tnei

A specialist energy consultancy

Noise Impact Assessment

Celsa, Rotherham Proposed Metal Recycling Development

Celsa Group Ltd

13222-001-R0
25 June 2019

PUBLISHED

CELSA GROUP

tneigroup.com

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Document Control

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APPENDICES

1 Introduction

1.1 Overview

TNEI has been commissioned to undertake an environmental Noise Impact Assessment (NIA) to support the planning application for a proposed metal recycling development (the Proposed Development) at a location between Ickles Way and Fullerton Road, Rotherham.

The aims of the NIA are to:

- Identify potential noise sensitive receptors in the vicinity of the Proposed Development and quantify the existing baseline sound levels at these locations;
- Identify the noise sources associated with the operation of the Proposed Development;
- Calculate the likely levels of operational noise at the nearest receptors to determine the noise impacts associated with the Proposed Development; and,
- Indicate any requirements for mitigation measures, if required, in order to provide sufficient levels of protection for nearby receptors.

All work undertaken to produce this report has been carried out by members of the TNEI Site Services Team, all of whom are affiliated with the Institute of Acoustics. Specifically, the following members of staff have been involved in this project;

- Andrew Ridley. BSc (Hons). AMIOA: Principal Author and Noise Propagation Modelling
- Ewan Watson. BEng (Hons). Tech IOA: Baseline Sound Level Survey, Specific Sound Level Measurements & Figure Production; and,
- Jim Singleton. BSc (Hons). MIOA: Quality Assurance.

1.2 Nomenclature

Please note the following terms and definitions, which are used throughout this report;

- **Emission** refers to the noise level emitted from a noise source, expressed as either a sound power level or a sound pressure level;
- **Immission** refers to the sound pressure level received at a specific location from a noise source;
- **SWL** indicates the sound power level in decibels (dB);
- **SPL** indicates the sound pressure level in decibels (dB);
- **NML** refers to any location where baseline or specific sound levels have been measured, Noise Monitoring Location.
- **NSRs** are all identified receptors which are sensitive to noise, Noise Sensitive Receptors; and,
- **NAL** refers to any location where the noise immission levels are calculated and assessed, Noise Assessment Location.

In the interests of clarity a Glossary of Terms is also provided as Appendix A of this report.

Unless otherwise stated, all noise levels refer to free field levels i.e. noise levels without influence from any nearby reflective surfaces.

All grid coordinates refer to the Ordnance Survey grid using Eastings and Northings.

All Figures can be found in Appendix F.

2 Project Description

2.1 Proposed Development Description

The Proposed Development is situated within an existing scrap metal handling facility to the west of Fullerton Road and East of Ickles Way, Rotherham. An adjacent railway siding runs north south along the eastern site boundary, with trains currently taking scrap metal away from the site to a sister site in Cardiff for further processing. Parallel to this is the North Midland train line, with frequent trains running to and from the Swinton Interchange to the north.

The development site is bordered to the west, north and east with other industrial developments. A golf course and playing fields are located to the immediate south and south west. The closest residential receptors are located approximately 500 m to the east (beyond the neighbouring industrial sites) and 600 m to the south, beyond the golf course and playing fields.

As well as noise from the existing industrial activities, the noise environment at the development site and in the local area is dominated by local road traffic, including the A630 to the east, the A618 to the north and the M1 motorway to the west. Railway movements also contribute to the existing soundscape.

The Proposed Development will consist of a weighbridge and an industrial hydraulic metal shear. Currently, scrap metal is brought to the site where it is forwarded on to other facilities via rail for processing. This activity will continue; however, the proposed development will allow the metal to be sheared prior to loading the trains.

A layout plan and elevation drawings detailing the proposed layout are included in Appendix B.

The only significant new sound source will be the metal shear. This will be sited within the southern section of the existing site. Mobile plant will be used to move the material to and from the shear, but these are activities that already occur on site (as materials are already moved around the site in a similar fashion) and will not introduce any new sound sources.

TNEI understand that the metal shear facility will only be operational during daytime hours (0600 – 1800), however, the facility may be run continuously for as long as material is loaded into it, which for the purpose of this assessment is assumed to be for the entire duration of the daytime hours.

2.2 Study Area

Noise Sensitive Receptors (NSRs) are properties which are sensitive to noise and, therefore, require appropriate protection. Receptors which have a high level of sensitivity are located approximately 500m east and approximately 600m south of the shear. These receptors are two storey, residential receptors.

The A630 (dual carriageway) and A631 (single carriageway) are located between the receptors and the Proposed Development. Both of these roads are in frequent use by cars and HGVs during the day time, and are the dominant source of noise in the area.

Figure 1 indicates the location of the closest NSRs to the development site.

3 Assessment Methodology

3.1 Legislation and Policy Context

The overarching European legislation in respect of environmental noise is the '*Environmental Noise Directive'* (END) (2002). The END aims to limit people's exposure to noise and requires each member state to provide data on noise exposure and to adopt action plans to prevent or reduce noise exposure and preserve environmental noise quality where it is already good.

3.1.1 National Planning Policy Framework

At a national level the relevant policy is the National Planning Policy Framework (NPPF). The NPPF states that planning policies and decisions should:

" … mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life" (Paragraph 180).

The NPPF refers to the NPSE for further explanation.

3.1.2 Noise Policy Statement for England (NPSE)

The NPSE sets out the long-term vision of Government noise policy and should apply to all forms of noise including environmental noise, neighbour and neighbourhood noise.

The key aims of the NSPE are to:

- Avoid significant adverse impacts on health and quality of life while taking into account the guiding principles of sustainable development;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life through.

3.2 Consultation

TNEI liaised with an Environmental Health Officer (EHO) at Rotherham Metropolitan Borough Council via phone call and letter to agree the assessment methodology for the noise impact assessment.

TNEI sent a letter on 17th May 2019 (TNEI Ref:13222-005-R1,), proposing a two stage approach as follows:

- Stage 1: 10dB Rule Assessment – Operational sound levels are to be predicted and compared to the existing sound levels in the area. Where predicted levels are at least 10 dB below existing levels then no further assessment is necessary.
- Stage 2: 'Context' Based Limits – If the predicted levels are within 10 dB of existing levels then an assessment in accordance with BS4142:2014 *'Methods for rating and assessing industrial and commercial sound'* would be required.

This was agreed with the EHO by email on 20th May 2019. The locations for baseline monitoring were also agreed and these are detailed later in Section 4.

3.3 Assessment Method

The two-stage approach, as agreed with the EHO, was as follows:

3.3.1 Stage 1: 10dB Assessment

When calculating the total sound pressure level that will occur as a result of two or more sound sources operating together, the sound pressure levels of the individual sources are summed logarithmically. Two identical sources will increase the total SPL by 3 dB e.g. 40 dB + 40 dB = 43 dB.

However, where the difference between two sound sources is greater than 10 dB there is no increase in the total SPL e.g. 30 dB + 40 dB = 40 dB.

Therefore, when the predicted sound levels from a proposed development are at least 10 dB lower than existing sound levels it is reasonable to assume that the proposed development will not unduly influence the existing noise environment.

For the first stage of assessment it was agreed that TNEI would undertake noise predictions using noise modelling software CadnaA and in accordance with ISO9613-2:1996 '*Acoustics – Attenuation of Sound Propagation Outdoors, Part 2 – General Method of Calculation'*. These predictions would then be compared to the measured background sound levels at the nearest receptors to the Proposed Development and where predicted levels were at least 10 dB below existing levels then no further assessment would be required. If noise levels were within 10 dB of the existing levels or higher than the existing levels, then the Stage 2 assessment would be required.

3.3.2 Stage 2: 'Context' Based Limits

BS4142:2014 is commonly used to assess the potential impacts of new industrial and commercial sound sources on nearby receptors. This method of assessment is based on the predicted or measured levels of assessed source sound compared to the measured background sound levels without the specific sound source present and assesses "*the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident."*

Specifically, the assessment is made by subtracting the measured background sound level from a calculated or measured "Rating Level".

3.4 Calculation Method

In order to predict the noise immission levels attributable to the Proposed Development a noise propagation model was constructed using the propriety noise modelling software CadnaA. Within the software, complex models can be produced in order to simulate the propagation of noise according to a range of international calculation standards.

For this assessment, noise propagation was calculated in accordance with ISO9613 and the following input parameters used;

- Temperature was assumed to be 10°C and relative humidity as 70%;
- A ground attenuation factor of 0 (hard ground) was used; and
- Receiver heights were set to 4 m.

The noise propagation model is intended to give a good approximation of the specific sound level and the contribution of each individual sound source; however, it is expected that measured levels are unlikely to be matched exactly with modelled values and the following limitations in the model should be considered:

- In accordance with ISO9613, all assessment locations are modelled as downwind of all sound sources and propagation calculations are based on a moderate ground-based temperature inversion, such as commonly occurs at night. These conditions are favourable to the propagation of sound;

- Table 5 of ISO9613 estimates overall accuracy for broadband noise predictions of ± 3dB, with average source to receiver heights <5m, at distances of up to 1000m;
- The predicted barrier attenuation provided by local topography, embankments, walls, buildings and other structures in the intervening ground between source and receiver can only be approximated and not all barrier attenuation will have been accounted for; and
- The model assumes all fixed sound sources are operating continuously and simultaneously, estimating a worst-case source noise level.

4 Baseline Sound Level Monitoring

Attended baseline sound level monitoring was undertaken at two locations on the 29th and 30th May 2019, during morning (from 06:00) and afternoon periods. As the operation of the Proposed Development is for day time hours only, no night time monitoring was undertaken. Table 4.1 details the Noise Monitoring Locations (NMLs), which are also displayed on Figure 1.

Table 4.1 Baseline Monitoring Locations

NML		Coordinates		Comments
NML01	Canklow Road	442521	391263	Representative of the closest receptors to the east of the Proposed Development
NML02	Fernleigh Drive	442190	390804	Representative of the closest receptors to the south of the Proposed Development

NML1 is located to the south of the Proposed Development. The SLM was situated on a grassy area to the east end of Fernleigh Drive, adjacent the railway line (Approximately 30m east) and A630/A631 approximately 350m to the south east (at the closest point).

NML2 is located to the east of the Proposed Development. The SLM was situated on a grassy area to the west of Canklow Road (by the Rother Road junction), with the A630 approximately 80m to the west.

The noise monitoring equipment consisted of one Cirrus CR:171B integrating sound level meters (SLM) fitted with standard wind shields. All noise monitoring equipment (calibrator, SLM and microphones) used for the study are categorised as Class 1, as specified in IEC 61672-1 *'Electroacoustics. Sound level meters. Specifications'* (IEC, 2002). The equipment was calibrated on site at the beginning and end of each measurement period with no significant deviations noted. Appendix C contains the equipment and laboratory calibration details.

At both locations the monitoring equipment was placed at least 3.5m away from any hard, reflective surfaces, and at least 1.5m above the ground.

Subjective observation during the survey noted that sounds that were audible at both monitoring locations were predominantly from road traffic on the A630/A631 passing in both directions (dominant), birdsong and occasional trains. Some low-level industrial sound was observed from the direction of the metal handling facility.

Weather conditions during the noise monitoring were dry, mild temperatures and overcast skies (6/8 oktas). Wind speeds during this period were low to still. This paragraph needs to describe the weather conditions during the measurement.

Measurements were undertaken on a single day for a total of 225 minutes at NML01 and 240 minutes at NML02 over three separate survey periods (per location) between the hours of 06:00 and 17:00 and logged in 15 minute periods.

Table 4.2 details the derived background sound levels, $L_{A90(t)}$, which have been determined after considering the distribution of data for each measurement period. Detailed measurement data including statistical analysis charts can be found in Appendix C.

Table 4.2 Representative Background Sound level, dB L_{A90}, Derived Through Statistical Analysis

NML	Daytime Background Sound Level, dB LA90(15mins)
NML01	58
NML02	53

5 Operational Noise Impacts

5.1 Modelling of the Metal Shear Facility

TNEI has been provided with noise level data for similar metal shearing plant to that proposed from the equipment supplier. The data includes a calculation of the sound power level undertaken using ISO 3746: 2012 – '*Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Survey method using and enveloping measurement surface over a reflective plane*'.

The shear plant has been modelled as a continually operational point source at a height of 3.5 m above ground and with a SWL of 102.8 dBA. No spectral data is available, therefore in accordance with ISO 9613-2:1996, the model is based on an emmission level assuming a frequency of 500Hz only.

5.2 Calculated Noise Immission Levels

The noise immission levels have been calculated to two Noise Assessment Locations (NALs) chosen as representative of the nearest NSRs. These are detailed in Table 5.1. In addition, Figure 2 presents an isopleth noise contour plot for a height of 4 m overlaid on OS digital mapping data.

Table 5.1 Calculated Sound Immission Levels, dB $L_{aeq(t)}$

Noise Assessment Location		Predicted Sound Sound Level,
NAL ID	NAL Descriptor	dB $L_{Aeq(t)}$
NAL01	Property on Canklow Road	36
NAL02	Property on Fernleigh Drive	37

6 Noise Impact Assessment

6.1 Stage 1: 10dB Assessment

Table 6.1 compares the predicted immission levels with the existing ambient sound levels at the NSRs.

Table 6.1 Comparison of Predicted and Measured Noise Levels

Noise Assessment Location		Background Sound Level,	Specific Sound Level,	Difference
NAL ID	NAL Descriptor	dB $L_{A90(15mins)}$	dB $L_{Aeq(15mins)}$	dB
NAL01	Property on Canklow Road	58	36	-22
NAL02	Property on Fernleigh Drive	53	37	-16

It can be seen that for all NALs the predicted levels are more than 10 dB below the existing ambient sound levels. Accordingly, no further assessment is required.

7 Summary

In order to assess the impact of noise emissions from the proposed development, TNEI has produced a noise propagation model in accordance with ISO9613-2, which predicts the noise immission levels at the nearest identified NSRs. The assessment has been made against the existing background sound levels, which were quantified through baseline sound level monitoring during early morning and regular weekday working hours.

During consultation with Rotherham Council it was agreed that if noise immission levels were predicted to be more than 10 dB below the existing noise levels then no further assessment would be necessary.

The assessment has determined that noise immission levels are likely to be more than 10dB below the existing background sound levels at all receptor locations. Accordingly, it is considered that the Proposed Development will not have an adverse noise impact on the local area.

8 References

BSI (2013). *BS EN 61672:2013 Electroacoustics. Sound level meters. Specifications*. UK: British Standards Institute.

BSI (2014). *BS4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound.* UK: British Standards Institute.

ISO (1996). *ISO9613-1:1996, Acoustics – Attenuation of Sound During Propagation Outdoors: Part 1 – Method of Calculation of the Attenuation of Sound by Atmospheric Absorption*. Geneva: International Organization for Standardization.

ISO (1996). *ISO 9613-2:1996 Acoustics – Attenuation of Sound During Propagation Outdoors: Part 2 – General Method of Calculation.* Geneva: International Organization for Standardization.

ISO (2012). *ISO3746:2012, Acoustics – Determination of Sound Power Levels and Sound Energy Levels of Noise Sources Using Sound Pressure – Survey Method Using an Enveloping Measurement Surface Over a Reflecting Plane.* Geneva: International Organization for Standardization.

Appendix A – Acoustics Glossary of Terms

Attenuation: the reduction in level of a sound between the source and a receiver due to any combination of effects including: distance, atmospheric absorption, acoustic screening, the presence of a building façade, etc.

Background Noise: the noise level rarely fallen below in any given location over any given time period, often classed according to day time, evening or night time periods. The LA90 indices (see below) is often used to represent the background noise level.

Broadband Noise: noise with components over a wide range of frequencies.

Decibel (dB): the ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. A logarithmic scale is used in noise level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level.

dB(A): the ear has the ability to recognise a particular sound depending on its pitch or frequency. Microphones cannot differentiate noise in the same way as the ear, and to counter this weakness the noise measuring instrument applies a correction to correspond more closely to the frequency response of the human ear. The correction factor is called 'A Weighting' and the resulting measurements are written as dB(A). The dB(A) is internationally accepted and has been found to correspond well with people's subjective reaction to noise. Some typical subjective changes in noise levels are:

- a change of 3dB(A) is just perceptible;
- a change of 5dB(A) is clearly perceptible;
- a change of 10dB(A) is twice (or half) as loud.

Directivity: the property of a sound source that causes more sound to be radiated in one direction than another.

Frequency: the pitch of a sound in Hz or kHz. See Hertz.

Ground Effects: the modification of sound at a receiver location due to the interaction of the sound wave with the ground along its propagation path from source to receiver. Described using the term 'G', and ranges between 0 (hard), 0.5 (mixed) and 1 (soft).

Hertz (Hz): sound frequency refers to how quickly the air vibrates, or how close the sound waves are to each other (in cycles per second, or Hertz (Hz)).

Isopleth: a line on a map connecting points of equal value, for example air pressure, noise level etc.

Lw: is the sound power level. It is a measure of the total noise energy radiated by a source of noise, and is used to calculate noise levels at a distant location. The LWA is the A-weighted sound power level.

Leq: is the equivalent continuous sound level, and is the sound level of a steady sound with the same energy as a fluctuating sound over the same period. It is possible to consider this level as the ambient noise encompassing all noise at a given time. The LAeq,T is the A-weighted equivalent continuous sound level over a given time period (T).

L90: index represents the noise level exceeded for 90 percent of the measurement period and is used to indicate quieter times during the measurement period. It is often used to measure the

background noise level. The LA90,10min is the A-weighted background noise level over a ten minute measurement sample.

Noise emission: the noise energy emitted by a source (e.g. a wind turbine).

Noise immission: the sound pressure level detected at a given location (e.g. the nearest dwelling).

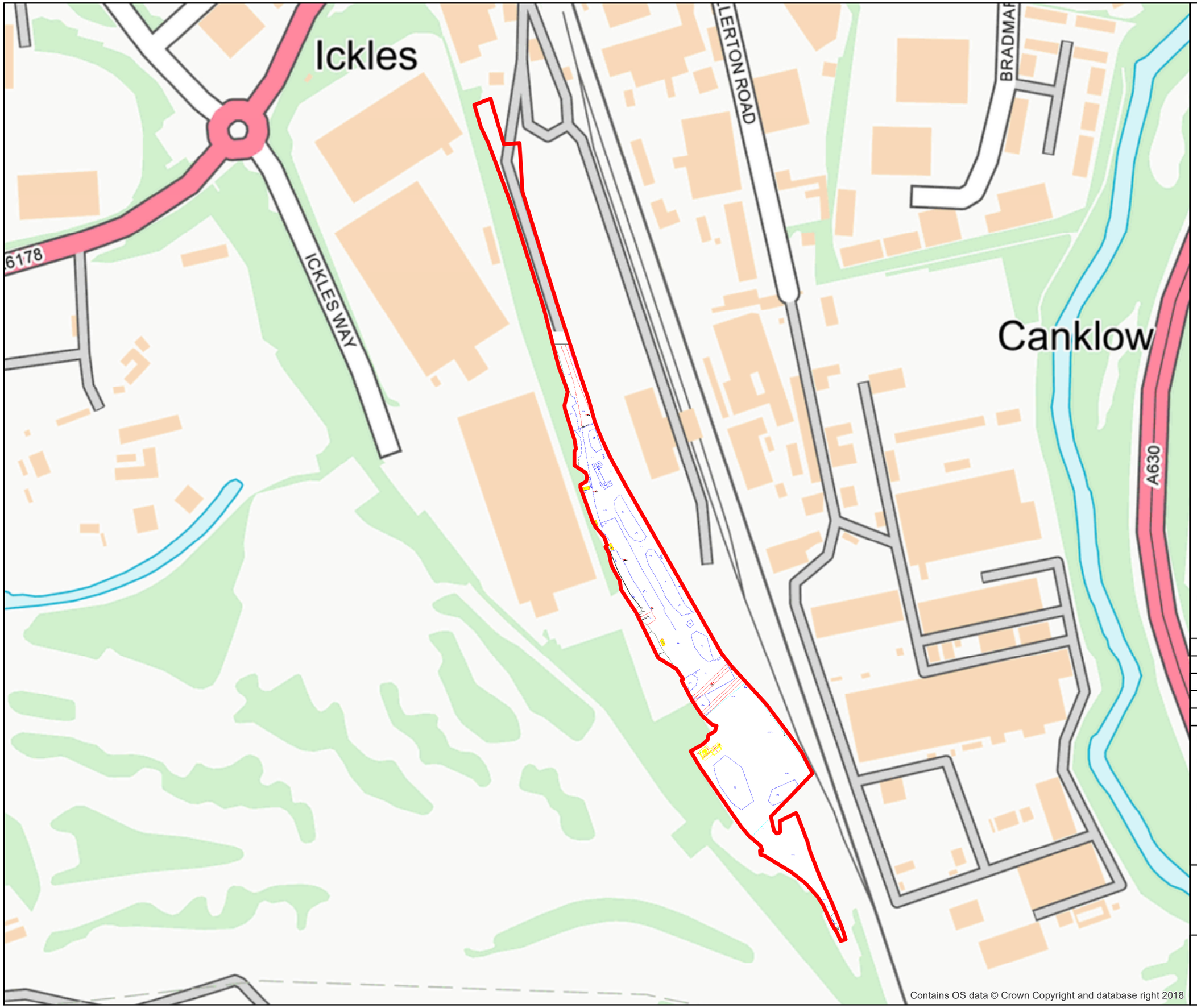
Oktas: A method of estimating the amount of cloud cover by splitting the area of sky into eighths and reporting the number of eigths obscured by cloud.

Sound Level Meter: an instrument for measuring sound pressure level.

Sound Pressure Level: a measure of the sound pressure at a point, in decibels.

Tonal Noise: noise which covers a very restricted range of frequencies (e.g. a range of ≤20 Hz). This noise can be more annoying than broadband noise.

Appendix B – Proposed Development Information



Legend

Site Boundary

Approximate site centre point grid reference: SK 41977 91273

0 50 100 Metres

N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R1	FIRST ISSUE	SW	LR	LR	03/01/2019

Project	Rotherham Metal Recovery Centre
Client	Celsa
Title	Screening Indicative Site Layout
Figure No.	Appendix B
Scale	1:3,000 @A3
Doc. Ref.	13135-003

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Appendix C – Baseline Survey Data

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Equipment Details

Instrument Manufacturer	Cirrus Research Plc
Instrument Type	CR:171B
Description	Sound Level Meter
Serial Number	G078524

Calibration Procedure

The instrument detailed above has been calibrated to the publish test and calibration data as detailed in the instrument hand book, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2013, IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:2003, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983, ANSI S1.11-1986 and ANSI S1.43-1997 where applicable.
Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards {A.0.6}. The standards are:

Microphone Type	GRAS 40AP	Serial Number	173198	Calibration Ref.	0170
Calibrator Type	B&K 4231	Serial Number	2594796	Calibration Ref.	A1811

Calibrated by

Calibration Date 28 September 2018

Calibration Certificate Number 264127

This Calibration Certificate is valid for 12 months from the date above.

Cirrus Research plc, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire, YO14 0PH
Telephone: +44 (0) 1723 891655 Fax: +44 (0) 1723 891742
Email: sales@cirrusresearch.co.uk

CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **28/09/18** CERTIFICATE NUMBER **122475**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Test engineer:
D.Swalwell
Electronically signed:

Microphone

Microphone capsule

Manufacturer: Cirrus Research plc

Model: MK:224

Serial Number: 206389A

Calibration procedure

Date of calibration: 25 September 2018

Open circuit: 51.4 mV/Pa

Sensitivity at 1 kHz: -25.8 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Environmental conditions

Pressure: 102.90 kPa

Temperature: 23.0 °C

Humidity: 31.0 %

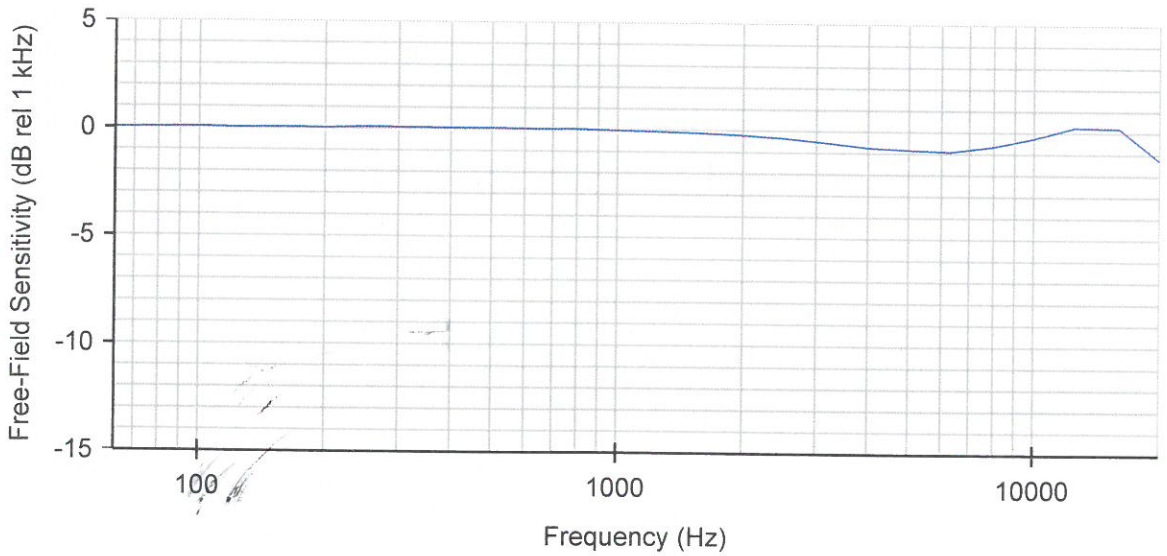
CERTIFICATE OF CALIBRATION

Certificate Number: **122475**

Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator Response (dB)
63	0.06	-0.14
80	0.08	0.01
100	0.10	0.10
125	0.06	0.08
160	0.09	0.12
200	0.06	0.10
250	0.12	0.12
315	0.09	0.10
400	0.08	0.10
500	0.08	0.08
630	0.06	0.07
800	0.06	0.04
1 000	0.00	-0.02
1 250	-0.05	-0.10
1 600	-0.11	-0.24
2 000	-0.20	-0.43
2 500	-0.32	-0.70
3 150	-0.51	-1.09
4 000	-0.74	-1.64
5 000	-0.83	-2.26
6 300	-0.90	-3.03
8 000	-0.65	-3.93
10 000	-0.26	-5.07
12 500	0.25	-6.37
16 000	0.22	-7.78
20 000	-1.28	-10.66

Free-Field Frequency Response : Graphical



Certificate of Calibration

Certificate Number: **122472**

Date of Issue: **28 September 2018**

Instrument

Manufacturer: **Cirrus Research plc** Serial Number: **78219**

Model Number: **CR:515**

Calibration Procedure

The sound calibrator detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC 60942:2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer s data.

Date of Calibration: **28 September 2018**

Calibration Results

Measurement	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
1	93.96	1000.1	0.33
2	94.00	1000.1	0.32
3	93.97	1000.1	0.34

Average	**93.98**	**1000.1**	**0.33**
Uncertainty	± 0.13	± 0.1	± 0.10

The reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level.

Cirrus Research plc, Acoustic House, Bridlington Road
Hunmanby, North Yorkshire, YO14 0PH, United Kingdom
Telephone: 0845 230 2434 **Int**: +44 1723 891655
Email: sales@cirrusresearch.co.uk
Web: www.cirrusresearch.co.uk
UK Registration No. 987160

Environmental Conditions

Pressure:	**1025.10 kPa**
Temperature:	**23.1 °C**
Humidity:	**46.6 %**

Evidence of Pattern Approval

The manufacturer's product information indicates that this model of sound calibrator has been formally pattern approved to IEC 60942:2003 Annex A to Class 1. This has been confirmed with the PhysikalischTechnische Bundesanstalt (PTB).

Statement of Calibration

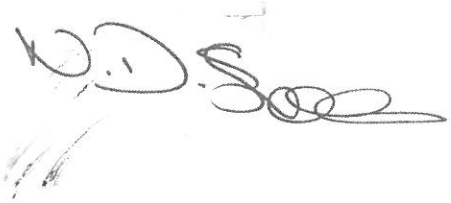
As public evidence was available, from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the Class 1 requirements of IEC 60942:2003.

Calibration Laboratory

Laboratory:

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Test Engineer: Nigel Smith



Project Nb.& Name	13222 - Rotherham
Client	Celsa / EAME

MONITORING LOCATION DETAILS

NML Nb. and Name	NML01
NML Contact Details (Name, address, phone nb..)	–
Description/Reason for exact location and Grid Coordinates	Representative of noise sensitive receptors to the east of proposed development

MONITORING EQUIPMENT DETAILS

	TNEI Id Nb.	Model	Serial Number	Last Cal.
Sound Level Meter	SLM 038	Cirrus	G078532	
Pre Amplifier				
Microphone				
Calibrator				

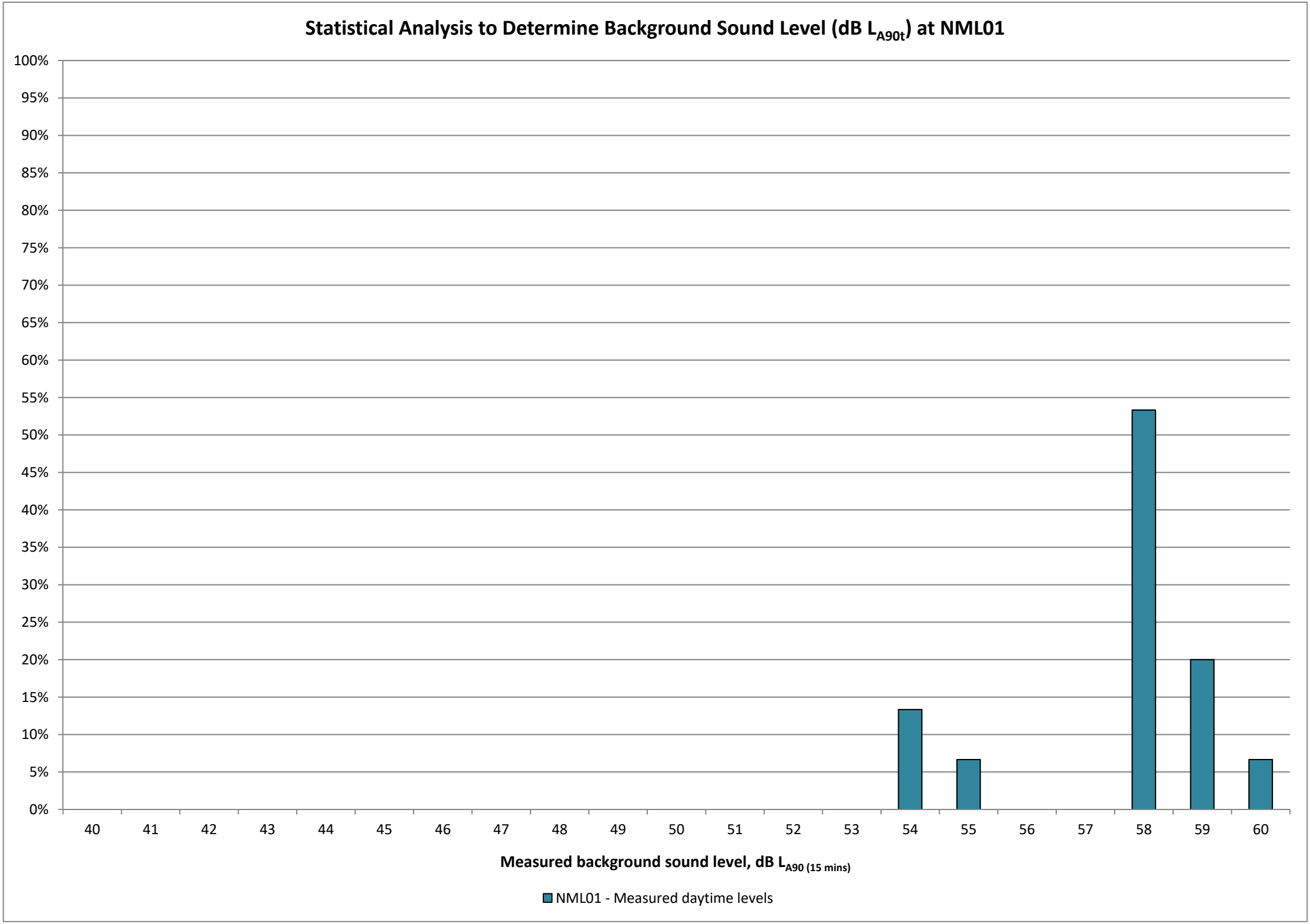
MONITORING EQUIPMENT SETTINGS AT START (TO BE CHECKED AT EACH SITE VISITS)

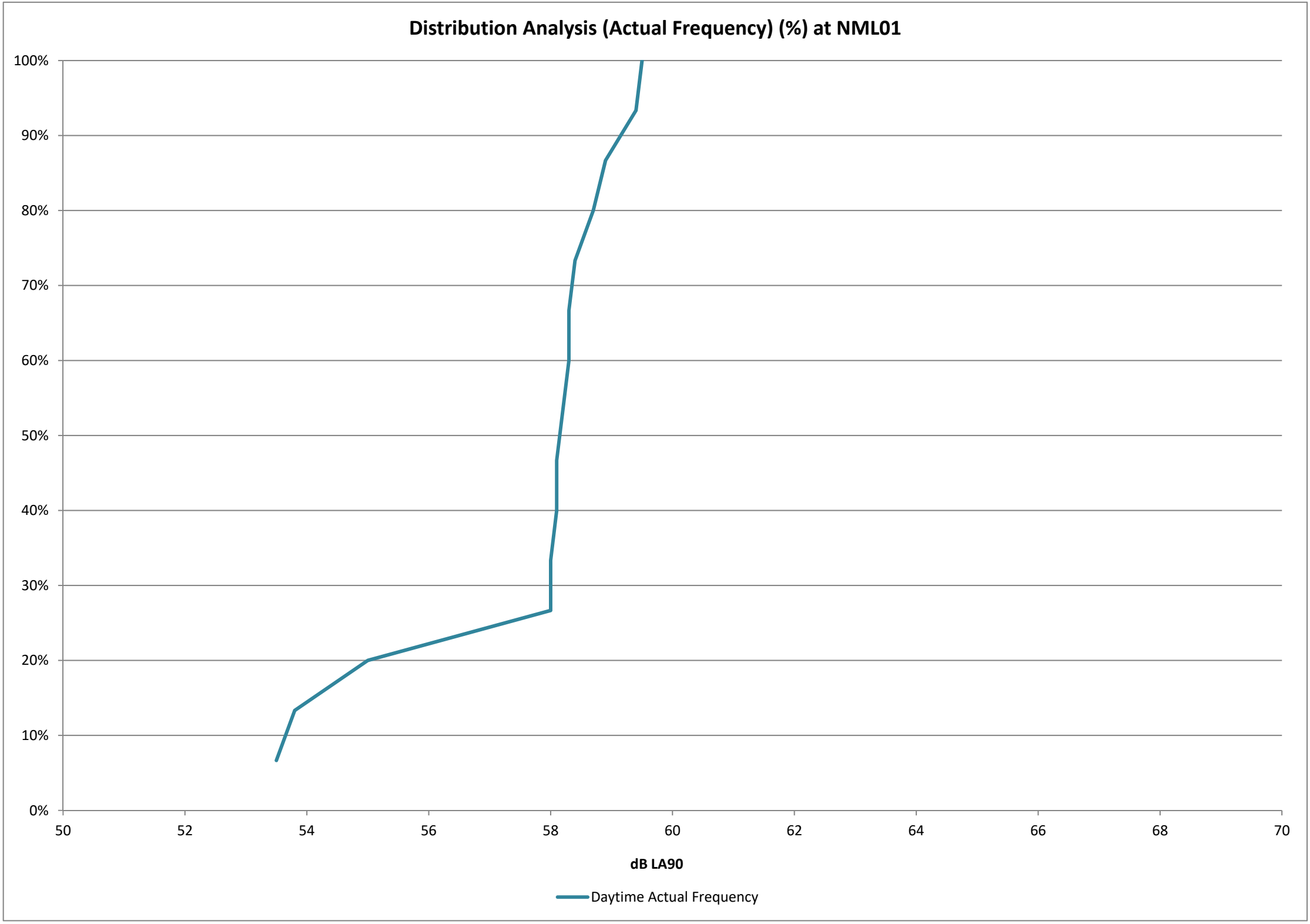
	Setting	Comment
Index (Leq,L90..)	–	
Network (A,B,Z)	–	
Time Interval (10min,10s..)	15mins	
Time Weighting (Fast/Slow)	–	
Measurement Range (20-110 ..)	–	
Audio (No ,Yes 16Khz/16bit ...)	No	
Other	–	
Resident Comments Sheet	–	
Resident consent to use photographs	–	

SITE VISIT HISTORY (VISITS 1 TO 4)

Visit Nb	Surveyor Initials	File Name (on SLM)	Start Date&Time (on watch)	End Date&Time (on watch)	Calibration at Start	Calibration at End	File Name	Index & Network (LAeq,LA90...)	Time Interval (10min,10s..)	Time Weighting (Fast ...)	Range (20-110 ...)	Batteries	Photographs	Write Notes on sound audible...	Snow/River Present?
1	EW	-	13:30 29/05/19	14:30 29/05/19	93.7	93.7	-	-	✓	-	-	✓	✓	✓	-
2	EW	-	05:45 30/05/19	06:30 30/05/19	93.7	93.6									
3	EW	-	08:00 30/05/19	09:00 30/05/19	93.7	93.7									
4	EW	-	12:45 30/05/19	13:45 30/05/19	93.7	93.6									

Visit Nb	NOTES / SITE OBSERVATIONS / Sounds Audible During Each Visits
1	- Dominant noise source is the motorway/dual carriageway to the west. Pretty constant but varies in loudness with fluctuating traffics - Occassional local traffic but quite rare. - Birdsong heard throughout. Some vegetation rustle also heard. - Light wind. No precipitation on ground.
4	- 8oktas. Overcast. Mild, around 10°C. - Road noise dominant at this time - Metal recycling heard occasionally, 'bumps', 'clangs' - Some local traffic - Slight breeze, Mild, 9°C, 4-5oktas.
2	@ 5:45 - Traffic noise still dominant, but less prominant in comparson to previous measurement period - Birdsong continuous - Very light wind, mild 10-12°C, No rain - When traffic is light, machinery/plant noise can be heard from what is assumed to be the metal recycling facility.
3	@ 8:00 - Road traffic noise dominant and more prominant than before due to increased volume/flow. - Periodic ~~alarm~~ reversing alarm noises are heard from the direction of the metal recycling plant, along with occasional 'bangs' and 'clangs' of moving metal presumably. - Light wind, mild 14°C, No rain, 2-3 oktas.


Statistical Analysis to Determine Background Sound Level (dB L_{A90t}) at NML01
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Measured background sound level, dB $L_{A90\ (15\ mins)}$
NML01 - Measured daytime levels


Distribution Analysis (Actual Frequency) (%) at NML01
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
50
52
54
56
58
60
62
64
66
68
70
dB LA90
Daytime Actual Frequency

Project Nb.& Name	13222 - Rotherham
Client	Celsa / EAME

MONITORING LOCATION DETAILS

NML Nb. and Name	NML02
NML Contact Details (Name, address, phone nb..)	–
Description/Reason for exact location and Grid Coordinates	Representative of noise sensitive receptors located to the south of the proposed development

MONITORING EQUIPMENT DETAILS

	TNEI Id Nb.	Model	Serial Number	Last Cal.
Sound Level Meter	SLM037	Cirrus	G078524	
Pre Amplifier				
Microphone				
Calibrator				

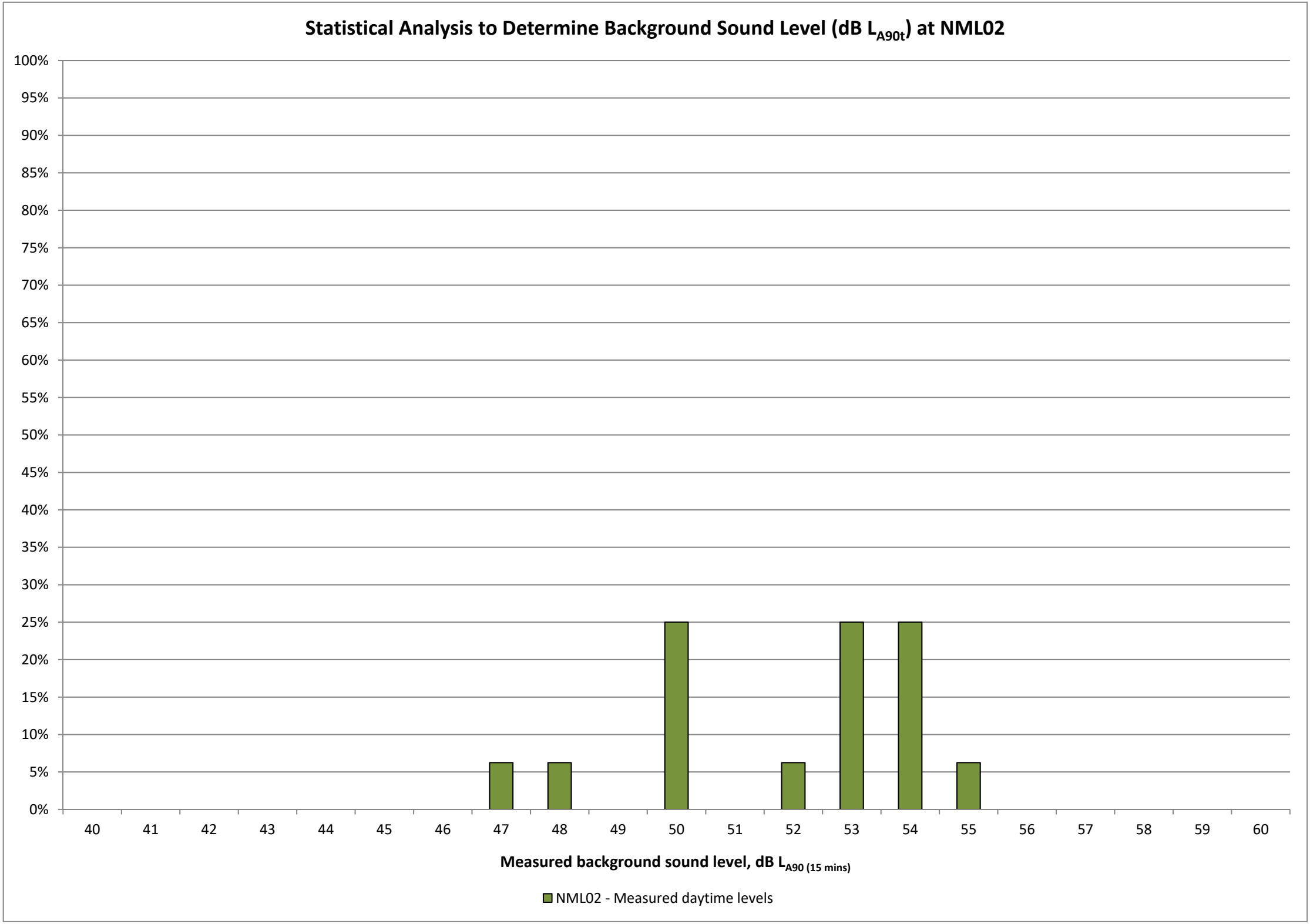
MONITORING EQUIPMENT SETTINGS AT START (TO BE CHECKED AT EACH SITE VISITS)

	Setting	Comment
Index (Leq,L90..)	–	
Network (A,B,Z)	–	
Time Interval (10min,10s..)	15 mins	
Time Weighting (Fast/Slow)	–	
Measurement Range (20-110 ..)	–	
Audio (No ,Yes 16Khz/16bit ...)	No	
Other	–	
Resident Comments Sheet	–	
Resident consent to use photographs	–	

SITE VISIT HISTORY (VISITS 1 TO 4)

Visit Nb	Surveyor Initials	File Name (on SLM)	Start Date&Time (on watch)	End Date&Time (on watch)	Calibration at Start	Calibration at End	File Name	Index & Network (LAeq,LA90...)	Time Interval (10min,10s..)	Time Weighting (Fast ...)	Range (20-110 ...)	Batteries	Photographs	Write Notes on sound audible...	Snow/River Present?
1	EW	-	14:47 29/05/19	15:47 29/05/19	93.7	93.7	-	-	✓	-	-	✓	✓	✓	-
2	EW	-	16:04 29/05/19	17:04 29/05/19	93.7	93.6	—	—	—	—	—	—	—	—	—
3	EW	-	06:45 30/05/19	07:45 30/05/19	93.7	93.7	—	—	—	—	—	—	—	—	—
4	EW	-	09:30 30/05/19	10:00 30/05/19	93.7	93.6	—	—	—	—	—	—	—	—	—

Visit Nb	NOTES / SITE OBSERVATIONS / Sounds Audible During Each Visits
1	- Dominated by road traffic noise to the south - Very occasional local traffic heard but very rare - Faint birdsong - No other obvious sounds of note
2	- Light wind and some faint vegetation rustle - No rain present, No dampness on roads - 8 oktas overcast. 10°c - 12°c. - Occasional plane heard overhead. Around every 30 mins or so - Train passes by periodically. Dominant for a matter of seconds, then passes.
3	- When moving off, trains can be quite tonal. A high pitched whine is heard throughout. - Hard to distinguish if this whine is from the trains or from elsewhere.
4	- When present, the tone is quite dominant. @ 6:45 - Road traffic dominant - Occasional 'thump', possibly from metal recycling - Birdsong throughout - No rain, No/light wind. 12-14°c, 2-3 oktas - Metal 'clangs' heard faintly throughout ie. movement of metal. @ 9:30 - Traffic has died down, but still audible - Operations at the recycling plant are faintly audible


Statistical Analysis to Determine Background Sound Level (dB L_{A90t}) at NML02
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
40
41
42
43
44
45
46
47
48
49
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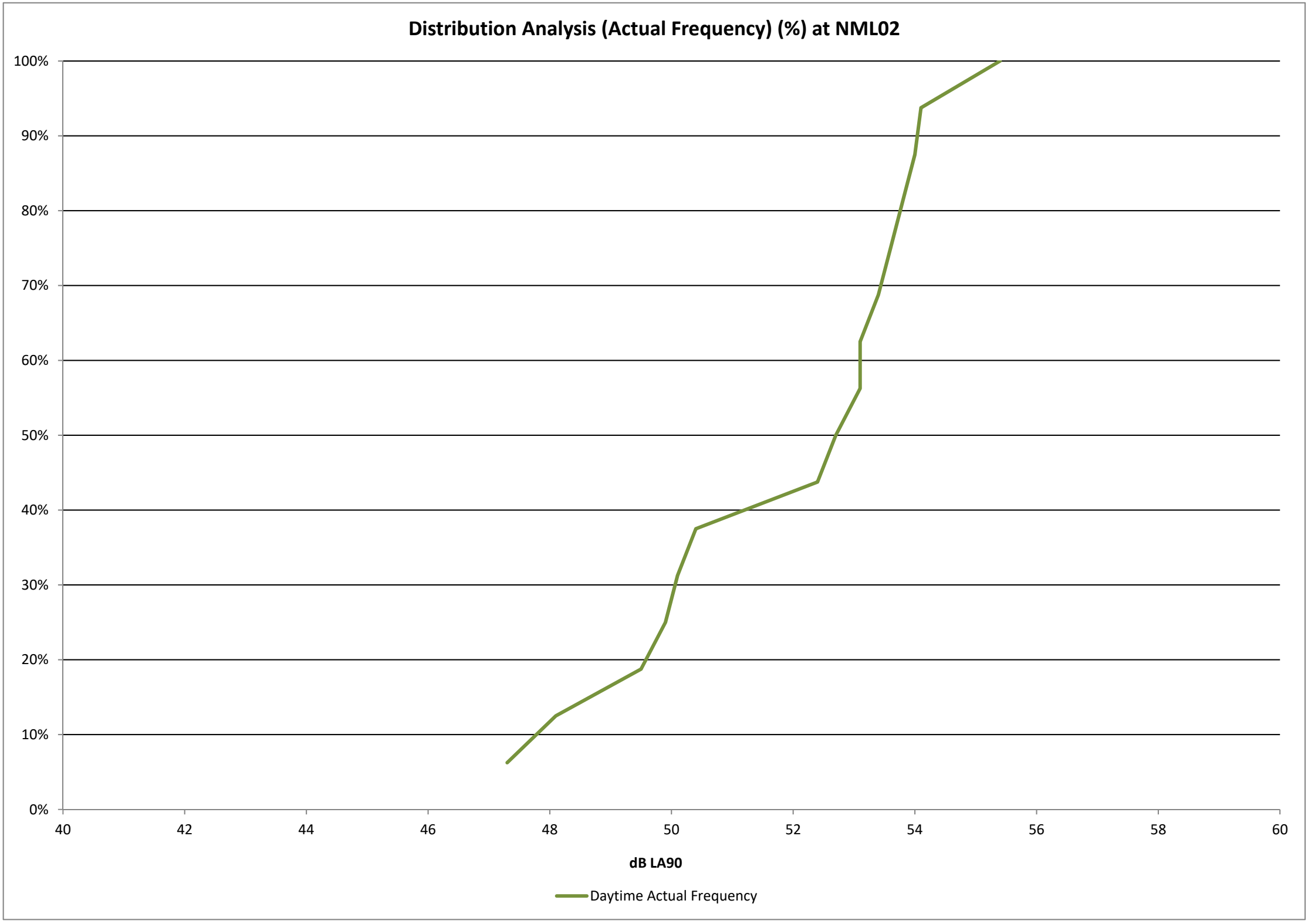
51
52
53
54
55
56
57
58
59
60
Measured background sound level, dB $L_{A90\ (15\ mins)}$
NML02 - Measured daytime levels


Distribution Analysis (Actual Frequency) (%) at NML02
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
40
42
44
46
48
50
52
54
56
58
60
dB LA90
Daytime Actual Frequency

Appendix D – Noise Source Data

Calcul du niveau de puissance acoustique

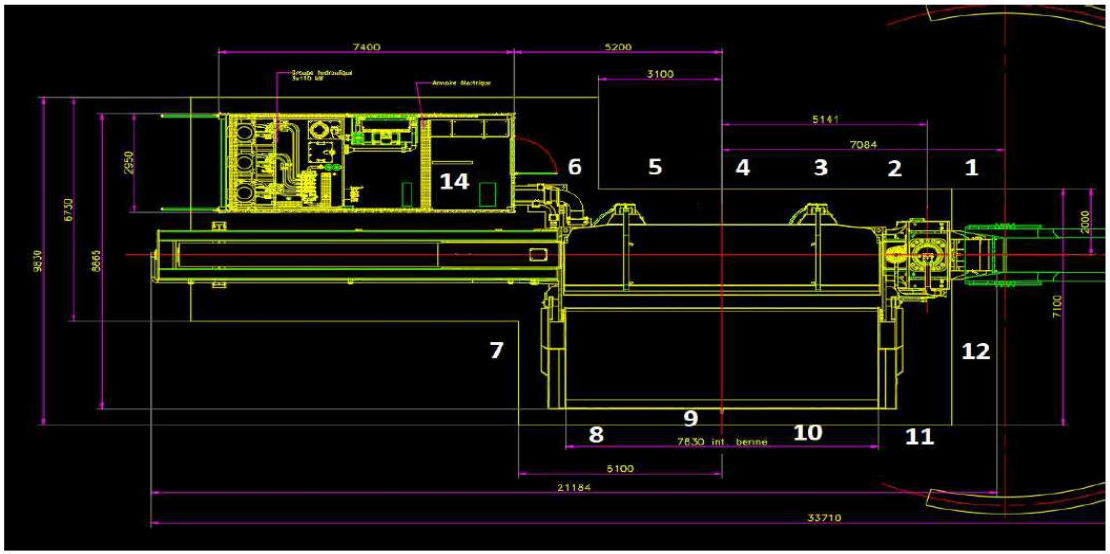
28578_LIDEX 800t_3x 110kW — 13/12/2018

Mesures suivant NF EN ISO 3746 Juin 2012

		Leq	
		dBA	
Bruit de fond	point 1	65	
Bruit de fond	point 6	70	
Haut régime	point 1	75	31622776,6
Haut régime	point 2	76	39810717,06
Haut régime	point 3	78	63095734,45
Haut régime	point 4	78	63095734,45
Haut régime	point 5	80	100000000
Haut régime	point 6	82	158489319,2
Haut régime	point 7	80	100000000
Haut régime	point 8	79	79432823,47
Haut régime	point 9	78	63095734,45
Haut régime	point 10	86	398107170,6
Haut régime	point 11	83	199526231,5
Haut régime	point 12	80	100000000

Surface de mesurage S	165	m²
Niveau de pression pondéré du bruit de fond sur la surface : L"pa	68,2	dBA
Niveau de pression pondéré sur la surface : L'pa	80,7	dBA
minimum mesuré	*75*	*dBA*
maximum bruit de fond	*70*	*dBA*
Maximisation du coefficient de correction K1A	*1,65*	*dBA*
Pas de correction bruit de fond nécessaire	0	dBA
Environnement : champs libre, pas de correction	0	dBA

Niveau de pression surfacique Lpfa	**80,7**	**dBA**
Niveau de puissance LWA	**102,8**	**dBA**



English Translation of previous page

Calculation of the sound power level

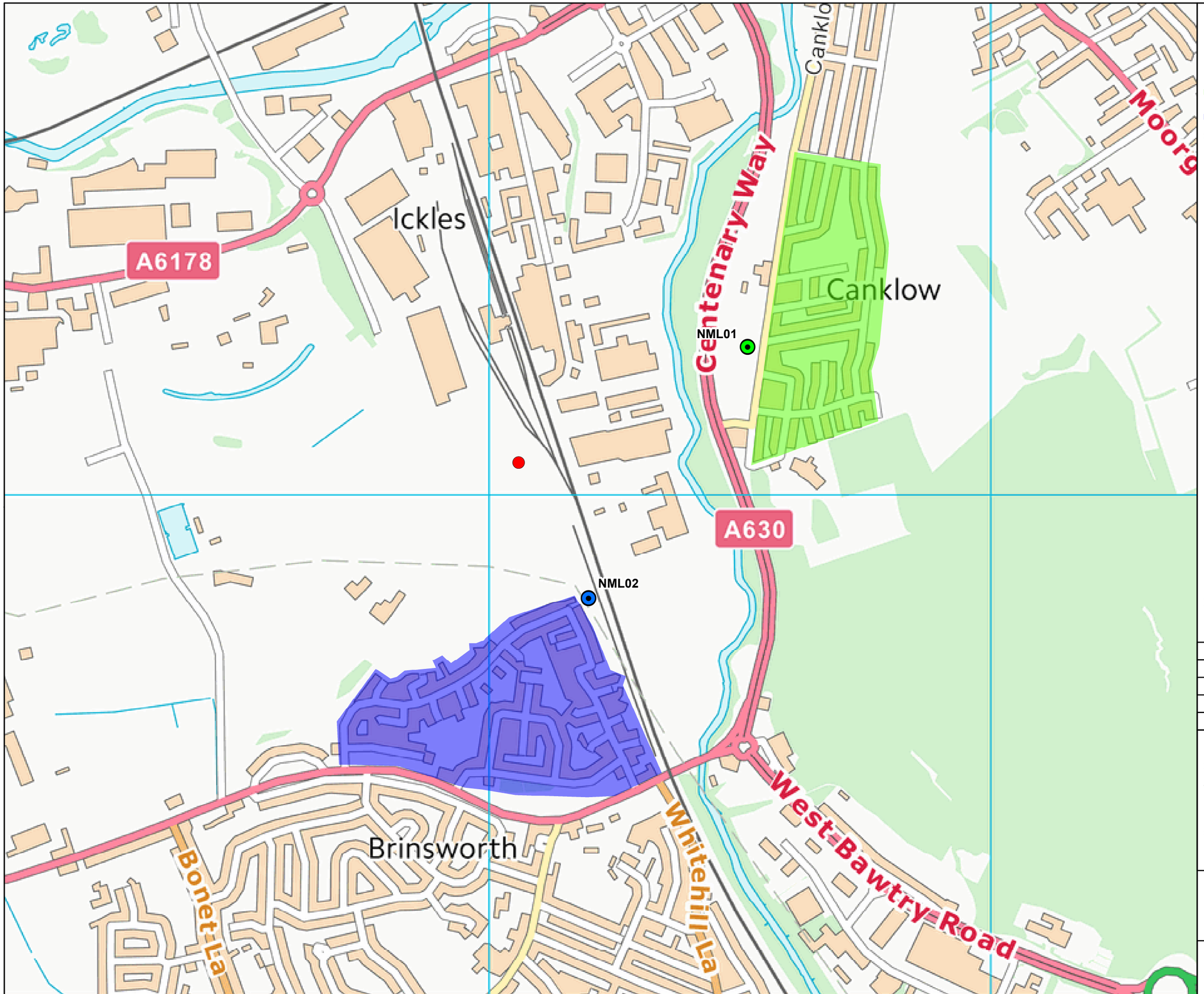
28578_LIDEX_800t_3x 110kW 13/12/2018

Measures according to NF EN ISO 3746 June 2012

		Leq
		dBA
Background Noise	Point 1	**65**
Background Noise	Point 6	**70**
High Speed	Point 1	**75**
High Speed	Point 2	**76**
High Speed	Point 3	**78**
High Speed	Point 4	**78**
High Speed	Point 5	**80**
High Speed	Point 6	**82**
High Speed	Point 7	**80**
High Speed	Point 8	**79**
High Speed	Point 9	**78**
High Speed	Point 10	**86**
High Speed	Point 11	**83**
High Speed	Point 12	**80**

Measuring Surface S	165	m^2
Sound pressure level of the background noise near surface L"pa	68.2	dBA
Sound pressure level of surface L"pa	80.7	dBA
Minimum measurement	75	dBA
Maximum background noise	70	dBA
Maximum correction coeefficient K1A	1.65	dBA
No background noise correction required	0	dBA
Environment: Free field, no correction	0	dBA
Sound pressure level of surface Lpfa	80.7	dBA
Sound power level LWA	102.8	dBA

Appendix E – Figures



Legend

- Noise Monitoring Location (NML) 01
- Noise Monitoring Location (NML) 02
- Noise Sensitive Receptors (NSRs) represented by NML01
- Noise Sensitive Receptors (NSRs) represented by NML02
- Approximate Location of Metal Shearing Plant

0 125 250 Metres

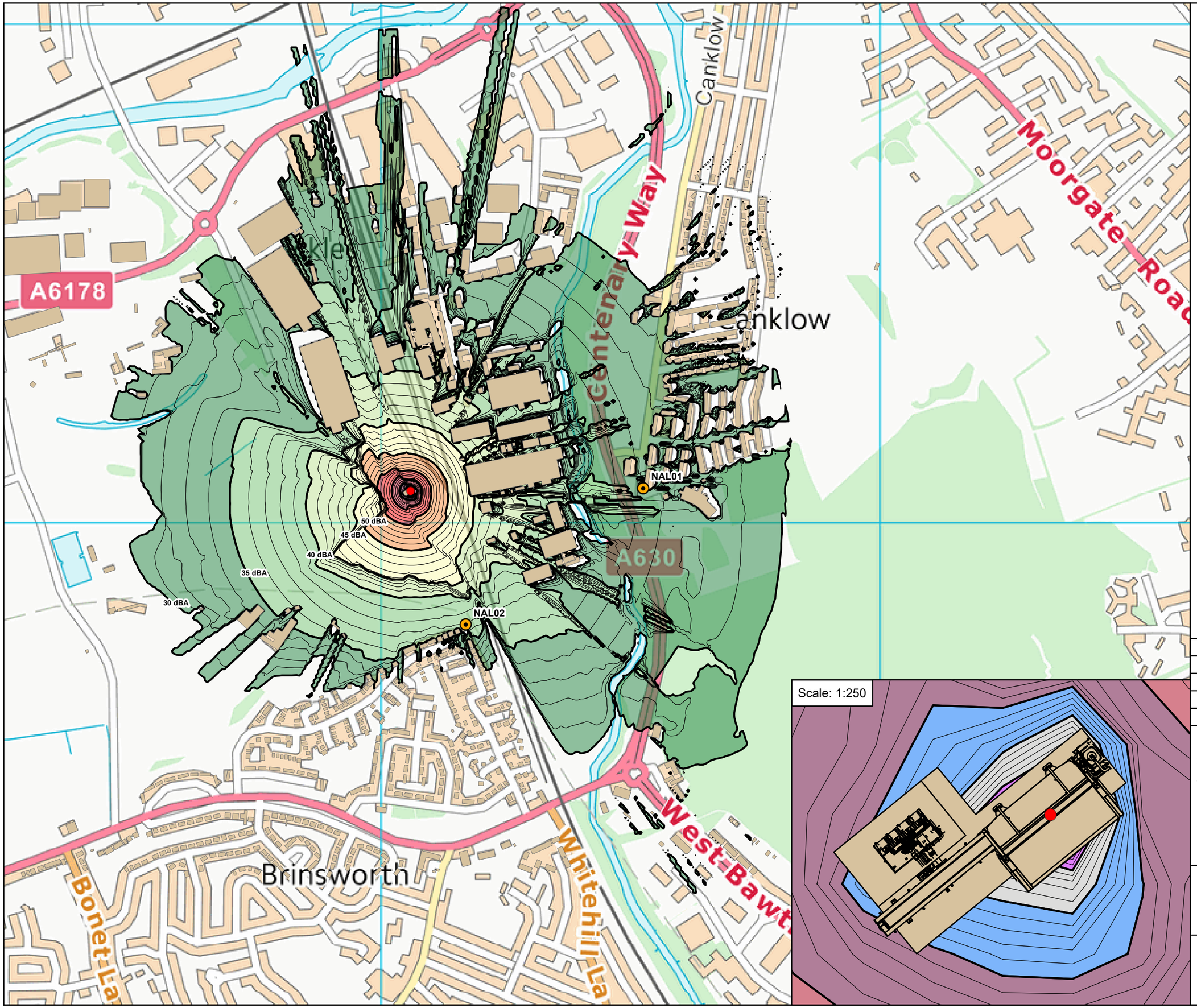
N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R1	FIRST ISSUE	EW	JS	JS	01/07/2019

Project	Rotherham Metal Shear Facility
Client	Celsa
Title	Noise Monitoring Locations and Nearest Noise Sensitive Receptors
Figure No.	1
Scale	1:7,000 @A3
Doc. Ref.	13222-008

CELSA GROUP

tnei



Legend

- Noise Assessment Locations (NALs)
- Approximate Location of Metal Shearing Plant
- Modelled Buildings
- Predicted Noise Contours (1 dB Increments)
- Predicted Noise Contours (5 dB Increments)

Predicted Noise Levels (dBA)

- 30-35
- 35-40
- 40-45
- 45-50
- 50-55
- 55-60
- 60-65
- 65-70
- 70-75
- 75-80
- 80-85

Noise contours modelled in accordance with ISO9613-2:1996 at a height of 4m and displayed on a 5m by 5m grid.

All noise sources assumed to be operating concurrently and continually at maximum output.

All levels shown as dB LAeq(t).

0 120 240 Metres

N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R1	FIRST ISSUE	EW	JS	JS	01/07/2019

Project	Rotherham Metal Shear Facility
Client	Celsa
Title	Noise Contour Plot
Figure No.	2
Scale	1:7,000 @A3
Doc. Ref.	13222-008

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