpose of this letter is to determine how the calculated noise levels in the 2008 report now compare to the present measured background levels.

It is worth noting that since the original approval was granted the main British Standard used in assessment (BS 4142:1999) has been superseded by BS 4142 : 2014 brief details of which are given below:

Noise Assessment Criteria

The likelihood of complaints about noise from industrial plant can be assessed where the standard is appropriate using BS 4142 – 2014 – this has recently replaced the earlier standard BS 4142 : 1997

This standard describes methods for rating and assessing sound of an industrial / commercial nature. The methods described use outdoor sound levels to assess the likely effects of sound on people who might be inside / outside residential premises.

The significance of sound of an industrial / commercial nature depends upon the margin by which the rating level of the source exceeds the background sound level and the context in which the sound occurs.

The Standard is intended to be used for :

Investigating complaints regarding noise.

Assessing sound from proposed / new / modified or additional noise sources of an industrial / commercial nature.

Assessing sound at proposed new dwellings or premises used for residential purposes.

The sound level from a source when determined as a discrete entity distinct and free of other influences contributing to the ambient sound is referred to as the 'specific sound level'.

The specific sound level is evaluated at an identified location over the appropriate reference time interval which are : 1 hours during the daytime – 07.00 to 23.00 hrs and 15 minutes during the night time – 23.00 to 07.00 hrs.

The specific noise may be subject to acoustic feature correction if the noise level at the measurement location is subjectively considered to contain certain acoustic features that may increase the significance of the impact of the noise over the background level.

If these features are present at the measurement location then the character correction is added to the specific sound level to arrive at the rating level.

The Standard requires the assessor to consider the subjective prominence of the character of the specific noise source at the measurement location / noise sensitive receptors and the extent to which the character of the noise will attract attention to it – such features are taken into account by applying the following corrections :

	Tonality	Impulsivity	Other Characteristics
Just Perceptible	+ 2 dB	+ 3dB	-
Clearly Perceptible	+ 4dB	+ 6 dB	-
Highly Perceptible	+ 6dB	+9 dB	-
Readily Distinctive against Residual Environment			+ 3 dB

If both tonal and impulsive characteristics are both present then two corrections can be made – however if only one is dominant then only one correction need to applied.

If no corrections are deemed appropriate then the Rating Level equals the Specific Noise Level.

An initial estimate of the impact of the specific sound is obtained by subtracting the measured background level from the rating level and considering the following :

- A) Typically the greater the difference the greater the impact.

- B) A difference of around + 10 dB or more is likely to be an indication of a significant adverse impact – depending on context.

- C) A difference of around + 5 dB or more is likely to be an indication of a significant adverse impact – depending on context.

- D) The lower the rating level is to the measured background level the less likely it is that the sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the measured background level this is an indication that the sound source will have a low impact depending upon context.

Where the initial estimate of the impact needs to be modified due to the context then all pertinent factors need to be taken into consideration – these include the following :

The absolute level of the sound.

The character and level of the residual sound compared to the character and level of the specific sound.

The sensitivity of the receptor and whether residential dwellings already incorporate design measures that secure good internal and outdoor conditions eg facade insulation – ventilation / cooling that reduces the need to open windows – acoustic screening.

The standard recognises that the response to sound can be subjective as well as to the local attitudes to the source of the sound and the character of the neighbourhood.

Also relevant are the World Health Organisation (WHO) Guidelines for Community Noise – these identify that sleep may be disturbed by short term noise events and the level associated with this is 45 dB LAmax inside the bedroom – this relates to 60 dB LAmax external to the bedroom.

In brief an 'Outdoor Living Area' should be subject to a noise level less than 55 dBA in order to prevent serious annoyance during the daytime and evening - a level less than 50 dBA is desirable to prevent moderate annoyance : reference World Health Organisation.

Noise Levels

The calculated Specific Noise levels at the three locations from the 2008report are detailed below :

- Location 1.....32 dBA
- Location 2.....35 dBA
- Location 3.....27 dBA.

However in the original report (in line with BS 4142:1999) a +5 dBA correction factor was added to the above calculated Specific Noise Levels to determine the Rating Levels which were :

Location 1.....37 dBA
Location 2.....40 dBA
Location 3.....32 dBA.

The requirement in BS 4142 : 2014 is difference in that more account is taken for the actual noise character – whether it is tonal or contains impulsive noise and how the level will be perceived by the receptor.

From previous discussions it has been indicated that there could be a tonal element to the noise from the plant but that it is very unlikely that there will be any impulsive noises – particularly between the hours 23.00 and 07.00.

Therefore adding the required + 2 dB correction then the above Specific Noise Levels are increased to :

Location 1.....39 dBA
Location 2.....42 dBA
Location 3.....34 dBA

The recently measured background noise levels were determines as :

Location 1 39.6 / 40.9 dBA – which shows that the Rating Level could be 1 or 2 dBA in excess of the measured background level – this shows that the noise from the plant will have a LOW impact depending upon context.

Location 2 38.5 / 37.6 dBA – which shows that the Rating Level could be 3 or 4 dBA is excess of the measured background level – again indicating that the plant will have a LOW impact depending upon context.

Location 3 37.6 / 38.5 – which shows that the Rating Level could be 4 or 5 dBA below the measured background level – which shows that the plant will have a LOW impact depending upon context.

It is important to note that the proposed plant is to be located in an old established and existing industrial area.

The residential properties around the plant are very likely to have double glazed units to there windows which could result in attenuations of the order of 25 dB to the external noise,

In addition even with the window open and assuming an attenuation for an open window of the order of 13 dB (the World Health Organisation actually assumes 15 dB) then the internal levels within the nearby residential properties will be within the requirements of BS 8233 : 2014.

I hope the above is sufficient for your present needs, if however you require any additional information please do not hesitate to contact us.

Yours faithfully

Roger Leach AMIOA.

**Biomass Plant at
Woodham Road
Barry
CF63 4JE**

**Environmental Noise Survey
3679/ENS1**

5th March 2015

For: **Richard Frearson**
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1.0 Introduction

A Biomass Plant is proposed at Woodham Road, Barry, CF63 4JE.

This report has been commissioned to determine existing ambient and background noise levels at three pre-determined locations for comparison with the AB Acoustics noise survey report dated 23/12/2008.

Appendix A explains acoustic terminology used in this report.

2.0 Environmental Noise Survey

2.1 Procedures

1-hour sample measurements were carried out from 1300hrs to 1630hrs on 04/03/2015 and 15-minute sample measurements were carried out from 0000hrs to 0140hrs on 05/03/2015. Data including L_{Aeq} and L_{A90} were logged. All measurements were taken approximately 1.2m above local ground height.

Site plan 3679/SP1 shows the development site and sample measurement positions used, namely:

- | | |
|------------|--|
| Position 1 | Located on Dock View Road opposite the junction with Castleland Street and 57 Dock View Road. |
| Position 2 | Located at the entrance to the waste ground on Cory Way. Approximately 4m from kerbside. |
| Position 3 | Located at the residential estate at Cei Dafydd, at the south-eastern-most corner of the car park. |

These are in line with measurement positions used in the 2008 AB Acoustics report.

3679/SP1 – Site Plan Showing Monitoring Positions



2.2 Equipment Used

The following equipment was used:

3679/T1 – Equipment List

Make	Description	Model	Serial Number	Last Calibrated	Certificate No.	Calibration Due
Norsonic AS	Type 1 - Integrating - averaging Sound Level Meter	140	1403003	16-Sep-13	U14448	16-Sep-15
Norsonic AS	Preamplifier	1209	12403	16-Sep-13	U14448	16-Sep-15
Norsonic AS	Microphone	1225	91797	16-Sep-13	11927	16-Sep-15
Norsonic AS	Calibrator (114.11dB @ 1001.90Hz)	1251	31826	11-Sep-14	U17057	11-Sep-15
Skywatch	Anemometer and Thermometer	JDC X2	-	-	-	-

The measurement systems were calibrated before and after the surveys, no variation occurred.

3.0 Results

Position 1 Dock View Road

Main noise sources during the day were from road traffic on Dock View Road and Ffordd y Mileniwm with occasional sprinter train activity and freight movements along the railway lines.

Main noise sources at night were from the Dow Corning Plant, humming from Barry Docks Railway Station and contributions from water running in a nearby drain. Occasional vehicle pass-bys on Dock View Road and Ffordd y Mileniwm were also recorded.

3679/T2 – Sample Measurements at Position 1

Position	Time	Duration (mins)	L _{Aeq} (dB)	L _{A90} (dB)	Weather conditions
1	13:00	60	64.5	58.8	Dry, northerly wind 2.4-5.7m/s.
1	00:01	15	55.7	39.6	Dry, calm.
1	01:02	15	52.1	40.9	Dry, calm.

Position 2 Cory Way

Main noise sources during the day were from road traffic on Cory Way and Ffordd y Mileniwm. Regular HGV movements were recorded along Cory Way accessing the industrial estate. Occasional sprinter and freight activity were also noted.

Main noise sources during the night were humming from Barry Docks Railway Station and the occasional vehicle pass-by on Ffordd y Mileniwm. There were no HGV movements noted on Cory Way during the night-time monitoring period.

3679/T3 – Sample Measurements at Position 2

Position	Time	Duration (mins)	L _{Aeq} (dB)	L _{A90} (dB)	Weather conditions
2	14:04	60	66.7	53.0	Dry, northwesterly wind 1.7-4.9m/s.
2	00:20	15	48.6	38.5	Dry, calm.
2	01:43	15	48.6	37.6	Dry, calm.

Position 3 Cei Dafydd

Main noise sources during the day were from road traffic on Ffordd y Mileniwm.

At night, an audible hum was noted coming from the west along with occasional vehicle pass-bys on Ffordd y Mileniwm.

3679/T4 – Sample Measurements at Position 3

Position	Time	Duration (mins)	L _{Aeq} (dB)	L _{A90} (dB)	Weather conditions
3	15:20	60	52.7	47.8	Dry, northerly wind 2.0-4.0m/s.
3	00:38	15	42.3	37.3	Dry, westerly wind 0.0-1.0m/s.
3	01:23	15	40.8	35.1	Dry, calm.

4.0 Discussion

Daytime ambient (L_{Aeq}) and background (L_{A90}) noise levels measured during our survey appear to be in line with those measured in the AB Acoustics 2008 survey, with the exception of position 2 (Cory Way).

Our measured ambient noise level is around 6dB higher due to HGV movements on Cory Way (67dB L_{Aeq} compared with 61dB L_{Aeq}), however the daytime background is indicated to be the same (53dB L_{A90}).

Night-time ambient noise levels appear to be higher at positions 1 & 2 during our survey, with position 3 ambient falling in line with the previous 2008 survey result. However, night-time background noise levels in our report appear to be lower than those measured during the AB Acoustics 2008 survey (35-41dB L_{A90} compared with 40-45dB L_{A90}).

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Appendix A – Acoustic Terminology

Human response to noise depends on a number of factors including; loudness, frequency content, and variations in level with time. Various frequency weightings and statistical indices have been developed in order to objectively quantify 'annoyance'.

The following units have been used in this report:

dB(A): The sound pressure level weighted to correspond with the frequency response of the human ear, and therefore a person's subjective response to frequency content.

L_{eq}: The equivalent continuous sound level is a notional steady state level which over a quoted time period would have the same acoustic energy content as the actual fluctuating noise measured over that period.

L₉₀: The sound level which is exceeded for 90% of the measurement period. i.e. The level exceeded for 54-minutes of a 1-hour measurement. It is often used to define the background noise level.

L₁₀: The sound level which is exceeded for 10% of the measurement period. i.e. The level exceeded for 6-minutes of a 1-hour measurement.

L_{max}: The highest instantaneous noise level recorded over the measurement period.