



Blue Acoustics NS298

Premier Waste UK PLC, Walsall Road, Perry Barr,
Birmingham B42 1TY

IPPC Permit Application

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On behalf of :

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1 Executive Summary

The site impacts the surrounding properties by varying degrees through both the day and night. Most noise sources are vehicle movements or steady state machine noise, and therefore not readily distinguishable over the background noise climate. However, there are a number of spray nozzles along the north side of Unit 2 which generate a significant noise impact at the St. Johns Walk properties.

Assessment levels are generally acceptable by day but increase significantly through the night when background noise levels drop.

2 Introduction

Blue Acoustics has been instructed to carry out a noise impact assessment at the Premier Waste site in Perry Barr, Birmingham. The site processes large amounts of waste material, sorting and separating by hand. The different elements are then sold on as recycled material.

This assessment has been carried out to support an application for an IPPC permit, through the identification of all major noise sources.

Through site specific noise measurement and background noise monitoring, the noise impact has been determined at a number of nearby Noise Sensitive Receptors (NSRs) according to methods set out in BS4142.



Figure 1 : Premier Waste site

The site was surveyed over the period Monday 24th - Tuesday 25th February 2020, during a typically busy 24hr operational period. This period was chosen to ensure background noise levels were potentially at their lowest by day and by night.

The site was attended over the following time periods :

Date	Period	Details
24.02.20	05:30	Meter installed at St. Johns Walk
24.02.20	12:30 - 14:30	Attended noise monitoring of various areas including 1hr intensive logging of lorry movements in yard. Installed meter in roof of Unit 1
24.02.20	20:00 - 21:00	Noise monitoring 1m from east and west end doors. Insulation test of west end shutters, east end shutters broken
25:02:20	04:30 - 07:00	Noise assessed at St. Johns Walk and Nash Square
25:02:20	10:00 - 10:30	Collected meters & left site

Table 1 : Site attendance table

3 Guidance & References

3.1 BS 4142:2014 “Method for rating industrial noise affecting mixed residential and industrial areas”. The standard provides guidance on the measurement and assessment industrial noise with respect to it’s impact on sensitive residential developments.

The method involves the measurement of the **ambient noise level** and the **residual and background noise levels**.

A pre-determined method is then carried out to ascertain the ‘**specific**’ **industrial noise level**.

This is then adjusted to reflect tonal characteristics to give a **rating level**.

The **background noise level** is then subtracted from **the rating level** to give an **assessment level** to determine the likelihood of complaints using the following table :

Result of subtraction of the Measured Background LAF90 from the BS4142 Rating Level, LAr,Tr	BS4142:2014 noise assessment
+ 10 dB or more	Likely to be an indication of a significant adverse impact, depending on the context
Around + 5 dB	Likely to be an indication of an adverse impact, depending on the context
Below + 5 dB	<p>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.</p> <p>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</p>

Table 2 : BS4142:2014 assessment table

3.2 Horizontal Guidance for Noise : (IPPC H3) Parts 1 & 2

This guidance has been produced by the Environment Agency for England and Wales in collaboration with the Scottish Environment Protection Agency (SEPA) and the Northern Ireland Environment and Heritage Service (EHS).

Integrated Pollution Prevention and Control (IPPC) is a regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. It involves determining the appropriate controls for industry to protect the environment through a single Permitting process.

In the case of noise, “offence to any human senses” may be judged by the likelihood of complaints. However, a lack of complaints should not necessarily imply the absence of a noise problem. In some cases it may be possible, and desirable, to reduce noise emissions still further at reasonable cost and this may therefore be BAT for noise emissions.

Consequently, one of the aims of BAT should be to ensure that there is no reasonable cause for annoyance to persons beyond the installation boundary.

In summary, the aim of BAT should be to achieve the following:

- underpinning of good practice, a basic level of which the Operator should employ for controlling noise, including adequate maintenance of any parts of plant or equipment whose deterioration may cause increases in noise. For example, this would include bearings, air handling plant, and the building fabric as well as specific noise attenuation measures associated with plant, equipment or machinery;
- noise levels should not be loud enough to give reasonable cause for annoyance to persons in the vicinity, which is a more appropriate environmental standard than that of Statutory Nuisance and is normally the aim of most planning or other conditions applied by local authorities;
- prevention of creeping ambient (often referred to as creeping background), which is the gradual increase in ambient sound levels as industry expands and areas develop.

For most existing plant, especially where there are no existing noise limits, the focus will be on good practice (BAT) and the need to ensure that there is no reasonable cause for annoyance. In assessing any noise impact, existing levels will normally be monitored, then corrections and calculations applied rather than relying on predictions.

For new plant, in addition to the requirements for existing plant, clear targets may be needed to ensure that noise emissions do not contribute to a creeping background (ambient) sound level. In the case of new plant, sound levels should be predicted and

modelled. Monitoring for subsequent compliance may be required and this may result in the need for additional noise reduction measures.

To gain a Permit, Operators will have to show that they have systematically developed proposals to apply the Best Available Techniques (BATs) and meet certain other requirements, taking account of relevant local factors.

The Regulators intend to implement IPPC to:

- protect the environment as a whole
- promote the use of “clean technology” to minimise waste at source
- encourage innovation, by leaving significant responsibility for developing satisfactory solutions to environmental issues with industrial Operators
- provide a “one-stop shop” for administering applications for Permits to operate.

Once a Permit has been issued, other parts of IPPC come into play. These include compliance monitoring, periodic Permit reviews, variation of Permit conditions and transfers of Permits between Operators. IPPC also provides for the restoration of industrial sites when the Permitted activities cease to operate.

The purpose of this IPPC Horizontal Guidance Note for Noise Assessment and Control is to provide supplementary information, relevant to all sectors, to assist Applicants in preventing and minimising emissions of noise and vibration as described in the IPPC Sector Guidance Notes (or the General Sector Guidance Note).

4 Site Detail

4.1 General

Premier Waste is located off the A34 (Walsall Road) in Perry Barr, a suburb of Birmingham approximately 4km north of the city centre. The A34 runs N/S to the west of the site and is a busy artery linking Birmingham with the M6 and Walsall. The road by the site is a dual carriageway with 2 lanes in each direction. The M6 motorway runs NW/SE approximately 450m to the north east.



Figure 2 : Map of site location

The site comprises the following main areas :

Area	Description
Unit 1	Houses the main waste sorting activities
Unit 2	Houses the pulping machine and the off loading and loading of recycled paper to and from lorries
Yard	Significant lorry activity with vehicles idling whilst paper work is sorted
Offices	Includes yard office which sorts lorry paperwork

Table 3 : Area descriptions

To the north of the site is a residential area, in particular are a number of properties along St. Johns Walk, a road which runs along the northern boundary. The nearest property to the Unit 2 building measures approx. 14m away. To the east are a number of properties along Walsall Road which overlook the yard area to some extent.

To the east is a large housing development identified as Perry Park View. The development was under construction at the time of this survey. Site plans indicate that the nearest properties measure approximately 60m from Unit 1.



Figure 3 : Perry Park View housing development

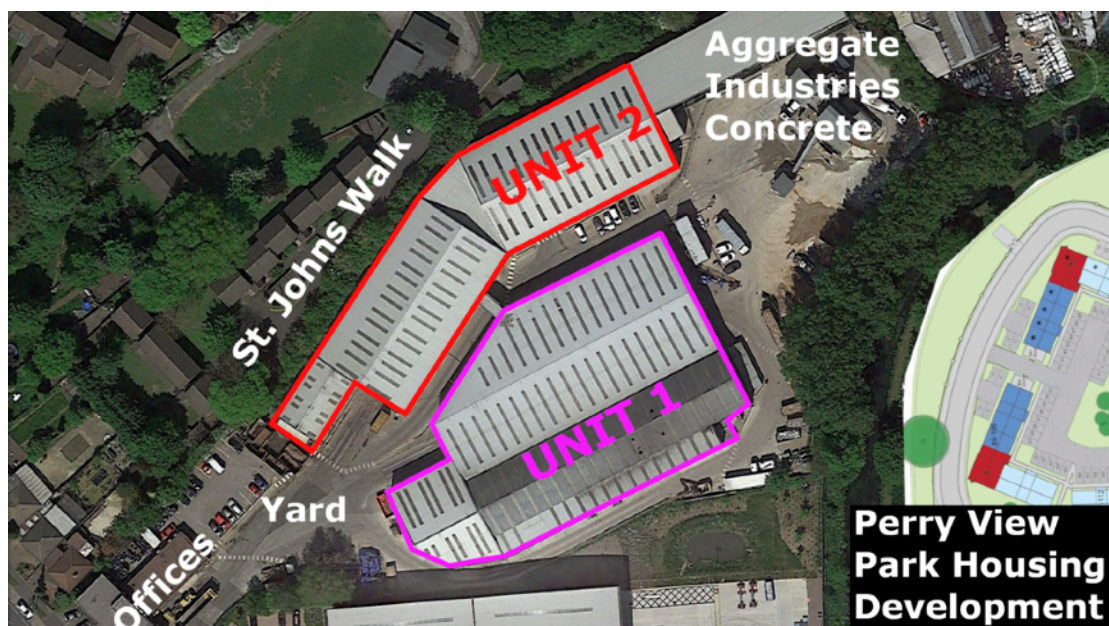


Figure 4 : Site overview

The site is accessed off Walsall Road by a service road which runs through the yard area and up to and between Units 1 & 2. The road runs along the east side and back along the south side creating a loop. To the east of the site is another company identified as Aggregate Industries Concrete which uses the same access road.



Figure 5 : Lorry routes

The following table details the NSRs chosen for assessment :

NSR	Description
St. Johns Walk	Properties 14m to 25m from Unit 2. They generally face to the north, with minimal window area along the southern facades.
219 Walsall Road	Property approximately 30m from the yard and 90m from Unit 1 & 2.
Perry View Park	New housing development approximately 60m to the east of Unit 1

Table 4 : NSR table

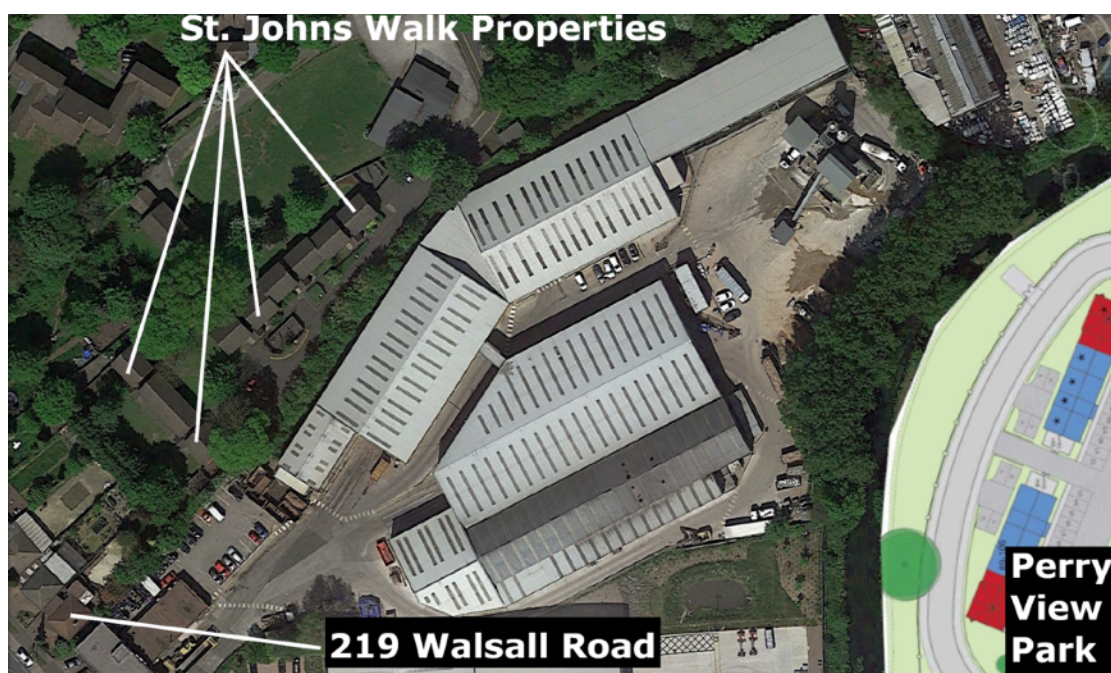
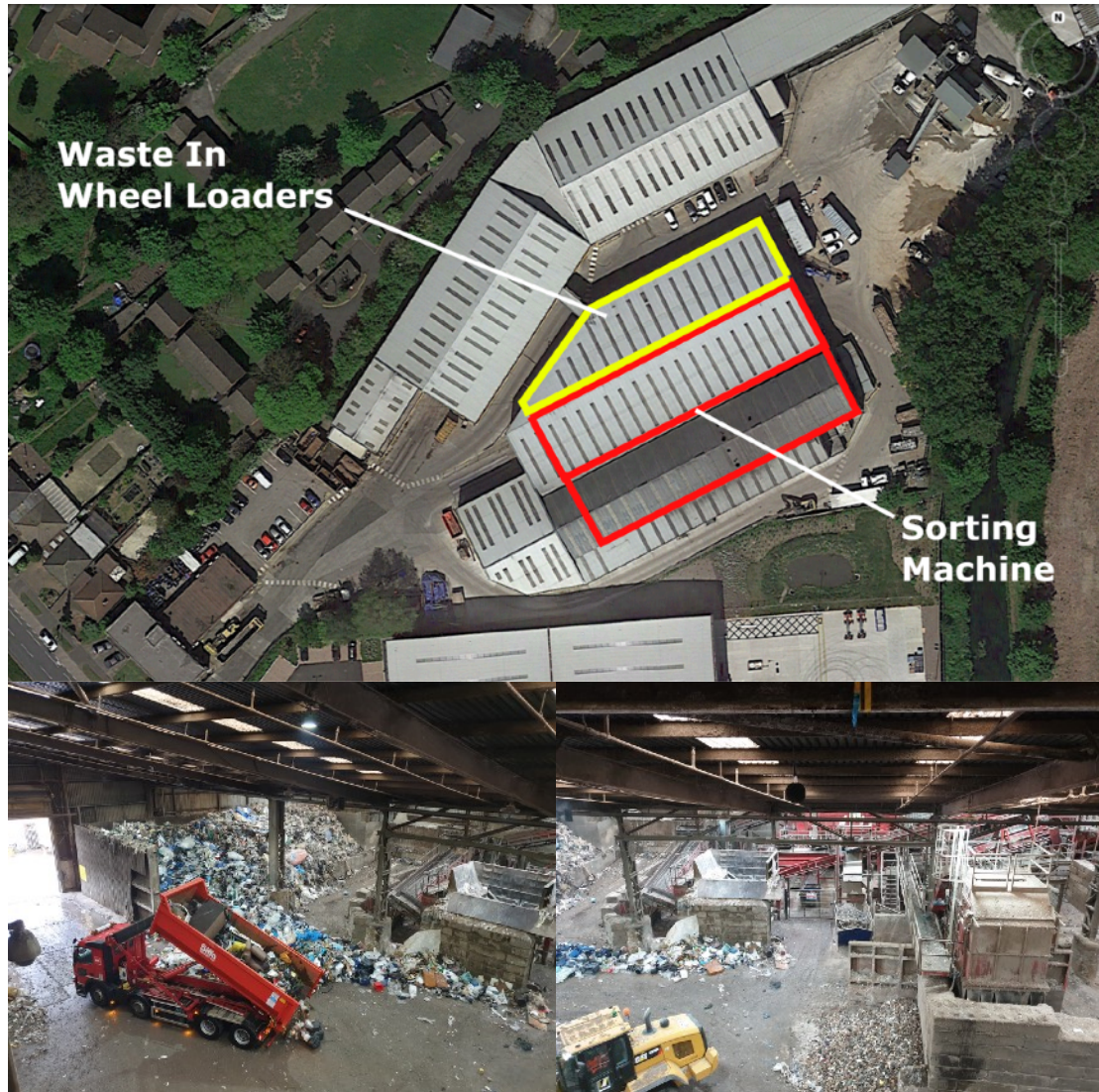


Figure 6 : NSR locations

4.2 Unit 1

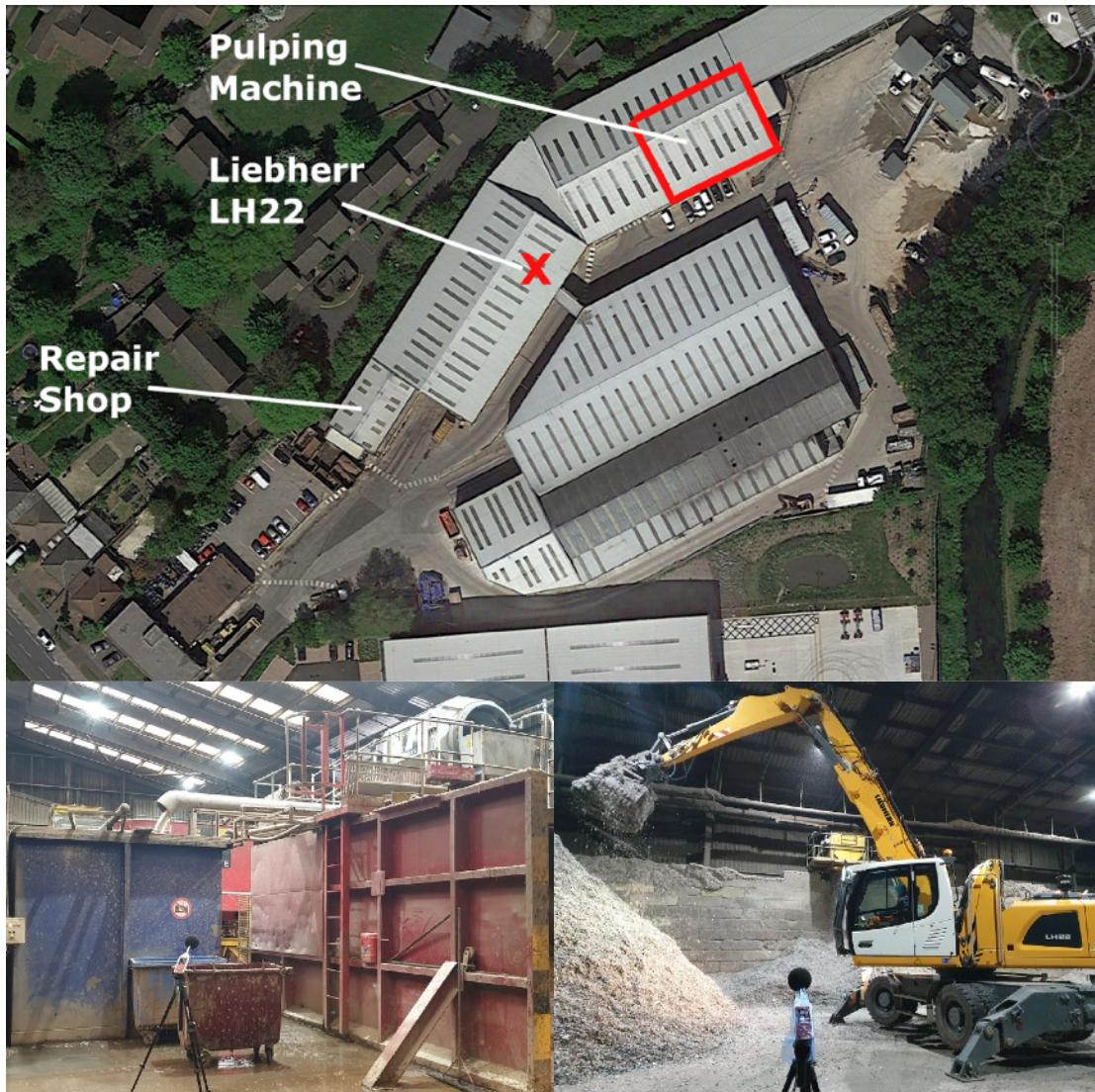
Unit 1 houses the main waste sorting process. Lorries enter the unit by day, through large shutter doors at the west end empty their load. Wheel loaders then distribute the waste into bays for later processing. By night the separator machine is in operation, a large machine which transports the waste along conveyor belts to be sorted by operatives into different material components.



Figures 7 to 9 : Unit 1 layout, waste truck and separator machine in red

4.3 Unit 2

Unit 2 houses the pulping machine which pulps paper waste. Lorries enter the unit through large shutter doors at the south west to empty paper for recycling. The paper is pulped and conveyed to an area where it can be loaded onto lorries by the LH22.



Figures 10 to 12 : Unit 2 layout, pulping machine and Liebherr LH22

5 Operational Patterns Of Main Noise Sources

5.1 Overview

The site is in 24hr operation, 7 days per week. In general, lorry movements are prevalent by day and material processing is carried out through the evening and night.

Process	Period	Areas	Frequency
Lorry movements	Night (06:00 - 07:00)	Yard, Units 1 & 2	15 - 20 / hour
Lorry movements	Day (07:00 - 18:30)	Yard, Units 1 & 2	15 - 20 / hour
Lorry movements	Evening & Night (18:30 - 06:00)	Yard, Units 1 & 2	Anywhere between 1 - 10
Waste Processing	19:00 - 07:00	Unit 1	Constant
Pulping	24hr	Unit 2	Constant
LH22	Day (07:00 - 18:30)	Unit 2	?
LH22	Evening & Night (18:30 - 07:00)	Unit 2	1 - 10

Table 5 : Operation table

5.2 Lorry Movements

The following table details the lorry movements witnessed during site attendance. Both day and night time periods were attended, with significant lorry movements witnessed through the night time period of 06:00 - 07:00. Lorry types ranged considerably from Skip trucks to 40ft articulated lorries.

Cement lorry movements have been included to provide a view of the influence these have on overall noise levels.

Date	Period Witnessed	Total lorry movements	Premier Waste Lorries	Aggregate Cement Lorries
24.02.20	13:27 - 14:27	28	17	11
25.02.20	05:00 - 06:00	8	8	
25.02.20	06:00 - 07:00	17	16	1

Table 6 : Lorry movements logged over a 1hr period on 24.02.20

5.3 Unit 2 North Facade Spray Nozzles

Equally spaced out along the northern facade of Unit 2 are 6 jets which were witnessed to emit water vapour and generate significant noise levels over a 5min period. The event occurs periodically.

Figure 13 : Unit 2 spray nozzle

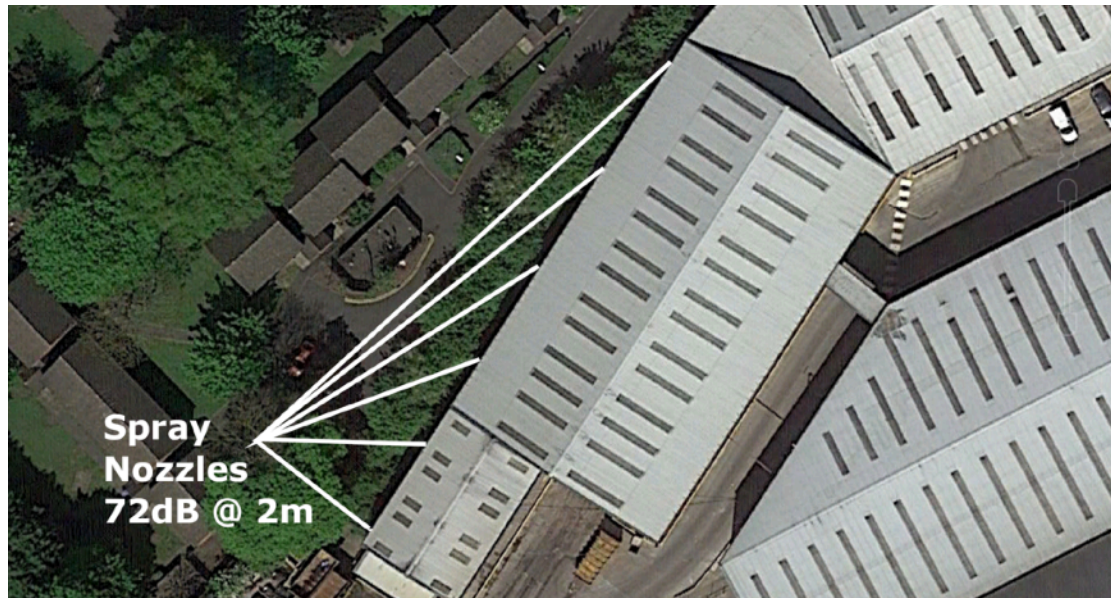


Figure 14 : Unit 2 spray nozzles approximate positions

6 Measurement Details

6.1 Personnel & Equipment

All testing, calculation & evaluation was conducted by Timothy Sherlock-Brown M.I.O.A. of Blue Acoustics. Timothy is a Member of the Institute of Acoustics and possesses an MSc in Applied Acoustics

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Device	Serial Number	Calibration Date	Calibration Cert. No
Cirrus 171B Class 1 Meter (1)	G068016	13.01.2020	136387
Cirrus 171B Class 1 Meter (2)	G066520	05.03.2019	268648
Cirrus 821A Class 1 Meter (1)	B15061FE	16.03.2018	117535
Cirrus 515 Calibrator	69304	13.01.2020	136391

Table 7 : Measurement equipment table

Care was taken to eliminate external influence on the measurements by the application of a windshield, and with particular attention paid to wind speed when selecting measurement periods. Unless otherwise stated, meters were tripod mounted at a height of 1.2-1.5m at an angle of approximately 60 degrees. Calibration was performed before and after each measurement or set of measurements with no notable drift. A drift of up to 0.5dB with a Class 1 meter is considered reasonable and is generally the cause of gradients in variables such as temperature, humidity and battery power.

6.2 Weather Conditions

Dry with occasional light rain; Temp 7c-12c; Wind gusting 0-6ms South Westerly; 70-100% cloud cover

6.3 Measurement Positions

Position	Description
P1	3.5m from the front facade of the nearest St. Johns Walk property. Concealed in a bush to attain a 24hr measurement
P2	Attached to a metal container at approx 4m in height. Chosen to measure yard activity noise levels at the site boundary
P3	1m below and centre of Unit 1 roof

Table 8 : Measurement position table

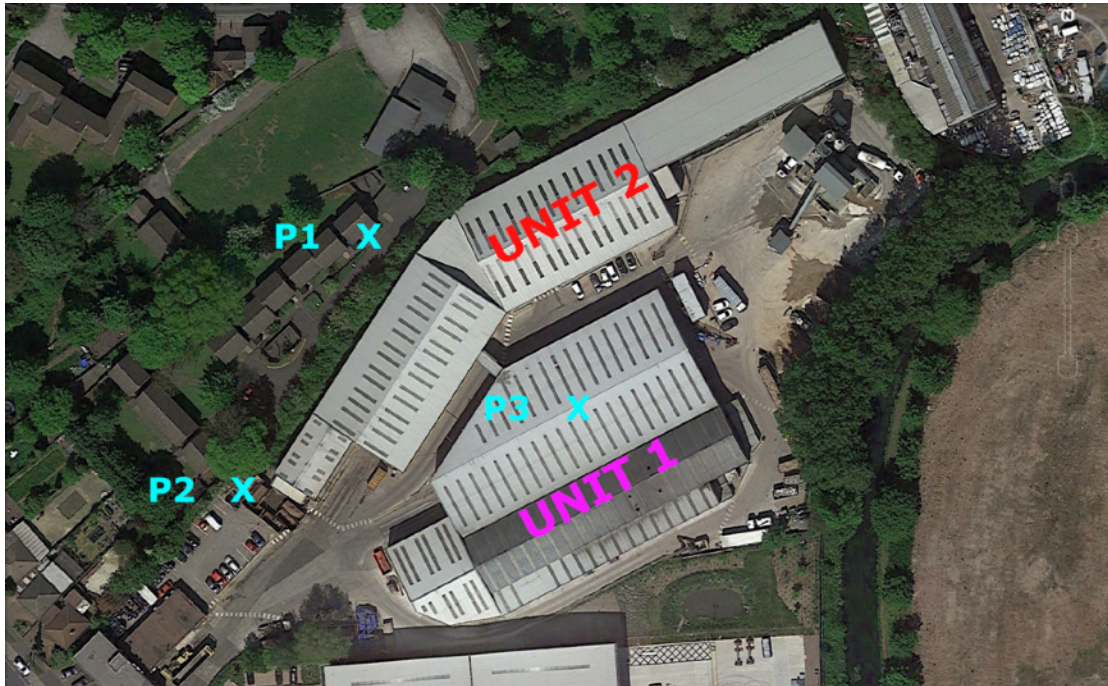


Figure 15 : Long term measurement positions



Figures 16 - 18 : Measurement positions

7 Presentation of Measurement Results

The following table details the main measurement results. Where multiple hours have been measured, the noisiest hour has been used where applicable. A conservative -1dB residual noise correction has been applied to the lorry noise from the yard.

Measurement	Time	Duration min : sec	LAeq (dB)
Unit 1 Ambient (P3)	20:00	19:25	88
Unit 2 Ambient	13:04	05:02	76
Lorry Noise (10m from yard centre)	13:26	60:00	65
Unit 2 spray nozzle	12:43	01:40	72
Unit 1 west end shutters @ 1m (Open)	20:35	03:02	87
Unit 1 west end shutters @ 1m (Closed)	20:40	02:02	76
Unit 1 east end shutters @ 1m (Open)	20:27	05:55	80

Table 9 : General measurement data

A-Weighted	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	LpA
Unit 1 Ambient (P3)	46	59	75	85	84	81	76	70	59	88
Unit 2 Ambient	29	42	56	64	69	72	70	66	58	76
Lorry Noise (10m from yard centre)	35	43	47	52	56	61	60	55	48	65
Unit 2 spray nozzle	36	44	42	48	52	57	61	66	70	72
Unit 1 west end shutters @ 1m (Open)	42	56	74	84	81	80	74	68	58	87
Unit 1 west end shutters @ 1m (Closed)	39	53	65	75	68	66	61	54	46	76
Unit 1 east end shutters @ 1m (Open)	39	55	67	76	76	72	65	58	47	80

Table 10 : Octave bans noise data

The following graph details the LA90 data at P1 over a 24hr period (Figure 19 : P1 LA90 graph (24hr measurement))

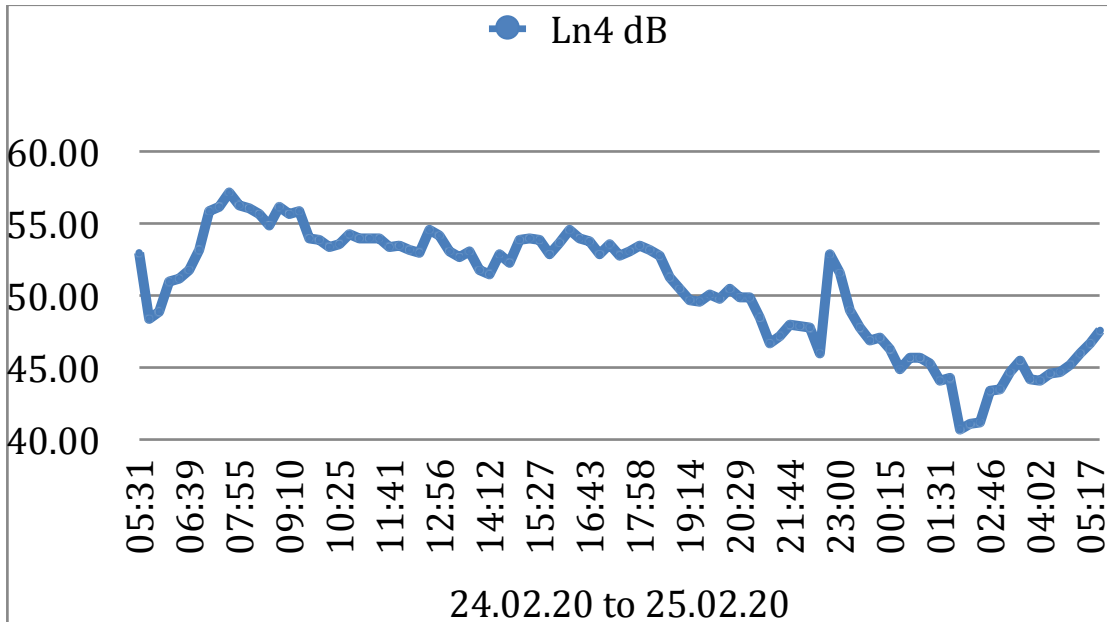


Figure 19 : P1 LA90 graph

The following graph details the LAeq levels measured at the yard perimeter and clearly shows the night time break with machinery power down, and the moment the lorries started up at 05:00.

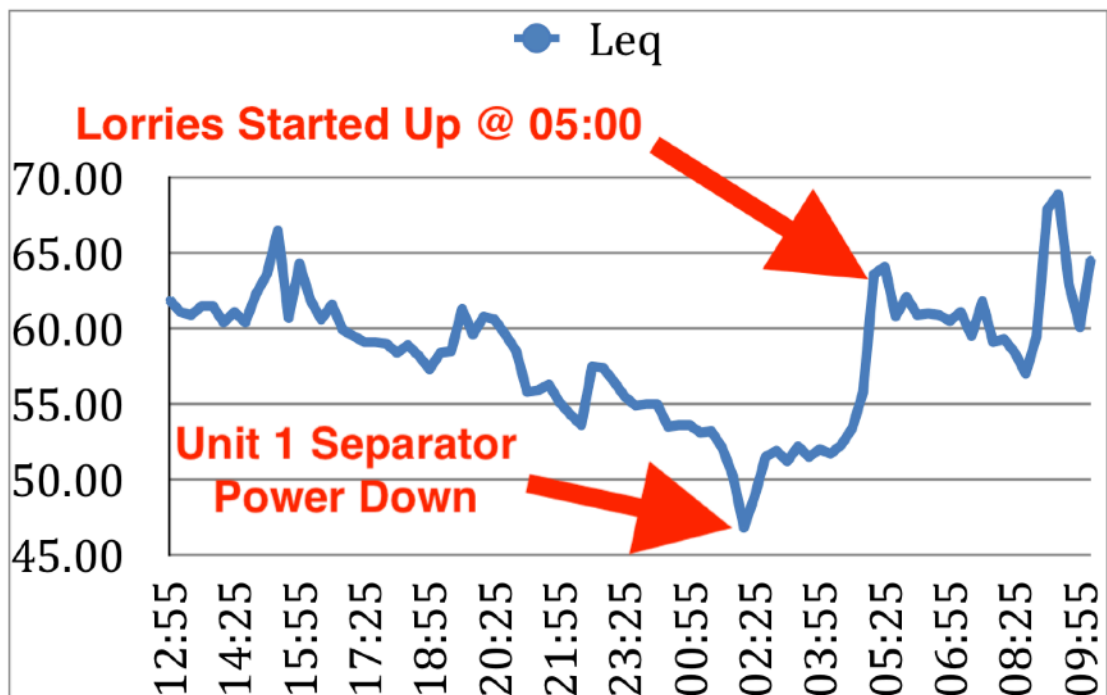


Figure 20 : P2 LAeq graph

8 Noise Impact Assessment

The following table details the dominant noise sources that impact the NSRs.

Period	NSR	Lorry Noise	Unit 1 Noise	Unit 2 Noise	Spray Nozzle Noise
Day	St. Johns Walk			X	X
	219 Walsall Road	X			
	Perry View Park	X	X		
Night	St. Johns Walk			X	X
	219 Walsall Road	X	X		
	Perry View Park		X		

Table 11 : Specific noise impact table

8.1 Specific Noise Sources

8.1.1 Lorry Noise

Lorry noise was measured at 10m from the centre of the yard to be 65dB. This approximates to 54dB at the rear facade of 219 Walsall Road through the distance correction $20\log(10m / 35m)$, and has been assumed to be similar in level by day and night. Similarly, this approximates to 49dB at the nearest Perry Park View properties.

8.1.2 Unit 1 Noise

Unit 1 is clad with what is thought to be 6mm panels of compressed fibre cement. The following table predicts the noise level from a typically busy night time 1 hour period, at the nearby Perry View Park properties @ 60m. The weakest point (the roller shutters) has been used to estimate this level. On the night of attendance, the east end shutters were broken and stuck open, so the west end (doors closed) measurement was assumed to provide a similar noise level. Shutters measure approx 5m x 8m high.

	Plane source propagation	Line source propagation	Point source propagation	LpA @ NSR
	$5m/\pi = 1.5m$	$8m/\pi = 2.5m$	$2.5m / 60m$	
Attenuation	0 dB	-2.2 dB	-27.6 dB	46 dB

Table 12 : Unit 1 to Perry View Park specific noise level calculation table

In similar fashion, the following table estimates Unit 1 noise levels at the rear facade

of 219 Walsall Road, 95m to the west :

	Plane source propagation	Line source propagation	Point source propagation	LpA @ NSR
	$5m/\pi = 1.5m$	$8m/\pi = 2.5m$	$2.5m / 95m$	
Attenuation	0 dB	-2.2 dB	-27.6 dB	42 dB

Table 13 : Unit 1 to 291 Walsall Road specific noise level calculation table

Similar noise levels were measured by day and night inside Unit 1 and so the calculated noise levels have been assumed to be similar for both periods.

8.1.3 Unit 2 Noise

Unit 2 noise was measured at P1 throughout extended periods of the day and night. The noise appears to fluctuate between 47dB to 55dB. The mode level of 49dB has been assumed for this assessment to represent 'typical' output levels.

The following graph details the Unit 2 pulping machine noise measured at P1, and the moment it was activated in the early hours.

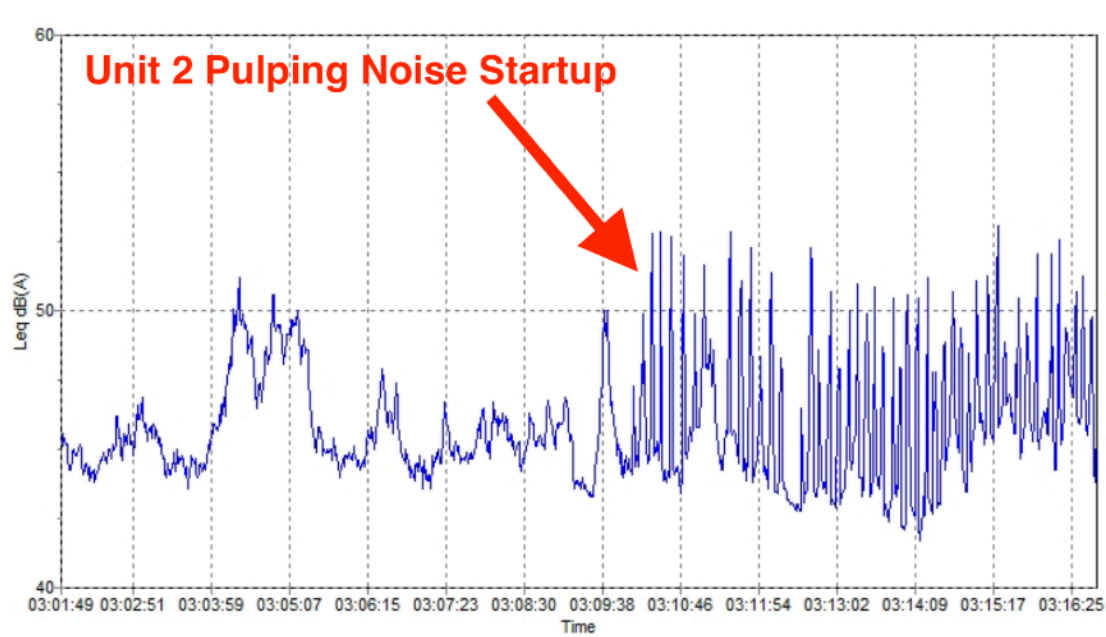


Figure 21 : Unit 2 pulping machine noise at P1

8.1.4 Spray Nozzle Noise

The following table estimates the total spray noise levels at the St. Johns Walk properties by distance correction.

Nozzle Number	Approximate Distance to NSR (No.3 St. Johns Walk)	Distance Correction $20\log(R1/R2)$	LpA @ NSR (72dB + correction)
1	14m	-17	55 dB
2	18m	-19	53 dB
3	24m	-22	50 dB
4	30m	-24	48 dB
5	38m	-26	46 dB
6	46m	-27	45 dB
Total Lp @ No.3 St. Johns Walk			59 dB

Table 14 : Spray nozzle noise calculation table

The calculated level corresponds well with the following unknown noise measured at 05:27 (25.02.20) at the P1 position which lasted for 4min 48s. The measured noise registered 59.5dB.

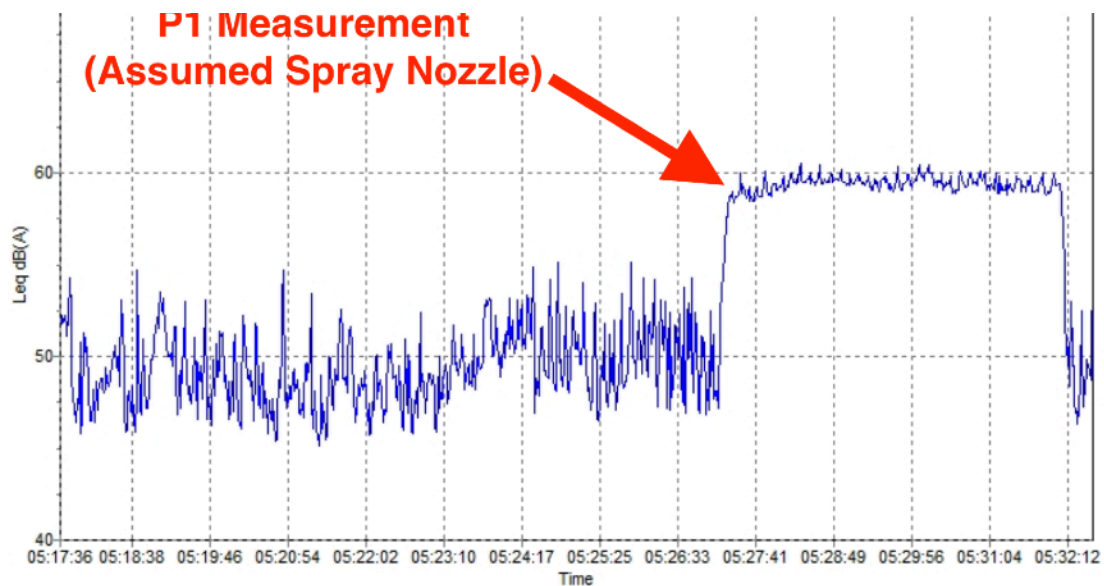


Figure 22 : Assumed spray nozzle noise measured at P1

The following table details all recorded night time instances, along with a number of daytime instances which prove the noise may be active for 5min in 15min during the night, and 10min in 1 hour during the day.

Date	Time	LAeq	Duration min:sec
24.02.20	06:01	59.9 dB	04:54
24:02:20	06:36	59.7 dB	04:57
24:02:20	07:11	61.0 dB	04:58
24:02:20	07:46	62.3 dB	04:55
24:02:20	08:21	61.3 dB	04:55
24:02:20	08:56	62.6 dB	05:00
24:02:20	09:31	61.3 dB	04:57
24:02:21	10:06	60.9 dB	04:54
25.02.20	05:27	59.5 dB	04:54

Table 15 : Recorded spray nozzle instances

The differing noise levels are caused by the presence of traffic noise. As such the lowest value of 60dB has been assumed for spray nozzle noise at the P1 properties.

The following table details the day and night time spray nozzle noise levels at the P1 properties through On-Time corrections of 10min in 60min for day and 5min in 15min for night.

LAeq	LAeq,1hr (Day)	LAeq,15min (night)
	$10\log(10^{6.0} \times 10/60)$	$10\log(10^{6.0} \times 5/15)$
60 dB	52 dB	55 dB

Table 16 : Spray nozzle specific noise level calculation table

8.2 Specific Noise Levels

The following table details the specific noise levels at each NSR for both day and night time periods.

Period	NSR	Lorry Noise	Unit 1 Noise	Unit 2 Noise	Spray Nozzle Noise
Day	St. Johns Walk			49 dB	52 dB
	219 Walsall Road	54 dB			
	Perry View Park	49 dB	46 dB		
Night	St. Johns Walk			49 dB	55 dB
	219 Walsall Road	54 dB	42 dB		
	Perry View Park		46 dB		

Table 17 : Composite specific noise level table

When combined, the following specific noise levels can be expected :

Period	NSR	LpA
Day	St. Johns Walk	54 dB
	219 Walsall Road	54 dB
	Perry View Park	51 dB
Night	St. Johns Walk	56 dB
	219 Walsall Road	54 dB
	Perry View Park	46 dB

Table 18 : Combined noise specific noise level table

8.3 Background Noise Level

Premier Waste management have stated that night time break occurs from 02:00. This period corresponds with a significant drop in background noise around the site and provide a valuable view of the background noise in the absence of specific noise.

At the P1 measurement position, three 15min periods from 02:00 - 02:45 registered LA90s of **41dB**. This has therefore been adopted to represent the LA90 and applied to all NSRs as its sheltered position represents background noise in the absence of line of sight traffic noise from the surrounding road network.

An exception to this is the 219 Walsall Road LA90 has been taken to be **46dB** to reflect the time of night when lorry noise is present.

The mode daytime LA90,1hr of 54dB has been adapted for this assessment.

8.4 Rating Penalty

Section 9 of BS4142:2014 describes how the rating sound level should be derived from the specific sound level, by the application of a rating penalty.

Due to the nature of the development the subjective method has been adopted to derive the rating sound level from the specific sound level.

The following rating penalties have been determined based on the subjective tonality, impulsivity and intermittency of the audible noise at each location. Impulsivity has been omitted for all noise sources and the intermittency assumes all noise sources to have easily identifiable on/off states. For steady state noise sources such as the unit 1 noise, this was generated by the machinery being powered down during break time.

NSR	Period	Tonality	Impulsivity	Intermittency	Total
St. Johns Walk	Day	+2 dB	-	+3 dB	+5 dB
	Night	+4 dB	-	+3 dB	+7 dB
219 Walsall Road	Day	+4 dB	-	+3 dB	+7 dB
	Night	+4 dB	-	+3 dB	+7 dB
Perry View Park	Day	+2 dB		+3 dB	+5 dB
	Night	+2 dB		+3 dB	+5 dB

Table 19 : BS4142:2014 rating penalty table

8.5 BS4142:2014 Assessment

St Johns Walk

Period	Specific Noise Level	Tonal Correction	Rating Level	LA90	Assessment Level
Day	54 dB	+ 7 dB	61 dB	54 dB	+7 dB
Night	54 dB	+7 dB	61 dB	46 dB	+15 dB

Table 20 : BS4142:2014 assessment table for extract noise

The day time assessment level of +7dB is an indication of an adverse impact depending upon the context. To put this into context the specific noise level is driven by the spray nozzle noise which occurs approximately twice per hour. Unit 2 noise is all but inaudible over the background noise level which is driven by traffic movement around the surrounding road network.

The night time assessment level of +15dB is an indication of a significant adverse impact depending upon the context. To put this into context the specific noise level is driven by the unit 2 pulping machine noise. This is relatively constant but an intermittency penalty was applied to reflect noise from the spray nozzle which was found to operate on at least one occasion per night. It should also be understood that the majority of the properties face away from the site, with only small (possibly bathroom) rear windows exposed to the noise.

219 Walsall Road

Period	Specific Noise Level	Tonal Correction	Rating Level	LA90	Assessment Level
Day	54 dB	+ 5 dB	59 dB	54 dB	+5 dB
Night	56 dB	+7 dB	63 dB	41 dB	+22 dB

Table 21 : BS4142:2014 assessment table for extract noise

The day time assessment level of +5dB is an indication of an adverse impact depending upon the context. To put this into context the assessment level is driven almost completely by lorry noise, the majority of which may not be readily distinguishable over the background noise climate which is dominated by traffic noise from the surrounding road network. It should also be understood that a high percentage (approx 40%) of lorry movement is cement lorries and so the assessment level may be approximately 2dB less.

The night time assessment level of +22dB is an indication of a significant adverse impact depending upon the context. To put this into context the assessment level is driven by lorry noise from 05:00, with unit 1 noise relatively low in level, and steady in state through the night at this position.

Perry Park View

Period	Specific Noise Level	Tonal Correction	Rating Level	LA90	Assessment Level
Day	51 dB	+ 7 dB	58 dB	54 dB	+4 dB
Night	46 dB	+7 dB	53 dB	41 dB	+12 dB

Table 22 : BS4142:2014 assessment table for extract noise

The day time assessment level of +4dB is an indication of an adverse impact depending upon the context. To put this into context the internal ambient noise level ranged considerably through the day (between 64dB - 86dB) and the assessment level reflects the highest daytime noise level. However, regular lorry movements may be clearly audible at the properties by day.

The night time assessment level of +12dB is an indication of a significant adverse impact depending upon the context. To put this into context the noise is steady state except for the break period where the machines are powered down and then back up again.

9 Conclusions

The site impacts the St Johns Walk properties by day and by night. The daytime impact is limited to occasional spray nozzle noise, whilst at night the pulping machine noise becomes audible as background noise levels drop. Background noise levels at this position appear to be driven by night time noise from Unit 1, with a clear drop of 2-3dB in P1 LA90 level when the unit was powered down around 02:00 for break.

The Walsall Road properties are impacted by lorry noise, with Unit 1 night time noise having a low impact. The day time assessment level may be deemed acceptable but the night time assessment level is high, and solely driven by lorry movements from 05:00.

The impact at the Perry Park View development is driven by lorry noise through the day, and Unit 1 breakout noise by night. The daytime impact may be heightened by the east end door being opened to allow vehicles to leave the building. The noise impact becomes greater at night when background noise levels drop and Unit 1 levels maximise, with near constant high level noise within the unit as the separator machine is in operation.

There appears to be great potential for reducing the noise impact at the surrounding properties.

The west and east end shutters of Unit 1 reduce noise breakout by approximately 10dB.

10 Uncertainty

This report relies on ambient noise level measurements. Ambient noise at a given location can vary substantially from day to day with variations in road traffic and other sources, and propagation of noise can be strongly affected by weather and atmospheric conditions. We believe our assessment to be representative of typical conditions, but only very long-term noise monitoring could establish the range of variation in these conditions.

BS4142:2014 section 10.0 states that uncertainty in the calculation of sound levels during the assessment process can arise from both the measured values and calculation methods.

To ensure the accuracy of the assessment consideration has been taken for the level of uncertainty in the measured data and associated calculations in the proposed methodology used to undertake the assessment. Where the level of uncertainty could affect the conclusion, reasonably practicable steps have been taken to minimise the level of uncertainty. Where the level of uncertainty is excessive, additional measurements and site visits have been conducted to increase the confidence in the results. In all instances the following steps have been taken to address the uncertainty;

1.Measured Values; A detailed understanding of the source of noise under investigation has been conducted including consideration for the complexity, variability over time and location, the character and effect of the residual sound level in comparison with the source, the measurement location, quantity of measurements and distance/intervening ground conditions, measurement time interval and the range of times measurement were taken, the suitability of weather conditions, the level of rounding and the classification of the instrumentation used to conduct the assessment.

2.Calculation Methods; Consideration has been taken for the accuracy of the measured sound levels, the character of the sound emissions in question, the calculation method and the simplification of the real situation to “fit” the modelled situation. Recognised standards and validated methods and processes have been used to establish accurate values during the calculation process.

For the avoidance of doubt, the level of uncertainty will not be quantified. If appropriate consideration is taken for points 1 and 2 during the collection of data and analysis thereof, then the influence of uncertainty in the final result is at its lowest practical value.

11 Disclaimer

Blue Acoustics takes no responsibility for any physical implementation & strongly suggests the client seek structural advice before carrying out the proposed work. Recommendations in this report are for acoustics purposes only, and it is the responsibility of the Project Manager or Architect to ensure that all other requirements are met including (but not limited to) structure, fire and Building Controls.

The calculations within this report are based upon sourced and or calculated data. It should be understood that complex flanking transmission paths through the structure can lead to excess vibration transmission and that mitigation measures within the rooms may have to be 'tweaked' after construction. Also, build quality can greatly affect partition performance and Blue Acoustics takes no responsibility for the integrity of any physical work carried out.

The opinions and interpretations presented in this report represent our best technical interpretation of the data made available to us. However, due to uncertainty inherent in the estimation of all parameters, we cannot, and do not guarantee the accuracy or correctness of any interpretation and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. The findings and opinions expressed are relevant to the dates of the site works and should not be relied upon to represent conditions at substantially later dates. If additional information becomes available which may affect our comments, conclusions or recommendations, the author reserves the right to review the information, reassess any new potential concerns and modify our opinions accordingly.

Except for the provision of professional services on a fee basis, Blue Acoustics does not have a commercial arrangement with any person or company involved in the interests that are the subject of this report. Blue Acoustics cannot accept any liability for the correctness, applicability or validity for the information they have provided, or indeed for any consequential costs or losses in this regard. Our efforts have been made on a "best endeavours" basis and no responsibility or liability is warranted or accepted by Blue Acoustics.

Appendix 1 – Glossary of Terms

Ambient Noise: Totally encompassing sound in a given situation at a given time usually composed of sounds from many sources near and far. [BS 4142]

Attenuation: A reduction in the intensity of a sound signal.

Background Noise Level : The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval T, measured using the time weighting F, and quoted to the nearest number of whole decibels.

Decibel (dB): a unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

Free Field: 1. A free sound field is a field in a homogeneous, isotropic medium free from boundaries. In practice it is a field in which the effects of the boundaries are negligible over the region of interest. The actual pressure impinging on an object (e.g., a microphone) placed in an otherwise free sound field will differ from the pressure which would exist at the point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.

2. An environment in which there are no reflective surfaces within the frequency region of interest. 3. A region in which no significant reflections of sound occur.

4. [BS4142] suggests that free-field environmental noise measurements need to be made at least 3.5m from any reflecting structure.

Hertz (Hz): unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

LA90,T : the A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142:

1997 it is used to define background noise level.

LAeq,T : the equivalent continuous sound level -the sound level of a notionally

steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter. It is written as L_{eq} in connection with aircraft noise.

L_{Amax} : the highest A weighted noise level recorded during a noise event. The time weighting used (F or S) should be stated.

Rating Level : The specific noise level plus any adjustment for the characteristic features of the noise.

Residual Noise : The ambient noise remaining at a given position in a given situation when the specific noise level is suppressed to a degree such that it does not contribute to the ambient noise.

Specific noise source : The noise source under investigation for assessing the likelihood of complaints.

Steady Noise: Noise that gives fluctuations over a range of not more than 5 dB on a sound level meter set to frequency weighting A and time weighting S. [BS 4142:2014]

Appendix 2 Site Notes

Elderly resident explained that audible noise was very rare, however, noise audible outside St Johns Walk properties

Maintenance is carried out through daytime hours, very rarely at night.

Yard : Trucks arrive and idle in the yard as paperwork is checked in the cabin, and sometimes when leaving. Additional noise is generated by regular cement truck movements from the Aggregate Industries site.

Meter positioned near yard boundary close to NSR's to measure yard activity through the day & night

Waste sorting carried out 7pm - 7am - noisy and audible all around the area when background noise levels drop.

Separated waste is removed from site by a number of premier waste container trucks between 06:00 - 06:30

Unit 1 noise audible at Nash Square position; Shutter stuck open, broken so no closed door measurement possible at this position

13:27	Lorry pulls up & idles @ 8m
13:28:35	door slam
13:29:15	leaves site
13:30:20	cement truck leaving site @ 20m
13:30:30	cement truck arriving at site @ 15m
13:31:45	- 20 waste truck with broad band reverse tones manoeuvred around yard 10m
13:32:30	waste truck passes then idles @ 10m
13:33:30	door slam then pulls off
13:33:45	cement truck leaving site
13:34:55	waste truck arrives & idles @ 6m
13:35:50	pulls off and a waste lorry arrives at same time
13:40:45	loaded lorry leaves unit 2 and idles @ 20m
13:41:40	cement lorry arrives @ 15m
13:44:00	waste truck leaves unit and idles @ 10m
13:46:35	leaves site
13:49:30-35	waste truck arrives
13:52:35	cement truck leaves @ 20m
13:57:10	cement truck arrives @ 15m
13:58:10	waste truck arrives and idles @ 7m
13:59:10	cement lorry leaves
13:59:40	waste truck drives into unit 1
14:01:05	cement truck arrives @ 15m
14:01:45	waste lorry leaves site @ 20m
14:05:40	unknown 7.5 truck arrives @ 15m
14:06:55	cement truck leaves @ 20m
14:08:10	waste truck leaves & idles @ 20m

14:10:10 leaves site
14:12:55 cement truck and waste truck arrive @ 15m
14:17:00 waste truck arrive & idles @ 6m
14:18:00 cement truck leaves @ 20m
14:19:15 waste truck leaves site
14:19:50 waste truck leaves unit & idles @ 10m
14:23:40 waste truck leaves site & 20m
14:25:45 7.5 Conner leaves site
14:26:35-50 fork lift driven in yard @ 25m
Around 14:35 ? External sprays on when leaving site

04:30 Unit 1 noise audible at Nash Square position
Shutter stuck open, broken so no closed door measurement possible at this position

04:55 Unit 2 noise audible at St Johns Walk properties

05:00 3 Articulated trucks started up and idle in yard
05:06:45 Artic reverses slightly for 10s (reverse tones)
05:28:00 1st Artic leaves site
05:30:20 2nd Artic leaves site
05:30:30 3rd artic reverses up yard and is parked with engine off (70s duration)
05:54 Artic reversed into unit 2 for loading
05:58 3 x container trucks started up
05:59 waste truck arrives
06:01:00 empty premier truck manoeuvred around yard, idling at far position
06:03:30 empty premier truck manoeuvred around the yard for 2 mins until reversed to doors of unit 2
06:08 lots of activity as premier trucks hurriedly manoeuvred and loaded before leaving site Occasional clangs and bang
06:13:30 driven from rear of site and parked in yard idling
06:15 truck leaves
06:18:35 premier truck movement
06:23:34 waste truck arrives at unit 1
06:27:00 waste truck leaves site
06:29:35 truck with reverse loud tones manoeuvred to unit for loading
06:31:40 artic arrives & idels in yard
06:35:45 skip truck arrives
06:39:45 skip truck moves to unit
06:40:30 artic leaves unit & idles in yard
06:45:30 premier container truck arrives
06:46:20 artic leaves unit, manoeuvres & idles in yard
06:47 cement truck
06:50:10 artic leaves site
06:52:00 premier container truck leaves site
06:55:10 artic eaves site
06:55:40 skip truck around yard

Appendix 3 Measurement Data

Unit 1 Ambient

28/04/2020



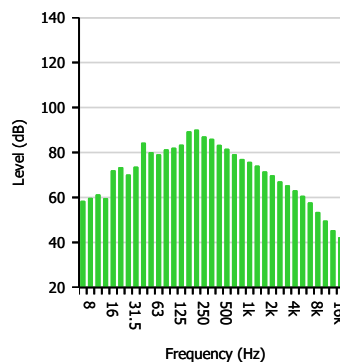
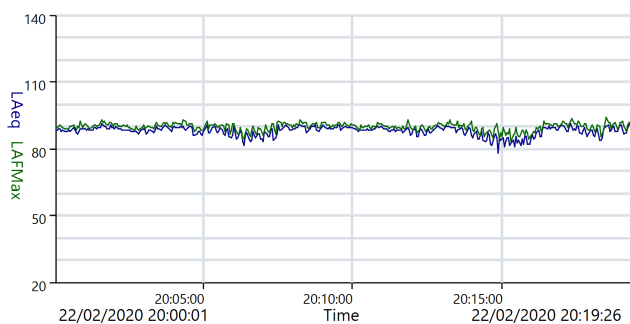
Measurement Summary Report

Name	P3 Ambient			Project	Premier Waste UK
Time	22/02/2020 20:00:01	Person		Place	
Duration	00:19:25				
Instrument	G066520, CR:171B				

Calibration

Before	22/02/2020 11:23	Offset	-0.57 dB	After	27/02/2020 12:45	Offset	0.20 dB
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Basic Values		Statistical Levels (Ln)	
LAeq	88.3 dB	LAF1	91.4 dB
LAE	119.0 dB	LAF5	90.6 dB
LAFMax	94.0 dB	LAF10	90.1 dB
		LAF50	88.3 dB
		LAF90	84.1 dB
		LAF95	82.3 dB
		LAF99	78.6 dB
		LAF99.9	75.6 dB



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Unit 2 Ambient

28/04/2020



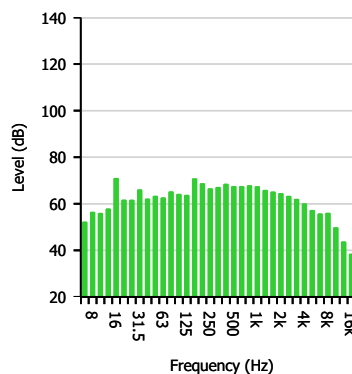
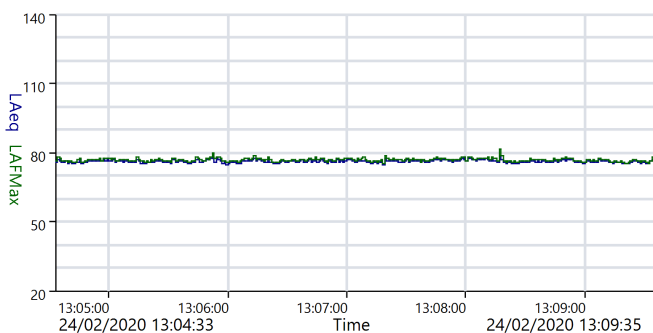
Measurement Summary Report

Name Unit 2 Pulping machine @ 5m
Time 24/02/2020 13:04:33 **Person** **Place** **Project**
Duration 00:05:02 Premier Waste UK
Instrument G068016, CR:171B

Calibration

Before 24/02/2020 10:04 Offset -0.07 dB **After** 24/02/2020 15:10 Offset -0.42 dB

Basic Values		Statistical Levels (Ln)	
LAeq	76.2 dB	LAF1	77.7 dB
LAE	101.0 dB	LAF5	77.2 dB
LAFMax	81.2 dB	LAF10	76.9 dB
		LAF50	76.0 dB
		LAF90	75.2 dB
		LAF95	75.0 dB
		LAF99	74.6 dB



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Lorry Noise @ 10m

28/04/2020



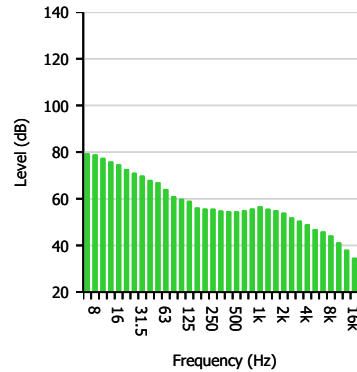
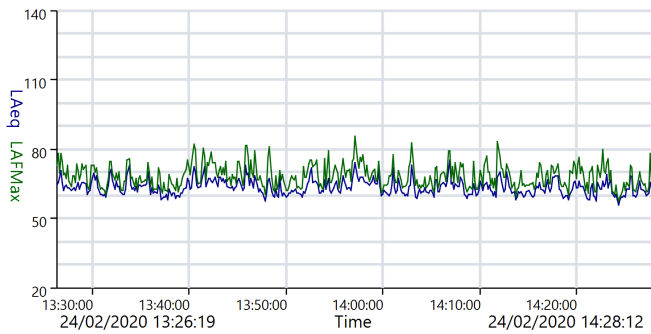
Measurement Summary Report

Name Lorry movement @ 5m from boundary (Outside)
Time 24/02/2020 13:26:19 **Person** **Place** **Project**
Duration 01:01:53 Premier Waste UK
Instrument G068016, CR:171B

Calibration

Before 24/02/2020 10:04 Offset -0.07 dB **After** 24/02/2020 15:10 Offset -0.42 dB

Basic Values		Statistical Levels (Ln)	
LAeq	64.8 dB	LAF1	73.6 dB
LAE	100.5 dB	LAF5	69.7 dB
LAFMax	85.7 dB	LAF10	67.6 dB
		LAF50	62.1 dB
		LAF90	58.8 dB
		LAF95	58.1 dB
		LAF99	56.5 dB



ReportId



Unit 2 Spray Nozzles @ 2m

28/04/2020



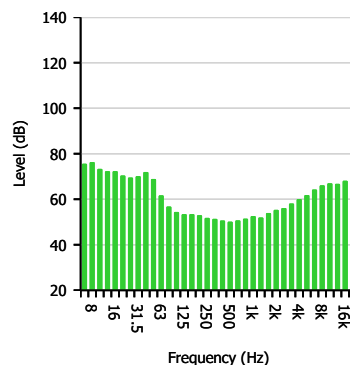
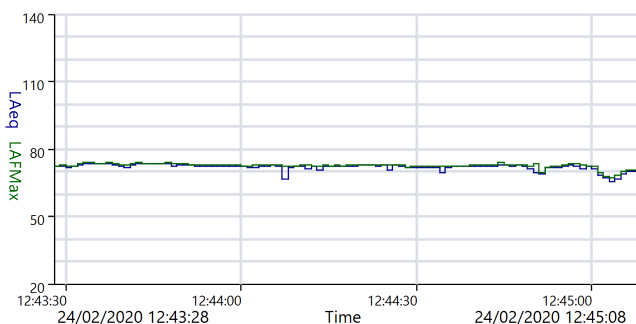
Measurement Summary Report

Name Unit 2 Northern facade spray nozzle @ 2m
Time 24/02/2020 12:43:28 **Person** **Place** **Project**
Duration 00:01:40 Premier Waste UK
Instrument G068016, CR:171B

Calibration

Before 24/02/2020 10:04 Offset -0.07 dB **After** 24/02/2020 15:10 Offset -0.42 dB

Basic Values		Statistical Levels (Ln)	
LAeq	72.2 dB	LAF1	73.7 dB
LAE	92.2 dB	LAF5	73.4 dB
LAFMax	74.2 dB	LAF10	73.2 dB
		LAF50	72.3 dB
		LAF90	69.6 dB
		LAF95	67.8 dB
		LAF99	64.0 dB



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1m From Unit 1 West End Shutters @ night (Shutters Down)

28/04/2020



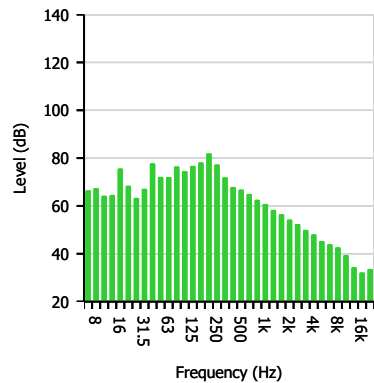
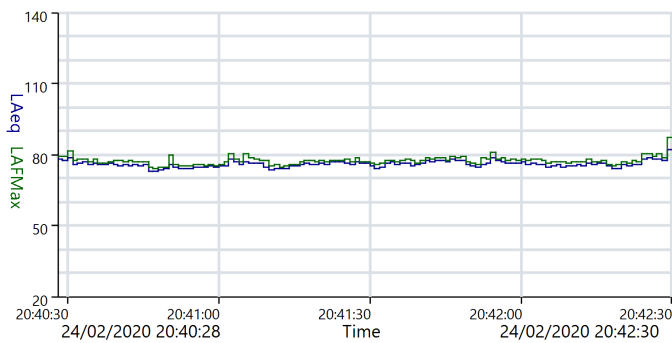
Measurement Summary Report

Name Unit 1 West end door @ 1m (closed)
Time 24/02/2020 20:40:28 **Person** **Place** **Project**
Duration 00:02:02 Premier Waste UK
Instrument G068016, CR:171B

Calibration

Before 24/02/2020 20:19 **Offset** -0.19 dB **After** 24/02/2020 21:01 **Offset** -0.26 dB

Basic Values		Statistical Levels (Ln)	
LAeq	76.0 dB	LAF1	79.2 dB
LAE	96.9 dB	LAF5	77.9 dB
LAFMax	81.6 dB	LAF10	77.4 dB
		LAF50	75.8 dB
		LAF90	73.9 dB
		LAF95	73.4 dB
		LAF99	72.5 dB



ReportId



1m From Unit 1 West End Shutters @ night (Shutters Up)

28/04/2020



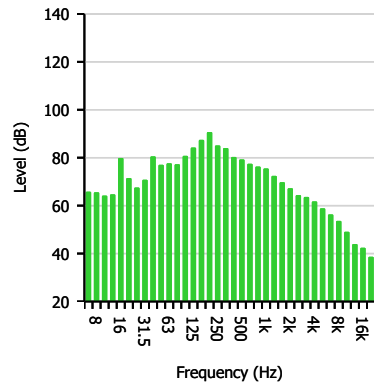
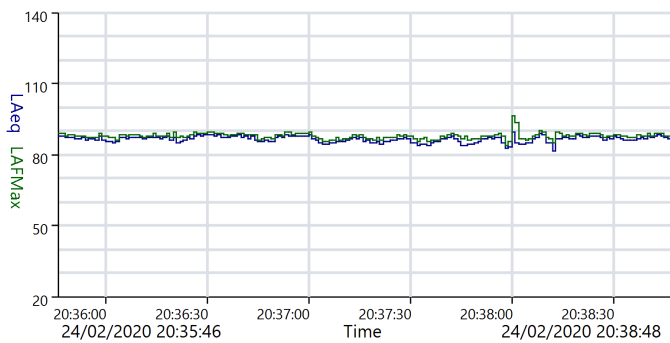
Measurement Summary Report

Name Unit 1 West end door @ 1m (open)
Time 24/02/2020 20:35:46 **Person** **Place** **Project**
Duration 00:03:02 Premier Waste UK
Instrument G068016, CR:171B

Calibration

Before 24/02/2020 20:19 **Offset** -0.19 dB **After** 24/02/2020 21:01 **Offset** -0.26 dB

Basic Values		Statistical Levels (Ln)	
LAeq	86.6 dB	LAF1	88.9 dB
LAE	109.2 dB	LAF5	88.3 dB
LAFMax	96.1 dB	LAF10	88.0 dB
		LAF50	86.6 dB
		LAF90	84.2 dB
		LAF95	83.3 dB
		LAF99	80.7 dB



ReportId



1m From Unit 1 East End Shutters @ night (Shutters Up)

28/04/2020



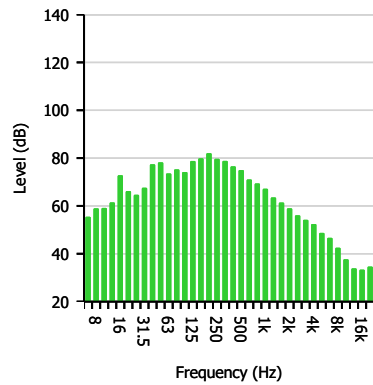
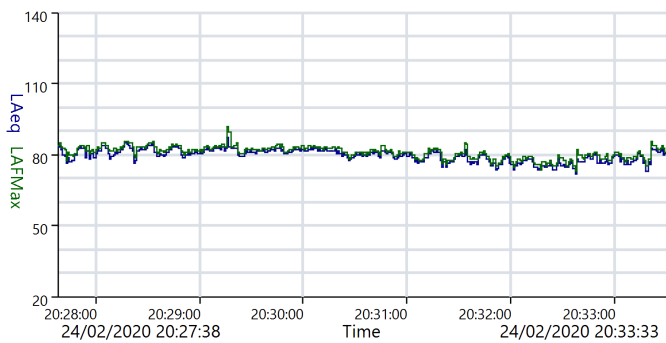
Measurement Summary Report

Name	Unit 1 East end door @ 1m (open)			Project	Premier Waste UK
Time	24/02/2020 20:27:38	Person		Place	
Duration	00:05:55				
Instrument	G068016, CR:171B				

Calibration

Before	24/02/2020 20:19	Offset	-0.19 dB	After	24/02/2020 21:01	Offset	-0.26 dB
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Basic Values		Statistical Levels (Ln)	
LAeq	80.2 dB	LAF1	84.4 dB
LAE	105.7 dB	LAF5	83.1 dB
LAFMax	91.7 dB	LAF10	82.6 dB
		LAF50	79.8 dB
		LAF90	75.3 dB
		LAF95	74.3 dB
		LAF99	72.4 dB



ReportId



P1 Data

Environmental Noise Measurement Report

Measurement Details

Location: Premier Waste
 Description: P1 Long term
 Date of Measurement: 24/02/2020 20:14

Instrumentation Details

Sound Level Meter: Cirrus Research plc CR:800 B15061FE
 Acoustic Calibrator: Cirrus Research plc CR:511E
 Calibration: +0.5dB drift
 Recalibration Due: 31/03/2019
 Level Range: 20-80 dB
 Time Weighting: Fast (for Lmax and Lns)

Measurement Data

Start of Measurements: 24/02/2020 05:31
 No. of Measurements: 98
 Total Duration: 23:59:28
 Highest Lmax: 83.4
 Lmax Exceedance Count: 0 at or above 115dB

Date	Time	Run Duration	Leq dB	Lmax dB	Peak dBC	L1	L10	L50	L90	L95	L99
			(hh:mm:ss)								
24/02/2020	05:31:40	00:00:10	64.1	71.4	90.8	69.0	66.6	61.1	53.0	51.7	50.7
24/02/2020	05:39:14	00:14:59	59.8	76.4	92.9	69.6	64.6	51.3	48.4	47.9	47.2
24/02/2020	05:54:19	00:14:59	56.2	70.3	86.0	61.3	59.9	51.9	48.9	48.4	47.8
24/02/2020	06:09:25	00:14:59	52.8	60.8	89.7	56.2	54.1	52.4	51.0	50.6	49.9
24/02/2020	06:24:30	00:14:59	55.2	63.1	86.8	60.4	59.7	52.9	51.2	50.8	50.3
24/02/2020	06:39:36	00:14:59	55.4	61.4	84.2	60.7	60.0	53.6	51.8	51.4	50.7
24/02/2020	06:54:41	00:14:59	56.2	63.1	88.1	59.7	57.9	56.0	53.2	52.6	51.1
24/02/2020	07:09:46	00:14:59	59.0	66.4	88.6	62.0	61.2	58.2	55.9	55.4	54.6
24/02/2020	07:24:52	00:14:59	57.9	65.1	88.6	61.1	59.1	57.5	56.2	55.9	55.2
24/02/2020	07:39:57	00:14:59	60.5	69.0	89.2	63.8	62.5	59.8	57.2	56.7	55.8
24/02/2020	07:55:02	00:14:59	59.1	78.7	89.4	62.1	59.9	57.8	56.3	56.0	55.4
24/02/2020	08:10:07	00:14:59	58.8	73.2	89.7	62.2	61.5	57.6	56.1	55.7	55.1
24/02/2020	08:25:13	00:14:59	58.3	68.9	90.1	62.7	61.2	57.4	55.7	55.3	54.6
24/02/2020	08:40:18	00:14:59	57.1	65.6	88.4	60.6	58.7	56.7	54.9	54.5	53.9
24/02/2020	08:55:23	00:14:59	60.4	75.6	88.7	64.1	63.0	58.8	56.2	55.7	54.6
24/02/2020	09:10:28	00:14:59	59.3	83.4	91.5	66.1	59.7	57.5	55.7	55.1	54.3
24/02/2020	09:25:34	00:14:59	59.1	65.6	88.6	62.4	61.5	57.8	55.9	55.4	54.7
24/02/2020	09:40:39	00:14:59	55.8	68.8	90.4	59.1	56.9	55.4	54.0	53.6	53.0
24/02/2020	09:55:44	00:14:59	58.5	75.8	91.6	63.4	61.3	56.2	53.9	53.5	52.8
24/02/2020	10:10:49	00:14:59	56.4	74.8	88.1	61.9	57.0	54.9	53.4	53.0	52.2
24/02/2020	10:25:55	00:14:59	56.0	72.9	87.5	58.8	57.1	55.2	53.6	53.2	52.2
24/02/2020	10:41:00	00:14:59	58.7	74.6	88.8	62.0	61.3	56.2	54.3	53.9	53.3
24/02/2020	10:56:05	00:14:59	56.0	66.0	83.4	59.5	57.6	55.7	54.0	53.5	52.6
24/02/2020	11:11:11	00:14:59	59.4	75.2	86.9	66.8	61.6	57.1	54.0	53.5	52.8

Environmental Noise Measurement Report

Date	Time	Run Duration (hh:mm:ss)	Leq dB	Lmax dB	Peak dBC	L1	L10	L50	L90	L95	L99
24/02/2020	11:26:16	00:14:59	59.0	75.3	91.8	66.6	61.2	56.3	54.0	53.6	52.7
24/02/2020	11:41:21	00:14:59	56.6	70.2	88.7	64.0	58.4	55.1	53.4	53.0	52.3
24/02/2020	11:56:27	00:14:59	58.5	73.3	90.3	63.9	61.5	55.7	53.5	53.0	51.8
24/02/2020	12:11:32	00:14:59	55.3	71.7	91.3	61.1	56.5	54.8	53.2	53.0	52.5
24/02/2020	12:26:37	00:14:59	56.1	74.8	92.8	62.2	57.5	55.2	53.0	52.5	51.7
24/02/2020	12:41:43	00:14:59	58.8	64.5	88.7	62.6	61.8	57.0	54.6	54.0	53.4
24/02/2020	12:56:48	00:14:59	56.6	66.0	86.7	60.2	58.7	56.2	54.2	53.7	52.9
24/02/2020	13:11:53	00:14:59	58.3	68.0	90.7	62.7	61.6	55.7	53.1	52.5	51.5
24/02/2020	13:26:59	00:14:59	55.6	69.0	88.3	60.9	57.4	54.8	52.7	51.8	50.7
24/02/2020	13:42:04	00:14:59	57.7	62.3	87.4	61.4	60.8	55.6	53.1	52.6	51.7
24/02/2020	13:57:09	00:14:59	54.3	62.3	85.3	58.2	56.2	53.8	51.8	51.2	50.5
24/02/2020	14:12:15	00:14:59	54.6	61.6	85.4	60.1	57.2	53.3	51.5	51.1	50.3
24/02/2020	14:27:20	00:14:59	57.5	73.3	87.6	61.9	61.1	54.6	52.9	52.5	51.8
24/02/2020	14:42:26	00:14:59	55.2	67.3	87.8	59.7	57.1	54.4	52.3	51.8	51.2
24/02/2020	14:57:31	00:14:59	58.4	73.4	88.7	62.4	61.1	56.6	53.9	53.5	52.8
24/02/2020	15:12:37	00:14:59	59.4	81.3	90.6	69.4	61.0	56.0	54.0	53.6	52.9
24/02/2020	15:27:42	00:14:59	58.4	67.7	86.7	61.9	61.2	56.9	53.9	53.4	52.8
24/02/2020	15:42:47	00:14:59	55.8	71.6	88.5	59.9	57.2	54.9	52.9	52.3	51.2
24/02/2020	15:57:53	00:14:59	57.4	71.1	88.9	62.2	60.3	55.8	53.7	53.1	52.3
24/02/2020	16:12:58	00:14:59	58.0	65.0	88.8	62.7	61.4	56.5	54.6	54.2	53.6
24/02/2020	16:28:03	00:14:59	56.3	68.3	86.7	59.6	58.0	55.9	54.0	53.6	52.9
24/02/2020	16:43:09	00:14:59	58.5	63.0	86.1	62.1	61.5	57.0	53.8	53.3	52.5
24/02/2020	16:58:14	00:14:59	55.2	66.9	83.8	60.6	56.6	54.5	52.9	52.4	51.7
24/02/2020	17:13:20	00:14:59	57.9	66.1	83.1	61.3	60.9	56.0	53.6	53.0	51.7
24/02/2020	17:28:25	00:14:59	55.3	66.7	86.1	59.8	56.8	54.8	52.8	52.2	51.5
24/02/2020	17:43:30	00:14:59	56.8	70.3	91.3	64.0	58.4	55.4	53.1	52.7	52.2
24/02/2020	17:58:36	00:14:59	56.1	72.1	89.9	61.1	57.0	55.2	53.5	53.1	52.0
24/02/2020	18:13:41	00:14:59	55.2	64.3	87.0	59.0	56.7	54.9	53.2	52.8	52.0
24/02/2020	18:28:46	00:14:59	54.9	69.9	86.2	58.5	56.5	54.5	52.8	52.3	51.7
24/02/2020	18:43:52	00:14:59	54.3	69.8	89.0	57.9	55.6	53.6	51.3	50.8	50.1
24/02/2020	18:58:57	00:14:59	52.2	63.3	85.3	54.7	53.4	51.9	50.5	50.0	49.5
24/02/2020	19:14:03	00:14:59	52.8	70.8	86.3	59.2	52.9	51.1	49.7	49.4	48.7
24/02/2020	19:29:08	00:14:59	63.0	74.1	86.0	71.2	68.8	51.6	49.6	49.1	48.4
24/02/2020	19:44:13	00:14:59	66.9	74.8	90.2	72.0	70.1	67.0	50.1	49.3	48.1
24/02/2020	19:59:19	00:14:59	65.0	72.8	85.9	70.6	68.8	64.9	49.8	49.3	48.7
24/02/2020	20:14:25	00:14:59	65.3	73.5	84.8	70.6	68.7	65.6	50.5	50.1	49.4
24/02/2020	20:29:30	00:14:59	63.3	73.4	85.8	70.5	68.3	51.9	49.9	49.3	48.7
24/02/2020	20:44:35	00:14:59	66.6	74.7	88.2	71.5	69.5	66.7	49.9	49.0	47.4
24/02/2020	20:59:41	00:14:59	52.1	81.1	88.7	58.6	51.9	50.2	48.5	48.1	47.6
24/02/2020	21:14:46	00:14:59	48.9	59.4	85.2	52.1	50.3	48.3	46.7	46.3	45.7
24/02/2020	21:29:52	00:14:59	49.2	57.5	77.5	52.1	50.6	48.9	47.2	46.6	45.6
24/02/2020	21:44:57	00:14:59	52.3	75.1	88.5	57.5	52.1	49.7	48.0	47.7	47.2
24/02/2020	22:00:02	00:14:59	49.9	57.1	75.8	52.9	51.4	49.5	47.9	47.4	46.7

Environmental Noise Measurement Report

Date	Time	Run Duration (hh:mm:ss)	Leq dB	Lmax dB	Peak dB	L1	L10	L50	L90	L95	L99
24/02/2020	22:15:07	00:14:59	51.0	70.3	89.5	55.1	51.6	49.7	47.8	47.4	46.4
24/02/2020	22:30:13	00:14:59	49.5	62.6	87.4	55.8	52.4	47.5	46.0	45.6	45.0
24/02/2020	22:45:18	00:14:59	55.3	62.4	87.4	58.7	56.9	55.1	52.9	52.5	51.7
24/02/2020	23:00:23	00:14:59	53.2	63.4	85.6	55.7	54.4	53.0	51.6	51.2	50.4
24/02/2020	23:15:29	00:14:59	51.7	70.8	83.2	56.9	51.8	50.1	49.0	48.7	48.2
24/02/2020	23:30:34	00:14:59	49.3	53.5	78.1	52.0	50.6	48.9	47.8	47.5	46.9
24/02/2020	23:45:39	00:14:59	48.7	55.8	84.0	51.7	49.9	48.4	46.9	46.5	45.9
25/02/2020	00:00:45	00:14:59	50.1	69.1	86.5	56.2	50.2	48.5	47.1	46.7	46.0
25/02/2020	00:15:50	00:14:59	48.5	54.8	77.1	52.4	50.1	47.9	46.3	46.0	45.6
25/02/2020	00:30:55	00:14:59	46.9	52.5	76.5	50.0	48.3	46.6	44.9	44.5	44.1
25/02/2020	00:46:01	00:14:59	48.0	56.1	83.3	52.1	49.6	47.5	45.7	45.2	44.6
25/02/2020	01:01:06	00:14:59	47.4	54.9	79.4	50.9	48.8	46.8	45.7	45.4	44.7
25/02/2020	01:16:11	00:14:59	47.9	55.2	87.7	51.8	49.7	47.3	45.3	44.8	44.2
25/02/2020	01:31:17	00:14:59	46.0	52.6	78.0	48.6	47.1	45.7	44.1	43.4	42.3
25/02/2020	01:46:22	00:14:59	46.1	53.5	75.5	49.8	47.4	45.7	44.3	43.8	43.1
25/02/2020	02:01:27	00:14:59	43.8	52.4	81.2	49.4	46.1	42.3	40.7	40.3	39.9
25/02/2020	02:16:33	00:14:59	44.6	54.3	78.0	50.4	47.4	42.9	41.1	40.8	40.4
25/02/2020	02:31:38	00:14:59	44.5	51.5	78.5	48.8	46.5	44.0	41.2	40.7	40.1
25/02/2020	02:46:43	00:14:59	45.9	53.2	78.9	50.5	47.8	45.1	43.4	42.9	41.8
25/02/2020	03:01:49	00:14:59	46.4	57.9	79.9	52.8	48.9	45.1	43.5	43.0	42.3
25/02/2020	03:16:54	00:14:59	49.0	61.9	86.2	55.5	52.1	46.5	44.7	44.3	43.3
25/02/2020	03:31:59	00:14:59	50.4	62.8	88.1	56.4	53.4	49.0	45.5	44.9	43.7
25/02/2020	03:47:05	00:14:59	49.0	60.9	75.6	56.4	52.8	45.9	44.2	43.8	43.1
25/02/2020	04:02:10	00:14:59	48.8	60.1	77.6	56.4	52.4	46.2	44.1	43.4	42.7
25/02/2020	04:17:15	00:14:59	48.2	58.9	77.8	54.4	50.7	46.7	44.6	44.0	43.4
25/02/2020	04:32:21	00:14:59	47.6	58.4	82.1	53.6	49.9	46.4	44.7	44.4	44.0
25/02/2020	04:47:26	00:14:59	50.4	63.3	85.0	57.8	53.7	48.0	45.2	44.9	44.4
25/02/2020	05:02:31	00:14:59	49.4	60.4	80.3	55.6	52.0	48.0	46.0	45.6	44.7
25/02/2020	05:17:36	00:14:59	55.5	62.2	79.1	60.3	59.6	50.4	46.7	46.1	45.5
25/02/2020	05:32:42	00:14:59	53.0	76.6	92.3	61.3	54.0	50.2	47.6	47.2	46.2
25/02/2020	05:47:47	00:00:54	61.6	76.3	91.7	65.9	63.4	58.7	53.1	51.7	50.1

P2 Data

Environmental Noise Measurement Report

Measurement Details

Location: Premier Waste
 Description: P2 Long term
 Date of Measurement: 25/02/2020 09:40

Instrumentation Details

Sound Level Meter: Cirrus Research plc CR:800 B14212FE
 Acoustic Calibrator: Cirrus Research plc CR:511E
 Calibration: +0.2dB drift
 Recalibration Due: 13/03/2020
 Level Range: 30-90 dB
 Time Weighting: Fast (for Lmax and Lns)

Measurement Data

Start of Measurements: 24/02/2020 12:55
 No. of Measurements: 86
 Total Duration: 21:21:21
 Highest Lmax: 85.9
 Lmax Exceedance Count: 0 at or above 115dB

Date	Time	Run Duration (hh:mm:ss)	Leq dB	Lmax dB	Peak dBC	L1	L10	L50	L90	L95	L99
24/02/2020	12:55:43	00:14:59	61.9	84.6	98.2	66.5	64.1	61.1	58.7	58.1	57.0
24/02/2020	13:10:43	00:14:59	61.1	67.5	86.0	65.4	62.9	61.1	58.5	57.6	55.7
24/02/2020	13:25:43	00:14:59	60.9	70.8	84.4	66.5	63.2	60.4	57.5	56.9	55.4
24/02/2020	13:40:43	00:14:59	61.5	72.0	90.7	68.6	63.4	61.0	58.3	57.7	56.5
24/02/2020	13:55:43	00:14:59	61.5	78.0	94.9	68.9	63.6	60.5	57.7	56.8	55.5
24/02/2020	14:10:43	00:14:59	60.4	74.8	92.3	66.3	62.7	59.6	57.0	56.1	54.5
24/02/2020	14:25:43	00:14:59	61.1	69.2	86.9	64.9	63.1	61.0	58.3	57.8	57.0
24/02/2020	14:40:43	00:14:59	60.4	78.2	92.5	64.8	62.2	60.0	57.9	57.4	56.5
24/02/2020	14:55:43	00:14:59	62.3	72.2	86.5	66.1	64.3	62.2	59.6	58.8	57.1
24/02/2020	15:10:43	00:14:59	63.6	84.2	97.2	74.4	63.7	61.2	59.4	58.8	57.8
24/02/2020	15:25:43	00:14:59	66.5	85.3	97.5	77.7	67.5	62.5	60.5	59.8	58.7
24/02/2020	15:40:43	00:14:59	60.7	73.3	89.7	64.5	62.7	60.5	58.4	57.7	55.2
24/02/2020	15:55:43	00:14:59	64.3	84.8	97.8	76.9	62.8	60.2	58.2	57.8	57.3
24/02/2020	16:10:43	00:14:59	61.9	73.3	85.5	67.1	64.3	61.3	58.8	58.3	57.4
24/02/2020	16:25:43	00:14:59	60.6	74.4	90.0	64.2	62.4	60.5	58.2	57.6	56.6
24/02/2020	16:40:43	00:14:59	61.6	70.8	86.8	67.9	63.6	61.2	57.8	57.2	56.4
24/02/2020	16:55:43	00:14:59	59.9	73.6	90.3	70.7	60.8	58.8	56.9	56.5	55.7
24/02/2020	17:10:43	00:14:59	59.5	72.2	85.1	63.2	61.9	58.9	56.8	56.2	55.3
24/02/2020	17:25:43	00:14:59	59.1	64.7	81.2	63.0	61.2	59.2	56.4	55.9	54.8
24/02/2020	17:40:43	00:14:59	59.1	67.8	91.2	63.7	61.2	58.9	56.6	56.0	54.7
24/02/2020	17:55:43	00:14:59	59.0	67.9	81.0	62.1	60.7	59.0	57.0	56.5	55.3
24/02/2020	18:10:43	00:14:59	58.4	69.9	85.3	63.0	60.1	58.1	56.1	55.6	54.4
24/02/2020	18:25:43	00:14:59	58.9	74.3	86.4	63.2	61.3	58.4	56.3	55.5	54.5
24/02/2020	18:40:43	00:14:59	58.2	69.3	82.8	62.3	59.9	58.0	55.9	55.3	54.1

Blue Acoustics NS298 - Premier Waste UK, Perry Barr, Birmingham B42 1TY

Environmental Noise Measurement Report

Date	Time	Run Duration (hh:mm:ss)	Leq dB	Lmax dB	Peak dB	L1	L10	L50	L90	L95	L99
24/02/2020	18:55:43	00:14:59	57.3	63.6	82.0	61.1	59.3	57.1	55.0	54.5	53.5
24/02/2020	19:10:43	00:14:59	58.4	69.2	84.7	61.7	60.2	58.2	56.2	55.8	55.0
24/02/2020	19:25:43	00:14:59	58.5	68.1	82.7	65.0	60.4	57.6	55.8	55.3	54.6
24/02/2020	19:40:43	00:14:59	61.3	69.6	84.0	66.1	63.9	61.0	56.4	55.4	54.0
24/02/2020	19:55:43	00:14:59	59.6	67.6	81.9	64.2	62.5	58.8	55.4	54.8	54.1
24/02/2020	20:10:43	00:14:59	60.8	68.3	82.5	64.8	62.9	60.7	57.8	57.0	55.6
24/02/2020	20:25:44	00:14:59	60.6	68.1	84.1	64.8	63.0	60.2	57.6	57.1	55.5
24/02/2020	20:40:44	00:14:59	59.6	69.0	81.9	64.3	62.2	59.2	56.1	55.2	53.4
24/02/2020	20:55:44	00:14:59	58.5	66.6	81.8	64.3	61.9	56.9	54.7	54.1	53.3
24/02/2020	21:10:44	00:14:59	55.8	65.3	80.3	59.6	57.9	55.5	53.5	52.9	52.0
24/02/2020	21:25:44	00:14:59	55.9	66.1	83.0	59.7	57.8	55.7	53.8	53.2	52.0
24/02/2020	21:40:44	00:14:59	56.3	67.3	87.5	61.8	58.2	55.9	53.6	53.0	51.8
24/02/2020	21:55:44	00:14:59	55.1	64.4	78.5	59.8	57.6	54.6	52.1	51.6	50.9
24/02/2020	22:10:44	00:14:59	54.3	62.5	77.9	58.6	56.4	54.2	51.5	50.9	49.6
24/02/2020	22:25:44	00:14:59	53.6	70.0	87.7	59.2	55.5	52.5	50.5	49.5	48.3
24/02/2020	22:40:44	00:14:59	57.5	81.0	97.0	62.4	60.5	57.1	52.9	52.2	50.9
24/02/2020	22:55:44	00:14:59	57.4	67.6	94.7	60.6	59.0	57.3	55.6	55.1	54.2
24/02/2020	23:10:44	00:14:59	56.5	66.7	85.7	61.6	58.2	56.1	54.4	54.0	53.3
24/02/2020	23:25:44	00:14:59	55.5	62.9	81.8	59.3	57.6	55.2	53.0	52.5	51.0
24/02/2020	23:40:44	00:14:59	54.9	66.0	86.0	59.1	56.7	54.7	52.6	52.0	50.5
24/02/2020	23:55:44	00:14:59	55.0	70.0	88.8	58.6	56.9	54.8	52.8	52.3	51.1
25/02/2020	00:10:44	00:14:59	55.0	60.5	78.3	58.7	56.9	54.8	52.8	52.2	51.1
25/02/2020	00:25:44	00:14:59	53.5	59.5	80.2	57.2	55.4	53.4	51.6	51.2	50.3
25/02/2020	00:40:44	00:14:59	53.6	62.9	79.3	58.9	55.6	53.3	50.9	50.2	49.4
25/02/2020	00:55:44	00:14:59	53.6	62.5	79.8	58.0	55.8	53.2	51.1	50.5	48.6
25/02/2020	01:10:44	00:14:59	53.1	61.3	77.2	58.4	55.2	52.6	51.0	50.6	49.5
25/02/2020	01:25:44	00:14:59	53.2	58.2	77.8	56.3	54.9	53.2	51.4	50.7	49.8
25/02/2020	01:40:44	00:14:59	52.1	60.3	77.8	57.3	54.1	51.8	49.2	48.5	47.4
25/02/2020	01:55:45	00:14:59	50.2	58.5	77.0	55.2	53.1	49.9	45.1	44.1	42.9
25/02/2020	02:10:45	00:14:59	46.8	58.4	71.8	54.5	49.8	44.5	41.8	41.3	40.7
25/02/2020	02:25:45	00:14:59	48.9	60.4	77.1	55.4	52.0	47.4	43.7	43.2	42.6
25/02/2020	02:40:45	00:14:59	51.5	62.0	77.8	57.7	53.9	50.8	47.5	46.7	45.6
25/02/2020	02:55:45	00:14:59	51.9	59.2	76.4	56.3	54.2	51.5	49.5	48.9	47.5
25/02/2020	03:10:45	00:14:59	51.2	61.5	87.8	56.3	53.6	50.8	48.1	47.2	46.1
25/02/2020	03:25:45	00:14:59	52.2	61.0	86.6	57.0	54.6	51.6	49.8	49.4	48.7
25/02/2020	03:40:45	00:14:59	51.5	61.1	82.8	56.7	53.6	51.1	48.5	47.6	45.9
25/02/2020	03:55:45	00:14:59	52.0	58.5	76.7	56.5	54.1	51.5	49.9	49.5	48.7
25/02/2020	04:10:45	00:14:59	51.7	58.8	76.5	57.0	53.9	51.3	48.6	47.6	46.3
25/02/2020	04:25:45	00:14:59	52.3	58.3	77.5	56.7	54.6	51.9	48.9	48.1	46.8
25/02/2020	04:40:45	00:14:59	53.4	73.0	86.4	60.2	55.5	51.5	49.6	49.2	48.5
25/02/2020	04:55:45	00:14:59	55.8	67.6	78.9	61.7	58.4	55.1	51.1	50.3	49.2
25/02/2020	05:10:45	00:14:59	63.6	77.3	87.7	72.9	67.7	59.0	54.6	53.9	52.8
25/02/2020	05:25:45	00:14:59	64.1	77.5	87.8	72.2	68.2	61.3	54.4	53.1	50.9

Environmental Noise Measurement Report

Date	Time	Run Duration (hh:mm:ss)	Leq dB	Lmax dB	Peak dBC	L1	L10	L50	L90	L95	L99
25/02/2020	05:40:46	00:14:59	60.8	72.3	89.5	67.4	63.7	59.8	55.0	54.1	52.6
25/02/2020	05:55:46	00:14:59	62.1	76.7	88.1	67.1	64.2	61.8	58.4	56.7	53.9
25/02/2020	06:10:46	00:14:59	60.9	81.9	96.0	66.2	62.4	59.3	56.4	55.7	54.4
25/02/2020	06:25:46	00:14:59	61.0	68.7	86.0	65.3	63.5	60.7	57.2	56.1	54.7
25/02/2020	06:40:46	00:14:59	60.9	71.7	85.1	65.6	63.2	60.3	57.8	57.3	56.2
25/02/2020	06:55:46	00:14:59	60.5	71.1	88.1	66.2	62.3	60.0	57.8	56.9	55.5
25/02/2020	07:10:46	00:14:59	61.1	77.3	94.0	66.7	63.6	60.4	56.7	55.9	55.0
25/02/2020	07:25:46	00:14:59	59.5	69.3	83.7	65.8	61.7	58.7	56.6	56.1	55.3
25/02/2020	07:40:46	00:14:59	61.8	72.9	89.9	67.6	64.1	61.4	57.7	56.6	54.8
25/02/2020	07:55:46	00:14:59	59.1	79.2	92.6	68.1	61.1	56.9	53.4	52.3	51.0
25/02/2020	08:10:46	00:14:59	59.3	71.1	84.8	66.3	62.5	57.0	54.2	53.5	52.4
25/02/2020	08:25:47	00:14:59	58.4	71.0	87.2	64.5	61.3	57.0	53.9	53.2	52.0
25/02/2020	08:40:47	00:14:59	57.0	71.3	83.7	63.9	59.3	55.9	52.3	51.6	50.7
25/02/2020	08:55:47	00:14:59	59.5	71.2	85.1	64.5	61.9	58.6	56.0	55.5	54.3
25/02/2020	09:10:47	00:14:59	67.9	79.2	89.8	73.1	71.4	68.4	65.5	64.6	63.5
25/02/2020	09:25:47	00:14:59	68.9	75.5	89.4	74.2	72.7	67.0	65.2	64.6	63.5
25/02/2020	09:40:47	00:14:59	62.9	76.7	90.3	71.3	66.5	60.2	58.1	57.6	57.0
25/02/2020	09:55:47	00:14:59	60.1	71.5	93.6	63.6	61.9	60.0	57.9	57.0	55.5
25/02/2020	10:10:47	00:07:46	64.6	85.9	98.6	75.1	65.2	60.7	54.4	52.8	44.6

P3 (Unit 1 long term ambient)

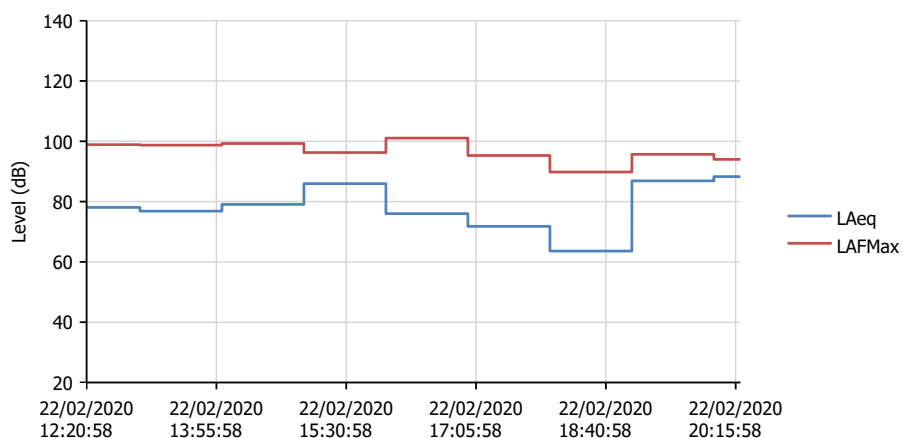
28/04/2020



Measurement List Report

Name Unit 1 Roof
Start Time 22/02/2020 12:20:58
End Time 22/02/2020 20:19:26

Calibration Before	22/02/2020 11:23:35	Offset	-0.57 dB
Calibration After	27/02/2020 12:45:43	Offset	0.20 dB



Start Time	End Time	Duration	LAeq (dB)	LAFMax	Ln1	Ln2	Ln3	Ln4	Ln5	Ln6	Ln7
22/02/2020 12:20:58	22/02/2020 13:00:01	00:39:03	78.1	98.9	89.1	83.9	80.3	73.8	63.6	61.3	58.9
22/02/2020 13:00:01	22/02/2020 14:00:01	01:00:00	76.8	98.7	87.8	82.0	78.6	73.1	70.2	69.5	68.5
22/02/2020 14:00:02	22/02/2020 15:00:02	01:00:00	79.1	99.3	90.3	85.0	81.6	73.5	70.8	69.4	68.2
22/02/2020 15:00:01	22/02/2020 16:00:01	01:00:00	86.0	96.3	91.3	89.7	89.1	85.1	75.6	74.5	73.3
22/02/2020 16:00:01	22/02/2020 17:00:01	01:00:00	76.0	101.1	86.6	79.9	77.6	72.4	67.7	65.1	62.9

ReportId



