ACOUSTIC CONSULTANTS LTD

Proposed Scrap Metal Sorting Machine and Building
Celsa Manufacturing, Cardiff

Noise Assessment

Reference: 7265/DO

August 2018

Proposed Scrap Metal Sorting Machine and Building
Celsa Manufacturing, Cardiff

Noise Assessment

Client:
James & Nicholas LLP
Grove House
Grove Place
Port Talbot
SA13 1XA

Noise and Acoustic Consultant:
Acoustic Consultants Limited
Raleigh House
Wellsway
Keynsham
Bristol
BS31 1HS

Prepared by

Daniel Oldaker BSc. (Hons) MIOA

Checked by:

Blake Lucas BEng. (Hons), MIOA

Issue Number:
Rev C

Date:
29 August 2018

Table of Contents

1.	Introduction	4
2.	The Site	4
3.	Planning and Noise Criteria	6
4.	Site Noise Monitoring	10
5.	Operational Noise Limits	13
6.	Limitations	14

1. Introduction

James & Nicholas LLP appointed Acoustic Consultants Limited to carry out a site noise monitoring survey and assessment for a proposed new industrial building enclosing a scrap metal sorting machine at the Celsa Manufacturing site off Rover Way in Cardiff.

The report is prepared in support of the planning application submission and provides the results of the baseline noise survey, proposed noise limits based on relevant guidance and planning policy as well as the expected noise generating activities.

As part of the planning application a full and detailed noise impact assessment will be submitted to the local planning authority demonstrating that the proposed noise limits are achieved.

This revision of the report includes changes to the client information and revised wording of section 6 Limitations.

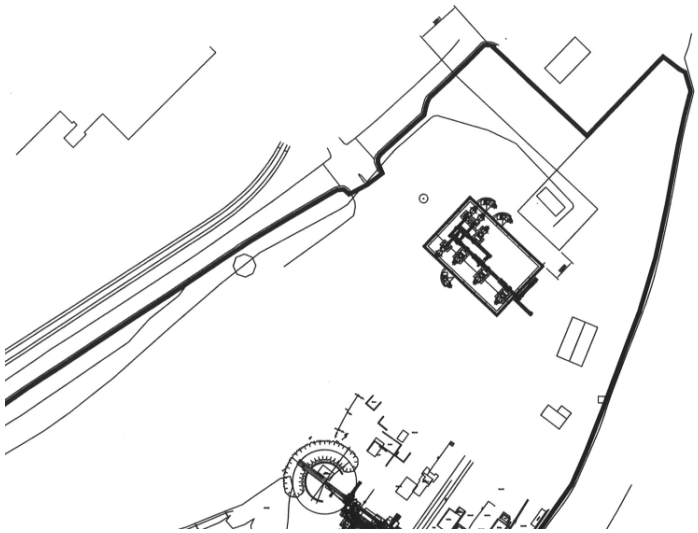
2. The Site

The proposal is for a new scrap metal sorting machine to be installed within a new building on the Celsa Manufacturing site located to the South of Rover Way in Cardiff.

The development is to be located to the North East of the site on a currently vacant plot to the West of an existing electricity substation.

The nearest residential properties are those to the North East of the site at the Rover Way Gypsy and Traveller site some 430 metres from the proposed site location. The proposals are shown on the site plan below.

Figure 1: Proposed site plan



The proposed plant will sort scrap metal. Material is delivered to site by lorry, this is the current situation and is unlikely to change significantly because of the proposals.

The waste material comprises moil, plastics, etc. as well as metal, this will be loaded via a 360 degree excavator into the entry hopper which is located outside the building. A transom conveyor moves the material to a vibratory screen which separates oversize materials and sends the rest of the material into the building. Once within the building the material travels along a conveyor with small material dropping through whilst the remaining material moves through a number of sorting stages including magnets, water chambers and eddy current separators. The separated material is moved by conveyor belt to different silos from which the sorted material can be stored and moved to different locations on and off site.

Outside the building the main noise sources are expected to be the loading of the hopper and the vibratory screen as well as the dropping or oversize materials. Within the building we would expect the main noise sources to be the motors associated with the conveyors, the vibration screens associated with the separating stages and the dropping of materials at each sorting stage. Noise is also expected from wheeled loaders moving the sorted materials.

Noise data for these activities is not currently available although is expected to be so by the time of the planning application when a full detailed assessment will be undertaken.

3. Planning and Noise Criteria

3.1. Planning Policy Wales

Planning Policy Wales (PPW) Edition 9 dated November 2016 sets out the land use planning policies of the Welsh Government. Chapter 13 "Minimising and Managing Environmental Risks and Pollution" provides comment on noise pollution. The most relevant statements are provided below:

13.13.1 Noise can affect people's health and well-being and have a direct impact on wildlife and local amenity. Noise levels provide an indicator of local environmental quality. The objective of a policy for noise is to minimise emissions and reduce ambient noise levels to an acceptable standard. Noise Action Plans, drawn up by the Welsh Ministers in relation to Wales under the Environmental Noise Directive, and the Wales Regulations[12], aim to prevent and reduce environmental noise where necessary and preserve environmental noise quality where it is good. They are a planning consideration in the use and development of land.

13.14.1 Development plan policies should be designed to ensure, as far as is practicable, that noise-sensitive developments, such as hospitals, schools and housing, that need to be located close to the existing transportation infrastructure to facilitate access, are designed in such a way as to limit noise levels within and around those developments. Such development should be located away from existing sources of significant noise including air transport and some industrial activities or programmed development such as improved or new roads. Policies should also be designed to ensure, as far as possible, that potentially noisy developments are located in areas where noise will not be such an important consideration or where its impact can be minimised. Local planning authorities should adopt policies to prevent potentially noisy developments in areas which have remained relatively undisturbed by noise. Development plan policies should have regard to any relevant Noise Action Plan, including the need to protect urban 'quiet areas' against an increase in noise.

13.15.1 Noise can be a material planning consideration, for example in proposals to use or develop land near an existing source of noise or where a proposed new development is likely to generate noise. Local planning authorities should make a careful assessment of likely noise levels and have regard to any relevant Noise Action Plan before determining such planning applications and in some circumstances it will be necessary for a technical noise assessment to be provided by the developer[15] (see 8.5.5).

PPW does not provide any quantifiable criteria and directs you to Technical Advice Note 11.

3.2. Technical Advice Note (Wales) 11 – Noise

The relevant planning criteria for proposed noise sensitive/noise generating development is provided in Technical Advice Note (Wales) 11 entitled "Noise" which was published in October 1997. The introduction of TAN11 states:

"This note provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business. It outlines some of the main considerations which local planning authorities should take into account in drawing-up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing noise sources."

For noise from industrial and commercial developments, such as plant noise, TAN 11 states:

"B17. The likelihood of complaints about noise from industrial development can be assessed, where the Standard is appropriate, using guidance in BS 4142: 1990. Tonal or impulsive characteristics of the noise are likely to increase the scope for complaints and this is taken into account by the "rating level" defined in BS 4142. This "rating level" should be used when stipulating the level of noise that can be permitted. The likelihood of complaints is indicated by the difference between the noise from the new development (expressed in terms of the rating level) and the existing background noise. The Standard states that, 'A difference of around 10 dB or higher indicates that complaints are likely. A difference of around 5 dB is of marginal significance'. Since background noise levels vary throughout a 24 hour period it will usually be necessary to assess the acceptability of noise levels for separate periods (e.g. day and night) chosen to suit the hours of operation of the proposed development. Similar considerations apply to developments that will emit significant noise at the weekend as well as during the week. In addition, general guidance on acceptable noise levels within buildings can be found in BS 8233: 1987."

We would consider that British Standard 4142 is the appropriate standard for assessing the noise impact from an industrial operation, such as plant and delivery noise, however it should be noted that British Standard 4142:1990 has now been superseded by both British Standard 4142:1997 and British Standard 4142:2014.

3.3. Cardiff Policy EN13: Air, Noise, Light Pollution and Land Contamination

Cardiff policy states:

"Development will not be permitted where it would cause or result in unacceptable harm to health, local amenity, the character and quality of the countryside, or interests of nature conservation, landscape or built heritage importance because of air, noise, light pollution or the presence of unacceptable levels of land contamination."

With regard to noise generating development it states:

"5.192 Necessary new development that would give rise to high noise levels, including proposed transport schemes, should be located and designed so as to minimise their noise impact. Where noise-sensitive development needs to be located close to transport infrastructure for access reasons, it should be designed to reduce noise impact. Where necessary, developers will be required to provide an assessment of noise impact, together with proposals for mitigation."

3.4. British Standard 4142:2014

For noise of an industrial nature the most relevant guidance is provided within British Standard 4142:2014. The British Standard 4142:2014 entitled 'Method for rating and assessing industrial and commercial sound' was published on the 31st October 2014.

The methods described in the British Standard use outdoor sound levels to assess the likely effects of sound upon people who might be inside or outside a dwelling or other premises used for residential purposes. The principle is that of establishing the 'difference' between the 'rating level' and the 'background sound level'.

The 'rating level' is the 'specific sound level' of the source over a period of one hour during the day (07:00 to 23:00 hours) and over a period of 15 minutes during the night (23:00 to 07:00 hours). Section 9 entitled 'Rating Level' states:

"Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level."

An acoustic character correction should be added to the 'specific sound level' if it exhibits any tonality, impulsivity, other specific characteristics and/or intermittency at the assessment location. The value of the character correction varies, dependent on the prominence of the character of the sound source at the assessment location.

In Section 11 of the Standard, entitled 'Assessment of the Impacts', it states:

"Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level (see Clause 8) from the rating level (see Clause 9), and consider the following.

- *Typically, the greater this difference, the greater the magnitude of the impact.*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- *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."*

It should be noted that Shared Regulatory Services (SRS) provide environmental protection and pollution control services to Cardiff Council and SRS expects applicants to aim for -10dB in their developments. We understand that this is a desired target rather than an absolute requirement although where feasible this criteria should be met.

However SRS have advised us that each scheme should be considered individually and this is not a fixed criteria. This criteria has also not been published or formally adopted by the local authority.

As such on this scheme we would consider a more appropriate criteria to be 0 dB. We would consider a difference of 0 decibels will have a low impact on nearby noise sensitive receivers and is considered acceptable in noise impact terms.

4. Site Noise Monitoring

A long term baseline site noise survey was undertaken at one monitoring location between the Wednesday the 4th July 2018 and Monday 9th July 2018. The purpose of the site survey was to determine the existing noise climate at locations representative of the nearby residential properties during the hours of proposed operation.

4.1. Monitoring Equipment

Sound pressure levels were measured using a Class 1 sound level meter, with a half-inch condenser microphone, using the 'fast' setting. The equipment is checked regularly using a Quality System meeting the requirements of British Standard EN ISO/IEC 17025:2005, and in accordance with British Standard EN 10012:2003, and traceable to the National Standards.

This equipment was checked and calibrated as noted below and the certificates are available for inspection. Table 1 provides the equipment and calibration status.

Table 1: Equipment and Calibration Status

Equipment Description	Serial number	Date of calibration	Calibration Certificate Number
Sound Level Meter, Cirrus Research, CR:171C	G071684	27/03/2018	258512
Microphone, Cirrus Research, MK224	606369B	27/03/2018	117727
Calibrator, Cirrus Research, CR:515	73217	27/03/2018	117728

The measurement systems were checked before and after use with the noted calibrator and no drift exceeding +0.2 dB was detected.

4.2. Weather Conditions

The weather conditions throughout both surveys were dry and partially overcast with a wind speed of up to 3 metres per second, with an air temperature of 26 degrees Celsius. These weather conditions are not expected to have adversely affected the results.

4.3. Monitoring Procedure

The measurements were undertaken generally in accordance with British Standard 7445. The main source of noise at this time was from the Steel Works to the South West of the site. Additional noise sources include road traffic and industrial activities in the vicinity.

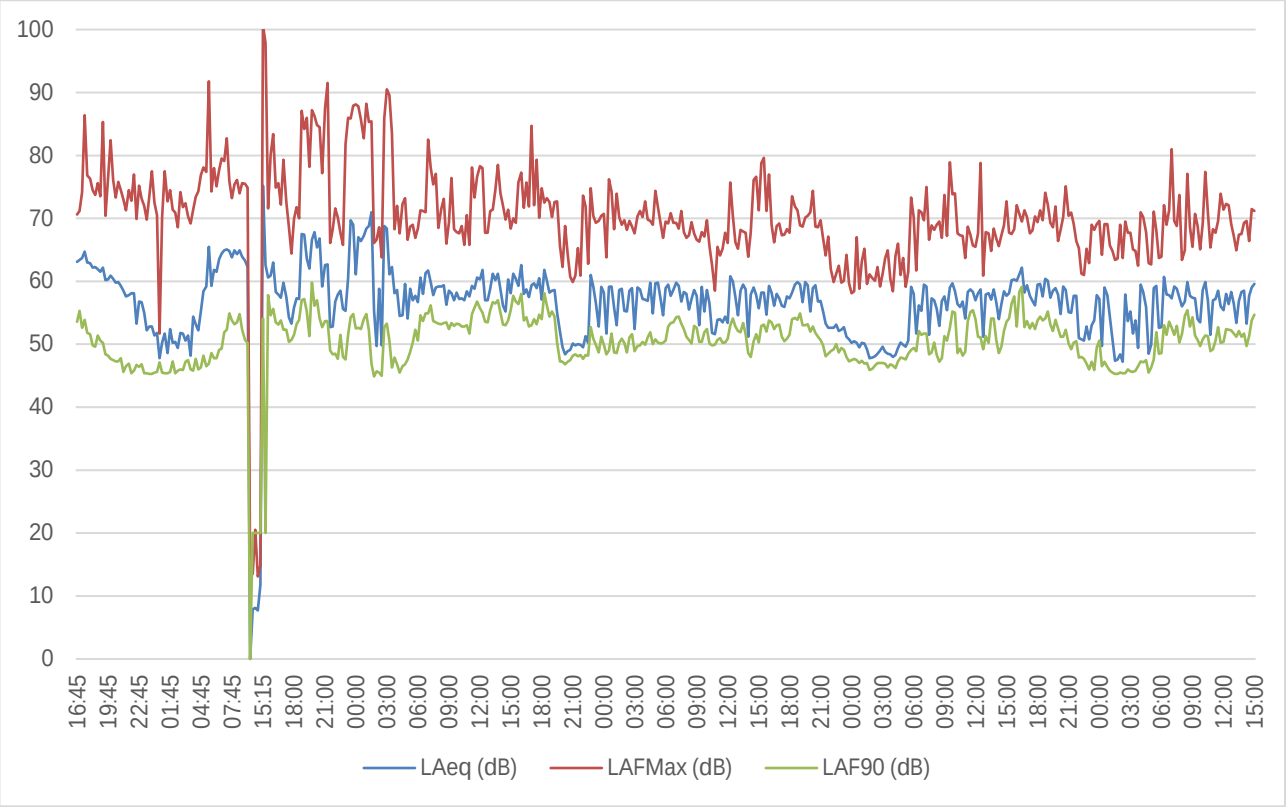
The equipment was set up at a height of 1.5 metres at a location to the North East of the Celsa site as shown in the figure below in a free-field position.

Figure 2: Monitoring Location

4.4. Measured Levels

The following chart provides the measured equivalent noise level, L_{Aeq} dB, and background sound levels, L_{A90} dB, during the monitoring period:

Figure 3: Measured noise levels



From the measured data, we have determined the following typical background sound levels during the daytime, evening and night periods.

Table 2: Typical background sound levels

Time Period	Background Sound Level $L_{A90(T)}$ dB
Daytime 07:00 to 17:00	53
Evening 19:00 to 23:00	50
Night 23:00 to 07:00	47

5. Operational Noise Limits

Noise from plant and activities associated with the planning application is to be assessed in accordance with BS4142:2014.

The following table provides Rating Level noise limits when determined at the noise sensitive residential properties to the North East. The rating level is the equivalent noise level of the activities with corrections for character as defined in British Standard 4142:2014.

The noise limits provided in the table below are based on the BS4142:2014 difference of 0 decibels which the British Standard states is an indication of the specific sound source having a low impact:.

Table 3: Proposed External Plant Noise Limits

Time Period	Maximum Rating Level
Weekday Daytime 07:00 to 17:00	53 $L_{Ar(1\ hour)}$ dB
Weekday Evening 19:00 to 23:00	50 $L_{Ar(1\ hour)}$ dB
Weekday Night 23:00 to 07:00	47 $L_{Ar(15\ minutes)}$ dB

We would consider a difference of 0 decibels will have a low impact on nearby noise sensitive receivers and is considered acceptable in noise impact terms.

6. Limitations

The report limits itself to addressing solely on the environmental noise aspects as included herein. We provide advice only in relation to noise and acoustics. It is recommended that appropriate expert advice is sought on all the ramifications (e.g. CDM, structural, condensation, fire, legal, etc.) associated with any proposals in this report or as advised and concerning the appointment.

The report has been prepared in good faith, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

The report is provided for the sole use of the named Client. No responsibility is accepted to other parties.

ACOUSTIC CONSULTANTS LTD

Raleigh House, Wellsway, Keynsham, Bristol BS31 1HS

T: 0117 986 2956 E: mail@acoustic-ltd.co.uk www.acoustic-ltd.co.uk

Incorporated in the UK as Acoustic Consultants Limited. Registered Office: Raleigh House, Wellsway, Keynsham, Bristol BS31 1HS. Registered No: 8544901.