Final V1

Powys County Council
North Powys Bulking Facility

Environmental Permit Application

Noise Impact Assessment and Noise Management Plan

Project code: 416.00798.00038
Date: June 2022

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Contents

Glossary **1**
1.0 Introduction **2**
2.0 Guidance and Standards **3**
2.1 Horizontal Guidance Note IPPC H3, Horizontal Guidance for Noise 3
2.2 British Standard BS 4142:2014+A1:2019 3
3.0 Site Description **6**
3.1 Description of Operations 7
4.0 Noise Impact Assessment **8**
4.1 Baseline Survey Methodology 8
4.1.1 Noise Level Parameters 9
4.1.2 Equipment 9
4.1.3 Weather Conditions 10
4.2 Noise Climate 10
4.3 Results 10
4.4 Background Sound Level 12
5.0 Noise Assessment **13**
5.1 Noise Model Assumptions 13
5.2 Operational Hours 13
5.3 Noise Sources 13
5.4 Sound Penalties 17
5.5 BS 4142:2014+A1:2019 Assessment Results 18
6.0 Noise Management Plan **19**
6.1 Objectives 19
6.1.1 Status 19
6.2 Receptors 19
6.3 General Noise Management 20
6.3.1 Site Infrastructure Design 20
6.3.2 Plant Operations 21
6.3.3 Training 21
6.3.4 Maintenance 21
6.3.5 Public Relations 22
6.4 Complaints Procedure 22
6.4.1 Receipt of Complaint or Request from NRW 23
6.5 Noise Monitoring 23
7.0 Conclusion **24**
Appendix 1: 7003299-1NV-02-R1 Abermule Business Park – Noise Impact Assessment **25**
Appendix 2: Environmental Noise Survey Data **26**
Appendix 3: Proposed Fencing Plan - Bryn-y-Maes Drawing Number 2395/0300.003 ..... **52**
Appendix 4: Proposed Fencing Details – Bryn-y-Maes Drawing Number 2395/0300.004 ..... **53**
Appendix 5: Kingspan Documentation **54**

Figures

Figure 3-1: Site Location and Noise-sensitive Residential Receptors (NSR) 6
Figure 3-2: Plan of Bulking Facility 7
Figure 4-1: Measurement Positions and NSRs 9

Tables

Table 2-1: BS 4142:2014+A1:2019 Assessment of Impacts 4
Table 4-1: Sound Monitoring Equipment 9
Table 4-2: MP1 - Summary of Measured Sound Levels, free-field, dB 11
Table 4-3: MP2 - Summary of Measured Sound Levels, free-field, dB 11
Table 4-4: MP1a-c - Summary of Measured Sound Levels on 1/09/2020, free-field, dB 12
Table 4-5: Summary of Representative Background Sound Levels at NSRs, dB 12
Table 5-1: Sound Power Level for Noise Sources reproduced from Appendix B of WSP Report 15
Table 5-2: Sound Power Level Data for Jet Wash 15
Table 5-3: Internal Sound Level (Li) in Bulk Shed 16
Table 5-4: Assumed Noise Source Details for Noise Model 16
Table 5-5: Predicted Specific Noise Level at Receptors Free-field, dB 17
Table 5-6: BS 4142:2014+A1:2019 Sound Penalties 17
Table 5-7: BS 4142:2014+A1:2019 Assessment, dB 18
Table 6-1: Receptors 20

Acknowledgements

The content of this Report has been based upon information provided by WRAP Cymru and Powys County Council.

Glossary

Term	Description
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio of the root-mean-square pressure of the sound and a reference pressure (2x10-5 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Frequency Octave bands (and Third Octave bands)	Sound can occur over a range of frequencies extending from the very low, such as the rumble of thunder, up to the very high such as the crash of cymbals. Sound is generally described over the frequency range from 63 Hz to 4000 Hz (4 kHz). This is roughly equal to the range of frequencies on a piano. Frequency is often divided into ('first') octave bands for analysis, with the range above considered within 7 octave bands with centre frequencies at 63 Hz, 125 Hz, 250 Hz, 1 kHz, 2 kHz and 4 kHz. 'Third' octave bands split this further into smaller frequency bands. This is typically only referenced in assessment of tonality of a noise source by identifying peaks (tones) in the frequency spectrum, i.e. when applying a rating penalty for tonality within a BS 4142:2014 assessment.
L_{Aeq}	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
L_{A10} & L_{A90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{A10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{A90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{A10} index to describe traffic noise. The 'A' in the notation indicates a single weighted figure using the 'A' weighting to compensate for the varying sensitivity of the human ear to sound at different frequencies.
L_{AFmax}	L_{AFmax} is the maximum A-weighted sound pressure level recorded over the period stated. L_{AFmax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{Aeq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using a 'fast' response.
Sound pressure level (SPL)	Represents a noise level that can be measured directly, the result of pressure variations in the air achieved by the sound waves, on a dB scale.

1.0 Introduction

The Waste and Resource Action Programme (WRAP), on behalf of Powys County Council (PCC) has retained SLR Consulting Limited (SLR) to undertake a Noise Impact Assessment (NIA) and Noise Management Plan (NMP) for a Bulking Facility at Abermule, Montgomery, Powys. The NIA and NMP are required as part of an Environmental Permit application to Natural Resources Wales (NRW).

The format of the NMP is based on the requirements presented in Horizontal Guidance Note IPPC[1] H3, *Horizontal Guidance for Noise, Part 2 – Noise Assessment and Control*.

It is supported by the NIA, which has been undertaken to the guidance of BS4142:2014, *Methods for rating and assessing industrial and commercial sound*. This standard is intended to be used to assess the potential impact of sound (of an industrial or commercial nature) at noise-sensitive receptors within the context of the existing noise environment.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is necessarily technical in nature and a glossary of terminology is included.

[1] Integrated Pollution Prevention and Control (IPPC)

2.0 Guidance and Standards

2.1 Horizontal Guidance Note IPPC H3, Horizontal Guidance for Noise

The purpose of the Horizontal Guidance Note IPPC H3, *Horizontal Guidance for Noise, Part 2 – Noise Assessment and Control* ('H3 guidance') is to provide supplementary information, relevant to all sectors, to assist operators in preventing and minimising emissions of noise. Part 2 of the guidance describes the principles of noise measurement and prediction, and the control of noise by design, by operational and management techniques and abatement technologies.

Outline methods of noise control are provided such as:

- the use of inherently quieter processes;
- the selection of inherently quiet plant or *'low noise options'*;
- the use of the site layout to maximise natural screening, screening by buildings and/or separation distances;
- the orientation of directional noise sources away from receptors; and
- the use of noise barriers and/or bunding.

2.2 British Standard BS 4142:2014+A1:2019

The assessment of impact contained in BS 4142:2014+A1:2019 is undertaken by comparing the sound rating level, i.e. the specific level of the source plus any penalties, to the measured representative background sound level outside the sensitive receptor location.

In accordance with BS 4142:2014+A1:2019, the significance of an industrial or commercial sound source depends on both the margin by which the rating level exceeds the background sound level and the context in which the sound occurs. It is therefore essential to place the sound in context, as an *"effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs"*.

BS 4142:2014+A1:2019 (Section 3) provides the following definitions:

- **Ambient Sound**: Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. *NOTE: The ambient sound comprises the residual sound and the specific sound when present.*
- **Ambient Sound Level, $L_a = L_{Aeq,T}$**: Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T. *NOTE: The ambient sound level is a measure of the residual sound and the specific sound when present.*
- **Background Sound Level, $L_{A90,T}$**: A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given interval, T, measured using time weighting F and quoted to the nearest whole number of decibels (dB).
- **Rating Level, $L_{Ar,Tr}$**: Specific sound level plus any adjustment for the characteristic features of the sound.

- **Residual Sound**: Ambient sound remaining at the assessment location when the specific sound source is supressed to such a degree that it does not contribute to the ambient sound.
- **Residual Sound Level, $L_r = L_{Aeq,T}$**: Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.
- **Specific Sound Level, $L_s = L_{Aeq,T}$**: Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T.
- **Specific Sound Source:** Sound source being assessed.

To account for the acoustic character of sound sources, BS 4142:2014+A1:2019 states that penalties should be applied with respect to *"the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention"*.

In this respect, the acoustic 'character' of a specific sound can be described using the following definitions from BS 4142:2014+A1:2019:

- **Tonality** – "For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible".
- **Impulsivity – "**A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible".
- **Intermittency** – "When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied".
- **Other Sound Characteristics** – "Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied."

BS 4142:2014+A1:2019 defines the impact of the specific sound by subtracting the measured background sound level from the rating level. This assessment is detailed in **Table 2-1** and is reproduced from Section 11 of BS 4142:2014+A1:2019 where it states: *"Typically, the greater this difference, the greater the magnitude of impact"*.

Table 2-1: BS 4142:2014+A1:2019 Assessment of Impacts

Rating Level minus Background Sound Level	Assessment of Impacts

Around +10dB or more	A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
Around +5dB	A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

In addition, BS 4142:2014+A1:2019 states:

> *"The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

BS 4142:2014+A1:2019 also notes that *"adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact"*. Finally, BS 4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including consideration of the existing residual sound levels, location and/or absolute sound levels.

3.0 Site Description

The site is located at the parcel of land between the A483, B4386 and the Cambrian railway line at Abermule, Montgomery, Powys. The site is bound to the north by the B4386, to the east and south by the Cambrian railway line, and to the west by the A483.

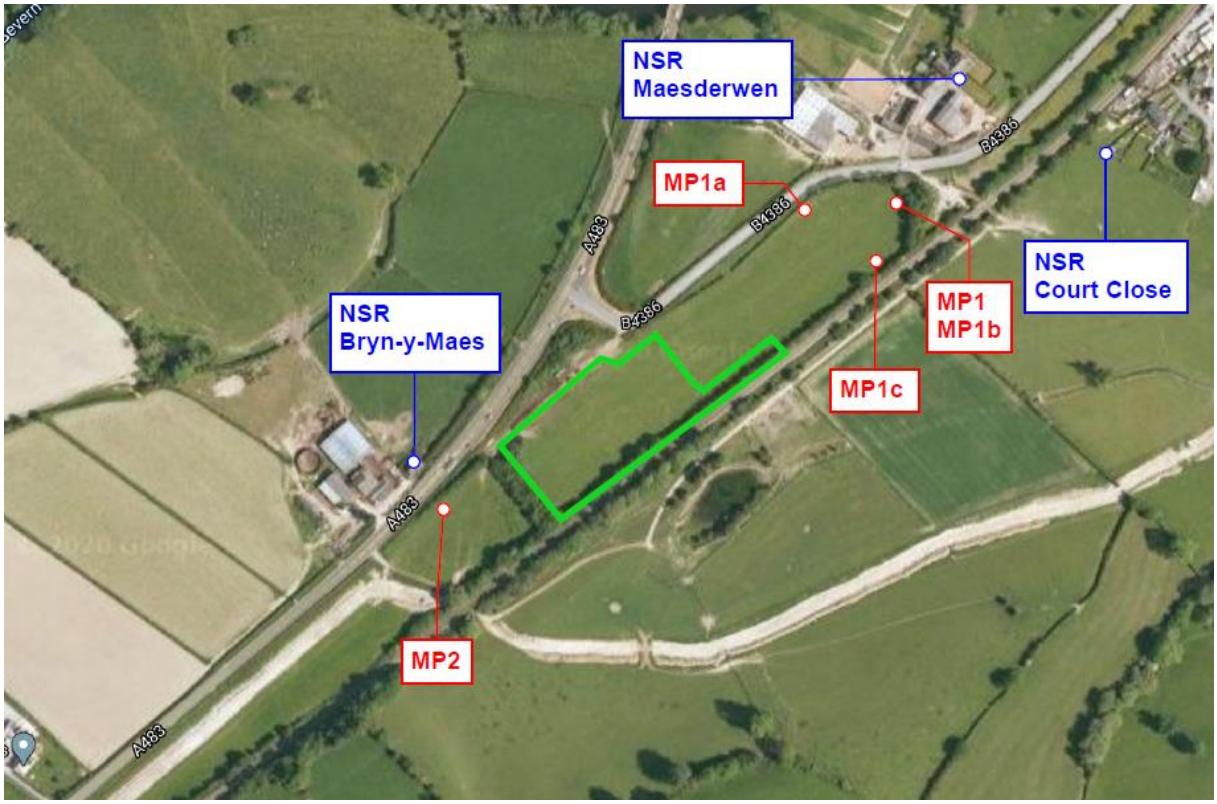
The nearest noise-sensitive residential receptors (NSRs) are identified with distance from the closest site boundary as:

- Bryn-y-Maes, approximately 50m to the west;
- Maesderwen, approximately 215m to the north east; and
- Court Close, approximately 300m to the north east.

Since the NIA was prepared in support of the original application submitted in 2021, the business units located within the wider area have been constructed (along the northeast boundary). However, due to the nature of the potential receptor (commercial) and that the impact from noise for this receptor was already modelled and assessed in the NIA prepared by WSP for the associated planning application, included as Appendix 1, it has not been reviewed further in this assessment. The conclusions of the WSP assessment showed that there would be no impact on these business units as a result of the operation of the Bulking Facility.

The approximate boundary line for the Bulking Facility is provided in red and the nearest noise-sensitive residential receptors are identified in blue in **Figure 3-1**.

Figure 3-1: Site Location and Noise-sensitive Residential Receptors (NSR)

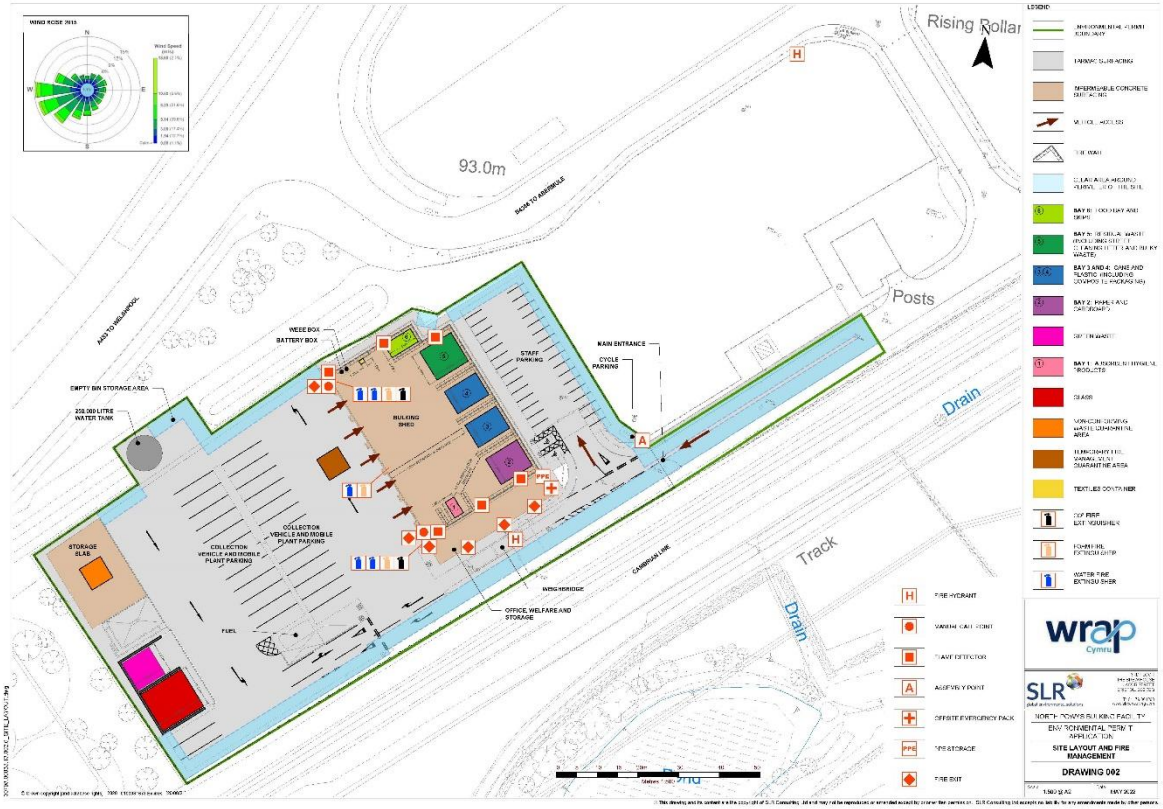


3.1 Description of Operations

The development would enable the bulking up of household and commercial material from PCC's kerbside collections in the area and in addition would also be used as a depot for the Council's recycling fleet.

Figure 3-2 shows the plan of the Bulking Facility.

Figure 3-2: Plan of Bulking Facility



4.0 Noise Impact Assessment

A baseline noise survey to establish the prevailing noise levels at the south west of the site was undertaken from 28 August to 1 September 2020. A baseline noise survey to establish the prevailing noise levels at the north of the site was undertaken from 4 September to 8 September 2020. The survey methodology and results are set out below.

4.1 Baseline Survey Methodology

Two logging sound level meters were used to take unattended measurements over sequential 15-minute periods.

Noise levels were measured at the following locations during the surveys:

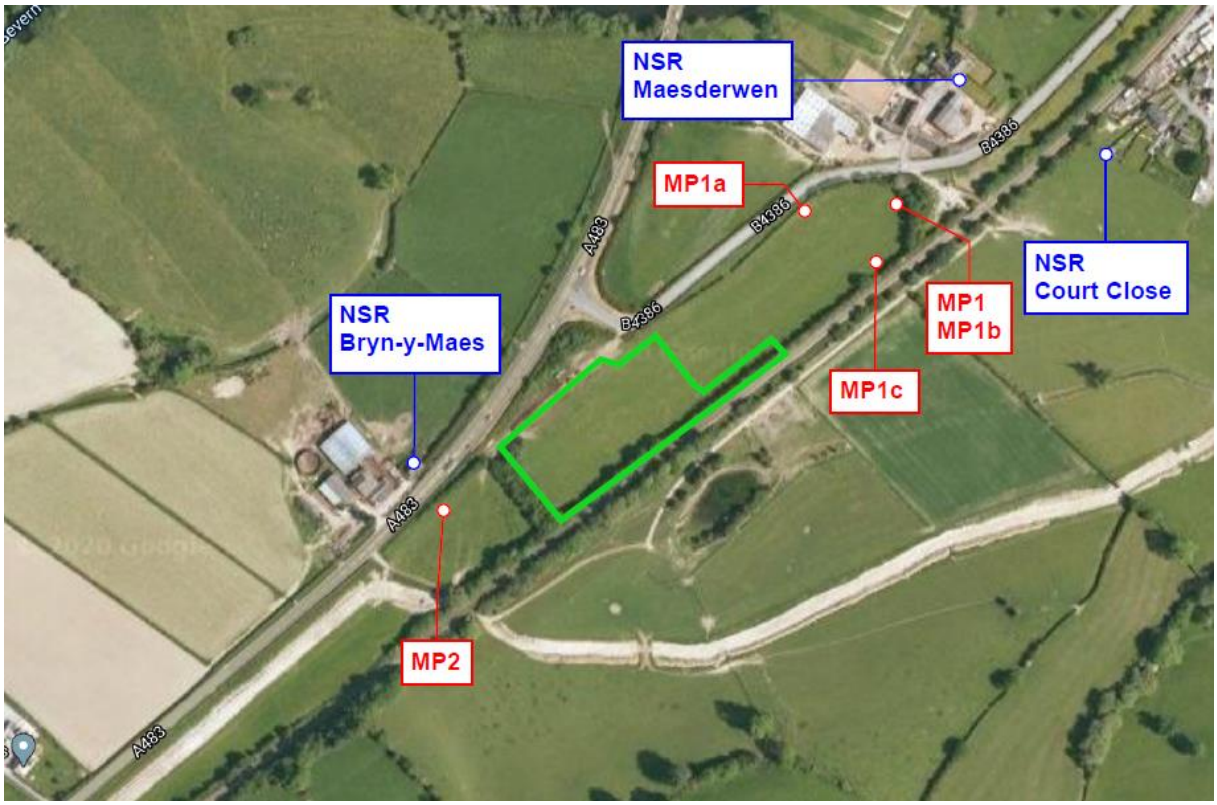
- MP1: Unattended measurement position considered representative of the background noise level at the nearest noise-sensitive residential dwellings to the north east of the site at Maesderwen and Court Close.
- MP2: Unattended measurement position considered representative of the background noise level at the noise-sensitive residential dwelling to the south west of the site at Bryn-y-Maes.

Additional spot measurements at three locations to the north of the site were undertaken at MP1a-1c on 1 September 2020. MP1a was approximately 3m from the B4386 road, MP1b was at the same position as MP1 and MP1c was approximately 5m from the railway line.

The microphones were fitted with protective windshields. Both measurement positions were at a height of approximately 1.5m above local ground level in free-field conditions, i.e. at least 3.5m from the nearest vertical, reflecting surface.

The monitoring location positions and the nearest noise-sensitive receptors (NSRs) are shown in **Figure 4-1**.

Figure 4-1: Measurement Positions and NSRs



4.1.1 Noise Level Parameters

The following noise level indices were recorded:

- $L_{Aeq,T}$ – The A-weighted equivalent continuous noise level over the measurement period.
- L_{A90} – The A-weighted noise level exceeded for 90% of the measurement period.
- L_{A10} – The A-weighted noise level exceeded for 10% of the measurement period.
- L_{Amax} – The maximum A-weighted noise level during the measurement period.

4.1.2 Equipment

The sound monitoring equipment used in the survey is listed in **Table 4-1**.

Table 4-1: Sound Monitoring Equipment

Location	Description	Serial No.
MP1	Cirrus CR:171B Type 1 Sound Level Meter	G080284
	Cirrus CR:515 Acoustic Calibrator	83164
MP1a-1c	Cirrus CR:171C Type 1 Sound Level Meter	G061698
	Cirrus CR:515 Acoustic Calibrator	59336
MP2	Cirrus CR:171B Type 1 Sound Level Meter	G080284

	Cirrus CR:515 Acoustic Calibrator	83164

The sound level meters were calibrated before and after the survey, with no significant drifts observed. The sound level meters have been calibrated to a traceable standard by UKAS-accredited laboratories within the 24 months preceding the survey, and the calibrators have been calibrated to a traceable standard by UKAS-accredited laboratories within the 12 months preceding the survey. The calibration dates are as follows:

- Cirrus CR: 171B Type 1 Sound Level Meter Serial no. G080284 – calibrated 20/07/20;
- Cirrus CR: 515 Acoustic calibrator Serial no. 83164 – calibrated 25/03/20;
- Cirrus CR: 171C Type 1 Sound Level Meter Serial no. G061698 – calibrated 14/02/19; and
- Cirrus CR: 515 Acoustic calibrator Serial no. 59336 – calibrated 6/12/19.

The equipment complies with the standards of a BS EN 60942:2003 Class 1 device.

4.1.3 Weather Conditions

During the survey period for MP2, the weather was mainly suitable for noise monitoring with dry conditions and wind speeds of less than 5 m/s. However, on Friday 28 August and on Tuesday 1 September, there was rain. These periods have been excluded from the assessment.

During the survey period for MP1, the weather was suitable for noise monitoring with dry conditions and wind speeds of less than 5 m/s.

4.2 Noise Climate

Since the survey was largely unattended, it is not possible to comment on the specific nature of the noise climate for the entire duration of the survey, however noise sources were noted during the time on site. The following was noted by the surveyor regarding the noise climate:

- MP1 – distant road traffic noise, birdsong and occasional train noise; and
- MP2 – road traffic noise from nearby A483, birdsong and high-altitude aircraft.

It was also noted by the surveyor that there was some noise from site works on Tuesday 1 September 2020.

4.3 Results

A summary of the measured baseline noise levels for the daytime (07:00-23:00) and night-time (23:00-07:00) periods for the unattended measurements at MP1 and MP2 are shown in **Table 4-2** and **Table 4-3**. The L_{Aeq} value is the logarithmic average over the respective time period. The L_{A90} and L_{A10} values are the median values over the respective time period. The L_{AFmax} data presented is the maximum L_{AFmax} measurement over the respective time period.

The attended measurements undertaken at positions MP1a – 1c are given in **Table 4-4**.

The full survey results are provided in Appendix 2 of this report.

Table 4-2: MP1 - Summary of Measured Sound Levels, free-field, dB

Date	Time Period	$L_{Aeq,T}$	Median L_{A90}	Median L_{A10}	L_{AFmax}
Friday 4/09/2020	Daytime (11:15 – 23:00)	57.8	49.4	56.9	88.7
	Night-time (23:00 – 07:00)	44.4	28.7	46.8	64.5
Saturday 5/09/2020	Daytime (07:00 – 23:00)	56.7	46.1	55.7	89.0
	Night-time (23:00 – 07:00)	40.2	26.5	43.2	59.8
Sunday 6/09/2020	Daytime (07:00 – 23:00)	54.6	42.2	51.5	87.8
	Night-time (23:00 – 07:00)	48.5	27.5	46.5	86.1
Monday 7/09/2020	Daytime (07:00 – 23:00)	57.7	49.5	56.9	88.6
	Night-time (23:00 – 07:00)	47.3	28.5	45.3	85.6
Tuesday 8/09/2020	Daytime (07:00 – 10:45)	57.5	49.0	57.0	89.0

Table 4-3: MP2 - Summary of Measured Sound Levels, free-field, dB

Date	Time Period	$L_{Aeq,T}$	Median L_{A90}	Median L_{A10}	L_{AFmax}
Friday 28/08/2020*	Daytime (11:15 – 23:00)	63.8	55.9	66.9	85.5
	Night-time (23:00 – 07:00)	55.4	26.9	56.9	82.5
Saturday 29/08/2020	Daytime (07:00 – 23:00)	62.6	51.4	65.8	91.5
	Night-time (23:00 – 07:00)	53.3	25.0	54.0	80.8
Sunday 30/08/2020	Daytime (07:00 – 23:00)	61.7	48.2	64.7	94.7
	Night-time (23:00 – 07:00)	54.3	25.6	55.5	81.3
Monday 31/08/2020	Daytime (07:00 – 23:00)	62.0	50.0	65.2	89.5
	Night-time (23:00 – 07:00)	56.9	27.3	57.9	82.5

Tuesday 1/09/2020*	Daytime (07:00 – 11:15)	63.5	51.2	66.7	83.8
*Adverse weather conditions					

Table 4-4: MP1a-c - Summary of Measured Sound Levels on 1/09/2020, free-field, dB

Position	Start Time	Duration	$L_{Aeq,T}$	Median L_{A90}	Median L_{A10}	L_{AFmax}	Comments
MP1a	12:04	00:15:00	55.8	42.5	59.4	70.6	Car pass by, high altitude aircraft, cattle, digger works at site
	13:00	00:15:00	56.4	44.6	58.5	74.8	
	13:52	00:15:00	59.5	43.4	58.6	82.4	
MP1b	12:22	00:15:00	50.3	46.1	52.6	59.5	Car pass by, bird song, site works
	13:18	00:15:00	49.7	44.3	51.6	64.2	
	14:12	00:15:00	49.4	44.8	52.0	63.2	
MP1c	12:39	00:15:00	63.2	47.2	54.2	90.6	Bird song, passing traffic, passing train, site works
	13:35	00:15:00	48.3	44.3	50.5	58.2	

4.4 Background Sound Level

The site operations will take place during the daytime period only from 07:00 – 18:00 Mondays to Sundays. Therefore, the background sound level during the daytime period only will be considered. As a worst-case, the lowest median value for the background sound level at each measurement location during the daytime period is considered to be representative, which is from Sunday 30 August 2020. The background sound levels have been rounded to the nearest decibel and are presented in **Table 4-5**.

Table 4-5: Summary of Representative Background Sound Levels at NSRs, dB

NSR	Representative Background Sound Level L_{A90} (dB)
Bryn-y-Maes	48
Maesderwen	42
Court Close	42

5.0 Noise Assessment

5.1 Noise Model Assumptions

The sound predictions in this assessment have been undertaken using a proprietary software-based noise model (CadnaA) which implements the full range of UK noise calculation methods. The calculation algorithms set out in ISO 9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used and the model assumes:

- a ground absorption factor of 0.5 for mixed ground;
- contour data[2];
- a receptor height of 1.5m (the approximate height of a ground floor window); and
- a reflection factor of 2.

It is understood that the glass deposit area is surrounded by a 3m high wall and this is included as a barrier in the noise model.

The 2.8m high fence at Bryn-y-Maes has also been included as a barrier in the noise model as identified in drawing *Proposed Fencing Plan – Bryn Y Maes Drawing Number 2395/0300.003* included as Appendix 3 and the drawing *Proposed Fencing Details Bryn-y-Maes, Drawing Number 2395/0300/004* is included as Appendix 4.

Mitigation measures are required to ensure noise levels at Bryn-y-Maes meet the noise impact criteria. PCC's ownership of the Bryn-y-Maes property enables the existing installation of a local noise barrier to be included in the mitigation scheme. This local barrier is highly cost-effective (a 2.8m barrier reduces noise emissions at Bryn-y-Maes by up to around 12dB). The location of the barrier is shown on Appendix 3 and details of the barrier are provided in Appendix 4. The barrier must be 2.8m high with a minimum surface mass of 10kg/m^2 meeting the minimum requirements stated within ISO 9613-2.

5.2 Operational Hours

The site's operating hours, as permitted in the planning permission, are Monday to Sunday between 07.00 and 18.00 (including bank holidays). Whilst the hours available to the site to operate are between 07.00 and 18.00 Monday to Sunday, the site will only be manned between 07.00 and 16.00 Monday to Friday.
The site would be operational over the weekend, but only to accept a small number of waste deliveries resulting from street waste collections (waste from public bins and litter picking), tipped by smaller PCC vehicles

5.3 Noise Sources

The Environmental Permit application is for the operation of the noise-generating activities, material deliveries and plant equipment associated with those operations, given below.

- glass deposit;
- bulking of material in bulking shed, including louvres and extraction fans;

[2] Ordnance Survey Open data.

- two tele-handlers; and
- HGVs removing material.

The following refuse and recycling vehicles will be stored at the site overnight, depart from the site in the morning and return during the afternoon period:

- domestic refuse (2 x 26 tonne and 2 x 15 tonne lorries) – 4 deliveries;
- trade refuse – (1 x 26 tonne lorry) – 1 delivery;
- trade recycling – (2 x 26 tonne lorries) – 2 deliveries;
- street cleaning caged tippers – 7 deliveries;
- Romaquips (7 large, 4 small lorries) – 11 deliveries;
- green waste (1 x 26 tonne, 1 x 15 tonne)- 2 deliveries; and
- plant and go, stillage and bulks vehicles – 5 deliveries.

There is also a jet wash on site. It is understood from PCC that all vehicles will be deep cleaned once per week and that the jet wash is used daily, one vehicle at a time for approximately 20-30 minutes and 5 times per day.

It is understood that the vehicles depart the site in the morning and return throughout the afternoon. As a worst case, it is assumed that 10 vehicles return to the site in a one-hour period during the afternoon. The assumed speed of the vehicles is 10 mph.

Sound power level data in **Table 5-1** has been reproduced from Appendix B in the WSP report reference *7003299-1NV1-02-R1 Abermule Business Park – Noise Impact Assessment*, undertaken for the planning application for the site. *7003299-1NV1-01-R1 Abermule Business Park – Noise Impact Assessment*, is included as Appendix 1. Appendix B of the report presents the measured noise levels and measurement information of representative noise sources at the recycling plant.

The survey of indicative noise levels was conducted at the existing Waste Transfer Station in Brecon. The Brecon site includes very similar equipment and processes as are proposed for the Abermule site. It should be noted that the sorting and baling equipment at Brecon is not intended at the bulking facility at Abermule. Therefore, it is considered a suitable source of representative data. A survey of existing sound and vibration levels affecting the site and surroundings was carried out over a week long period from 11-18th May 2017 employing general principles from BS 7445-1:2003, BS 7445-2:1991 and BS 4142:2014 as appropriate. Sound measurement equipment employed conforms to the class 1 specification of BS EN 61672-1:2013 (BSI, 2013), and the calibration recommendations in BS 7445-1:2003. Appendix D of the report presents the details of the environmental noise survey along with meter calibration information.

Vehicle noise sources levels have been adapted from measurement data acquired at another similar waste processing facility in Ebbw Vale, as reported in a noise assessment submitted to discharge noise conditions attached to planning consent ref 01032/I/P1 (Applied Acoustic Design, 2017) and provided as indicative by the intended equipment supplier for the Abermule Facility. The adaptations applied take into account small differences in the number of vehicles represented. These noise sources are also characterised using octave band data in the range 63-8000Hz.

Table 5-1: Sound Power Level for Noise Sources reproduced from Appendix B of WSP Report

Source	Octave Band Centre Frequency								
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	L_w, dB(A)
Bulking shed wall louvre	72	78	77	78	70	70	78	71	81
Bulking shed extraction fan	72	72	71	70	69	67	64	64	74
Material distribution loader/handler (moving, engine)	96	95	91	90	90	89	82	75	95
Material distribution loader/handler (reversing alarm, white noise)	103	96	95	94	108	111	101	86	114
Glass deposit	101	105	108	113	115	126	126	119	131
Heavy vehicles (Romaquips, delivery lorries)	75	79	82	86	89	87	82	77	93
Light vehicles (staff cars, vans, cage trucks)	70	74	77	81	84	82	77	72	88

Sound power level data for the jet wash was not available and the assumed sound power level is given in the following table. It is assumed that the jet wash is operational 100% of the time in a one-hour period.

Table 5-2: Sound Power Level Data for Jet Wash

Source	Octave Band Centre Frequency								
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	L_w, dB(A)
Jet wash	88.4	86.6	88.6	88.9	85.8	86.3	86.9	85.7	93.6

It is assumed that two recycling vehicles and two telehandlers operate in the bulking shed. The sound reduction performance of the walls and roof of the bulking shed is assumed to be 25 dB. 25dB sound reduction is a typical worst case for the construction of an untreated single panel for walls and roof of a bulking shed. This is further supported by the Kingspan Documentation included as Appendix 5. It is assumed that two of the bay doors are open during operations with a sound reduction performance of 0 dB. The internal sound level (Li) has been calculated and is shown in **Table 5-3**. The assumed absorption inside the bulking shed is 0.1.

Table 5-3: Internal Sound Level (Li) in Bulk Shed

Source	Octave Band Centre Frequency								
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	L_i, dB(A)
Internal Sound level in Bulking Shed	79.3	78.4	74.8	74.7	75.8	74.4	68.3	62.4	80.2

The relative assumed noise source details of the plant equipment and noise-generating activities outside the bulking shed are provided in **Table 5-4**.

It is assumed that the bulking shed extract fans and ventilation louvres are in operation 100% of the time.

It is assumed that glass depositing occurs five times in a one-hour period and lasts for a duration of approximately 15 seconds each time.

It is assumed that the reversing alarms are in operation for 15 seconds for each reverse and two reverses occur at each of the three reversing positions during a one-hour period.

The number of movements in 1 hour and speed of vehicles is provided for the line sources.

Table 5-4: Assumed Noise Source Details for Noise Model

Source	Number of Items	Height (m)	Type of Noise Source	Number of Movements in 1hr	Speed (km/h)
Bulking shed bay door	2 bay doors open	7	Vertical plane area	-	-
Bulking shed wall ventilation louvre	2 on front façade of bulking shed	0.75	Point	-	-

Source	Number of Items	Height (m)	Type of Noise Source	Number of Movements in 1hr	Speed (km/h)
Bulking shed extract fan	5 on rear façade of bulking shed	6.5	Point	-	-
Material distribution loader/handler (reversing alarm, white noise)	2 outside bulking shed, 1 outside jet wash	1	Point	-	-
Glass deposit	1	0.5	Point	-	-
Heavy vehicles (Romaquips, delivery lorries)	1	1	Line	10	16
Staff car parking	1	0.5	Line	33	16
Jet wash	1	2	Point	-	-

The predicted specific noise level at each of the receptor locations is presented in **Table 5-5** for the daytime at a height of 1.5m, which is the approximate height of a ground floor window, as the Bulking Facility is due to operate during the daytime period only. The noise level is given to the nearest decibel.

Table 5-5: Predicted Specific Noise Level at Receptors Free-field, dB

Assessment Location (NSR)	Predicted Specific Noise Level Daytime, L_{Aeq}
Bryn-y-Maes	41
Maesderwen	28
Court Close	39

5.4 Sound Penalties

The character of the noise source, and the sound penalty that will be applied in the BS 4142:2014+A1:2019 assessment, are detailed in **Table 5-6**.

Table 5-6: BS 4142:2014+A1:2019 Sound Penalties

Sound Tonality	Sound Impulsivity	Sound Has Other Characteristics	Sound Intermittency	Comment

It is not anticipated that the plant equipment or noise-generating activities would be tonal at the receptor locations.	It is anticipated that the glass depositing would be impulsive at the receptor locations. A penalty of 3 dB is applied for all receptors.	It is not anticipated that the plant equipment or noise-generating activities would have other characteristics at the receptor locations.	It is anticipated that engines being turned on and off and reversing alarms would be intermittent. A penalty of 3 dB is applied for the receptor at Bryn-y-Maes.	Based on sound impulsivity and sound intermittency, a total penalty of 6 dB is considered appropriate for Bryn-y-Maes and a 3 dB penalty for Maesderwen and Court Close.

5.5 BS 4142:2014+A1:2019 Assessment Results

The penalties described in Section 5.4 have been added to the predicted sound levels shown in **Table 5-5**, to derive the rating levels at each of the nearest noise-sensitive receptors.

The rating levels have been compared to the representative background sound levels and assessed accordingly.

The results of the BS 4142:2014+A1:2019 assessment are shown in **Table 5-7.**

Table 5-7: BS 4142:2014+A1:2019 Assessment, dB

Assessment Location (NSR)	Predicted Specific Noise Level Daytime, L_{Aeq}	Penalty for Sound Characteristics	Predicted Rating Level, $L_{Ar,Tr}$	Representative Background Sound Level, L_{A90}	Difference
Bryn-y-Maes	41	6	47	48	-1
Maesderwen	28	3	31	42	-11
Court Close	39	3	42	42	0

The assessment results indicate that the predicted rating level is below the background sound level at the nearest noise-sensitive receptors at Bryn-Maes and Maesderwen and equal to the background sound level at Court Close, which according to BS 4142:2014+A1:2019 is anticipated to be a low impact.

BS 4142:2014+A1:2019 states:

> *"The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, dependant on context."*

6.0 Noise Management Plan

The noise assessment in Section 5.0 of this report has indicated that, in accordance with the guidance in BS 4142:2014+A1:2019, the predicted rating levels would be considered to have a low impact at all assessment locations during the operation of the facility.

Notwithstanding this, best practice measures for the control of noise levels within the site would be implemented. These measures are detailed in the following sub-sections, along with other site management procedures,

6.1 Objectives

NMPs are developed and employed to principally:

- identify and employ all appropriate measures to minimise the generation of noise and subsequent exposure/impact;
- prevent exposure of people outside the site to levels of noise which would result in complaints; and
- minimise the risk of unplanned 'noisy' events which have the potential to result in off-site noise complaints.

It is a working document with the specific aims of ensuring that:

- noise impact is considered as part of all operations;
- noise is primarily controlled at source by good operational practices, the correct use and maintenance of plant, and by operator training; and
- all appropriate measures are taken to prevent or, where that is not reasonably practicable, to minimise noise emanating from the site.

6.1.1 Status

The specification for the periodic review and update of this NMP is on an annual basis as a minimum. The site's management team have overall responsibility for the implementation and administration of this NMP. The NMP is issued to all contractors on the site, and they are required to read and adhere to the NMP for the duration of their contract. This NMP is intended to be a live document which serves as a reference during daily operations on the site and as such, will be updated on a more frequent basis if:

- significant changes are made to the plant and/or operations within the site;
- NRW requests that the NMP is updated, in their role as regulator; or
- complaints are received, which on subsequent investigation result in the identification of further control measures or remedial action, in addition to those set out within this NMP.

6.2 Receptors

For reference, and in accordance with Appendix 4 of the H3 guidance, the closest receptors have been identified and are presented in **Table 6-1**. This also includes the representative background sound levels and the predicted specific sound level (for daytime and night-time periods) at each receptor location, which are all identified as residential properties. The information in **Table 6-1** is referenced to the NIA presented in Section 5.0 of this document.

Table 6-1: Receptors

Receptor	Distance from Site Boundary (Direction)	Representative Background Sound Level, L_{A90}	Specific Sound Level, L_{A90}
Bryn-y-Maes	50m (west)	48	41
Maesderwen	215m (north-east)	42	28
Court Close	300m (north-east)	42	39

Following the assessment of noise impact in accordance with BS4142:2014 (as per Section 5.0), it has been possible to 'rank' the on-site noise sources depending on their contribution to the specific sound level at each receptor – as presented in **Table 6-2**. As each receptor is located at a different distance and direction from the site (as per **Table 6-1**), the contributing noise sources will also be different depending on their relative position within the site.

Table 6-2: Rating of Noise Sources

Receptor	Noise Sources with Highest Contribution
Bryn-y-Maes	Glass tipping Jet wash
Maesderwen	Heavy vehicles Shed roof and walls Glass tipping Staff car parking Shed walls
Court Close	Glass tipping

From the CadnaA® noise model, the noise with the highest contributions are identified as glass tipping, jet wash, heavy vehicles, staff car parking and the shed roof and walls.

Following the receipt of a complaint the above rating of noise sources should be revised based on the perception of operations at the noise-sensitive receptors.

6.3 General Noise Management

6.3.1 Site Infrastructure Design

The design of the site's infrastructure affords a level of noise mitigation and management including:

- the glass bay is surrounded by a 3m high wall;
- a 2.8m high acoustic fence is constructed at Bryn-y-Maes;
- all material operations are conducted within the bulking shed with the exception of the glass and green waste; and

- as far as practicable, the bulking shed roller shutter doors remain closed with the exception of when vehicles enter and exit.

6.3.2 Plant Operations

Within the constraints of efficient site operations and the requirements of the relevant British Standards, the following mitigation measures are observed:

- the use of particularly noise plant is limited, i.e. wherever possible, particularly noisy plant is not used early in the morning;
- the number of plant items in use at any one time is limited;
- plant maintenance operations are undertaken as far away from noise-sensitive receptors as possible;
- the speed of vehicle movements is kept to a minimum;
- tailgates are shut and locked before leaving the tipping area;
- operations are designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors where practicable; and
- when replacing older plant, the quietest plant available is considered wherever possible.

6.3.3 Training

The site induction programme and site rules include good working practice instructions for site staff, supervisors and contractors to help minimise noise whilst working on the site.

The working practice instructions include, but are not limited to, the following points:

- avoid unnecessary revving of engines;
- plant used intermittently should be shut down between operational periods;
- avoid reversing wherever possible;
- ensure that tailgates are shut and locked before leaving the tipping area;
- drive carefully and within the site speed limit at all times; and
- report any defective equipment/plant as soon as possible so that corrective maintenance can be taken.

6.3.4 Maintenance

A high level of equipment servicing and maintenance is adhered to on-site, including:

- visual and aural inspections and checks of all plant and equipment, to ensure that any interim maintenance is identified and repairs are undertaken by a qualified engineer as soon as possible, i.e. a ‘stop and fix’ policy, utilising spare parts held on site in the event of required maintenance;
- all servicing and maintenance of plant is conducted in line with manufacturers recommendations;
- a service contract for the bulking shed;
- where maintenance is required, this is undertaken as far away from receptors as possible; and
- all equipment maintenance is recorded in the maintenance record and checklists contained within the EMS.

6.3.5 Public Relations

It is essential to maintain good public relations with local residents; therefore, the following procedures are implemented on-site:

- maintaining a tidy and efficient site;
- advance notice and an explanation of activities is given for anything that might cause complaint;
- all staff are environmentally aware and are trained to deal with complaints and issues;
- good lines of communication are ensured by:
  - nominating a point of contact for issues relating to the site;
  - keeping systematic records of complaints and the remedial actions taken (see Section 6.4);
  - following up complaints with correspondence and action;
  - being prepared to be flexible; and
  - trying to co-operate and avoid being adversarial.

6.4 Complaints Procedure

A complaints system is maintained by PCC for the site, ensuring that any complaints relating to noise are recorded and investigated as appropriate.

The site's management team are the point of contact in the event of a complaint regarding noise from within the site. Each noise complaint will be logged upon receipt and a record of all complaints will be kept including the remedial actions taken. This will be via the use of a record sheet contained within the EMS which follows the format in **Table 6-3**.

Table 6-3: Form for Reporting a Noise Complaint

Noise Complaint Form	
Name & address of complainant	
Contact number for complainant	
Date & time of complaint	
Date, time and duration of offending noise	
Weather conditions, e.g. dry, rain, fog, snow	
Wind strength & direction, e.g. light, steady, strong, gusting	
Complainant's description of noise, e.g. hiss, hum, rumble, continuous, intermittent	
Does complainant have other comments about the offending noise?	

Any other previous known complaints relating to the site? (All aspects, not just noise)	
Potential noise sources that could give rise to the complaint	
Operating conditions at the time the offending noise occurred	
Any other relevant information	
Action taken	
Final outcome	
Date:	**Form completed by:**
Reference No.:	**Signed:**

6.4.1 Receipt of Complaint or Request from NRW

If a complaint is received by a local resident, an investigation shall be instigated within one working day to identify the cause of the complaint.

Such an investigation will involve the identification and possible cessation of the activity or activities considered to be the cause of the complaint and/or the investigation of mitigation measures to reduce the noise emission levels from the activity or activities.

Any deviation from agreed working practices shall be identified immediately and conformance to the working practice reinstated.

A complaints response system is maintained by PCC, enabling any complaints regarding noise to be reported and appropriate action taken.

6.5 Noise Monitoring

If continuous offsite noise emissions are detected, alongside complaints being received by members of the public, correspondence with NRW would be undertaken to discuss the potential requirement for quantitative noise monitoring at the areas / receptors of concern.

7.0 Conclusion

SLR Consulting Limited has been appointed by WRAP on behalf of PCC to produce a NIA and a NMP for the Bulking Facility at Abermule Business Park, Abermule, Montgomery, Powys.

The NMP is required in support of the site's permit application and has been based on the requirements presented in Horizontal Guidance Note IPPC H3 (Part 2). It has been supported by a NIA which has been undertaken in accordance with the guidance of BS4142:2014. This standard is intended to be used to assess the potential impact of sound (of an industrial or commercial nature) at noise-sensitive receptors within the context of the existing noise environment.

The NIA has found that noise rating levels are below or equal to the background sound level at the noise-sensitive receptors at Bryn-y-Maes, Maesderwen and Court Close, which is anticipated to be a low impact.

The NMP includes guidance on general noise management of plant operations, and details of the steps that should be taken if a noise complaint is received by a local resident.

Appendix 1: 7003299-1NV-02-R1 Abermule Business Park – Noise Impact Assessment

Appendix 2: Environmental Noise Survey Data

Table A1: Location MP1 Survey Results - dB

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
04/09/2020 11:15	55	50.7	57.4	72.1
04/09/2020 11:30	54.8	50.9	56.9	70.2
04/09/2020 11:45	55.1	50.9	57.6	64.5
04/09/2020 12:00	60.2	49.7	57	85.9
04/09/2020 12:15	55	49.2	57.7	67.9
04/09/2020 12:30	56	51.1	58.6	67.2
04/09/2020 12:45	63.6	51.2	58.5	88.3
04/09/2020 13:00	55.2	51	57.7	64.8
04/09/2020 13:15	54.2	49.4	56.7	68.8
04/09/2020 13:30	54.4	49.4	57.2	63
04/09/2020 13:45	55.6	51.8	57.8	66.3
04/09/2020 14:00	63.5	50.7	58.1	88.3
04/09/2020 14:15	55.5	51.1	57.8	62.7
04/09/2020 14:30	56.4	52.8	58.6	66.1
04/09/2020 14:45	62.8	52.3	58.3	87.7
04/09/2020 15:00	54.8	50.3	57.3	64.3
04/09/2020 15:15	57.5	53.2	59.6	70.6
04/09/2020 15:30	55.7	51	58.1	67.8
04/09/2020 15:45	56	51.7	58.5	67.1
04/09/2020 16:00	63	50.2	58.2	88.3
04/09/2020 16:15	56.4	50.6	59.1	73.2
04/09/2020 16:30	54.8	50.2	57.3	67.7
04/09/2020 16:45	63	50.4	57.9	88.3
04/09/2020 17:00	55	50.4	57.5	62.5
04/09/2020 17:15	54.7	49.8	57.5	62.8

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
04/09/2020 17:30	54.2	47.9	56.9	68.9
04/09/2020 17:45	53.2	48.2	55.7	61.8
04/09/2020 18:00	62.2	48.1	56.5	87.6
04/09/2020 18:15	53.1	45.9	55.9	59.9
04/09/2020 18:30	52.9	47.5	55.6	64.5
04/09/2020 18:45	60.1	46.5	56.1	86.1
04/09/2020 19:00	52.4	46.6	55.5	62.3
04/09/2020 19:15	51.3	44	54.2	63.5
04/09/2020 19:30	50.4	42.5	53.5	65.4
04/09/2020 19:45	60.7	43.4	52.9	87.1
04/09/2020 20:00	60.6	41.4	53.1	86.3
04/09/2020 20:15	49.4	43	52.2	64.9
04/09/2020 20:30	47.2	40	50.6	56.6
04/09/2020 20:45	63.1	41.5	51.9	88.7
04/09/2020 21:00	47.3	38.4	51.1	56.4
04/09/2020 21:15	46.2	37.4	49.3	55.1
04/09/2020 21:30	48.3	37.5	51.7	62.1
04/09/2020 21:45	44.7	32.8	48.3	59.8
04/09/2020 22:00	45.2	32.3	49.1	58.3
04/09/2020 22:15	62.3	35.2	50.5	87.8
04/09/2020 22:30	44.5	30.8	48	58.1
04/09/2020 22:45	45.2	30.1	49.2	59.2
04/09/2020 23:00	44.8	30.9	49	55.6
04/09/2020 23:15	42.7	27.9	46.8	56.6
04/09/2020 23:30	43.3	28.7	47.7	57.5
04/09/2020 23:45	42.4	29	46	59.7
05/09/2020 00:00	44.5	28.5	48.2	59.4
05/09/2020 00:15	42.5	25.3	47	58.5
05/09/2020 00:30	41.2	24.8	45.6	58.6
05/09/2020 00:45	42.2	27.3	46.9	59.7
05/09/2020 01:00	41.9	26.8	46.1	58.2

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
05/09/2020 01:15	38.5	27.1	40.3	61.6
05/09/2020 01:30	40.7	27.5	44.3	56.7
05/09/2020 01:45	39	27.5	42.6	55.5
05/09/2020 02:00	38.9	26.6	43.1	56
05/09/2020 02:15	43.2	29.1	47.4	61.3
05/09/2020 02:30	38	27.3	39.7	60.3
05/09/2020 02:45	42.1	29.5	46.5	56.5
05/09/2020 03:00	39.1	28.3	42.2	57.9
05/09/2020 03:15	43.3	26.6	45.4	64.3
05/09/2020 03:30	42.9	26.9	46.7	59.9
05/09/2020 03:45	42.8	28.9	45.4	59.5
05/09/2020 04:00	40.5	28.7	44.3	57.2
05/09/2020 04:15	39	28.2	41.8	56.8
05/09/2020 04:30	43.1	30.1	47.5	57.7
05/09/2020 04:45	43.1	31.1	46.6	61.5
05/09/2020 05:00	43.5	29.4	47.8	57.7
05/09/2020 05:15	45	33.6	49.5	56.8
05/09/2020 05:30	46.8	34.9	50.4	61.4
05/09/2020 05:45	48.6	33.9	52.5	60.6
05/09/2020 06:00	48.5	35	52.6	59.3
05/09/2020 06:15	48.4	40.6	51.7	64.5
05/09/2020 06:30	50.2	43	53.8	62
05/09/2020 06:45	49.2	43	52.7	60.3
05/09/2020 07:00	49	40.6	52.6	62.1
05/09/2020 07:15	51.5	43.4	54.9	63.4
05/09/2020 07:30	52	42.3	54.8	64.8
05/09/2020 07:45	51.8	44.3	55.1	63.5
05/09/2020 08:00	59.7	43.6	53.6	85.9
05/09/2020 08:15	52.7	44.6	56.2	63.5
05/09/2020 08:30	52.1	44.5	55.6	64.9
05/09/2020 08:45	60.4	45	55.8	86.1

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
05/09/2020 09:00	53.2	45.8	56.1	69.3
05/09/2020 09:15	54.4	48.2	57.3	65.3
05/09/2020 09:30	52.8	44.6	55.1	67
05/09/2020 09:45	53.5	47.4	56.1	65.9
05/09/2020 10:00	63.3	46.7	56.8	88.7
05/09/2020 10:15	54	48.5	56.7	64.9
05/09/2020 10:30	54.7	50.2	57.1	64.3
05/09/2020 10:45	63.3	49.7	58.6	88.4
05/09/2020 11:00	54.6	50.6	56.9	64
05/09/2020 11:15	55.2	49.4	57.9	67.3
05/09/2020 11:30	54.7	49.9	57.2	67.6
05/09/2020 11:45	53.8	48.3	56.4	69.2
05/09/2020 12:00	61	49.2	57.1	86.2
05/09/2020 12:15	53.6	48.8	56	64
05/09/2020 12:30	54.9	49.3	56.5	75.7
05/09/2020 12:45	60.9	49.3	56.2	86.2
05/09/2020 13:00	54	49.1	56.8	62.8
05/09/2020 13:15	54.8	49.3	56.3	72.4
05/09/2020 13:30	53.8	48.7	56.3	63.1
05/09/2020 13:45	54.2	49.4	56.6	64.2
05/09/2020 14:00	61.1	50.6	56.9	86.6
05/09/2020 14:15	54.5	48.9	57.3	65.3
05/09/2020 14:30	55.5	49.2	57.4	73.7
05/09/2020 14:45	60.8	49.7	57.1	86.4
05/09/2020 15:00	54.6	49.6	57.1	64.8
05/09/2020 15:15	54.7	49.6	56.6	69.4
05/09/2020 15:30	53.1	47.2	55.8	65.3
05/09/2020 15:45	53.8	47.7	56.6	66.5
05/09/2020 16:00	60.7	49.6	57.7	86.6
05/09/2020 16:15	52.9	47.7	55.8	61.3
05/09/2020 16:30	51.9	46.4	54.7	62.3

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
05/09/2020 16:45	59.3	46.4	55.6	84.8
05/09/2020 17:00	51.1	45.4	53.9	61.7
05/09/2020 17:15	52.8	48.3	55.5	61.6
05/09/2020 17:30	54.4	45.8	55.7	77.4
05/09/2020 17:45	51.5	44.5	54.7	61.9
05/09/2020 18:00	63.4	46.6	54.5	88.8
05/09/2020 18:15	50.6	44.7	53.7	62.3
05/09/2020 18:30	63.2	42.1	54.1	89
05/09/2020 18:45	51	43.5	54	61.8
05/09/2020 19:00	50.7	41.9	54.2	67.1
05/09/2020 19:15	49.3	43.2	52.1	59.1
05/09/2020 19:30	49.5	41.9	52.7	65.6
05/09/2020 19:45	49.7	42	53	59.9
05/09/2020 20:00	47.8	40.4	51	58.4
05/09/2020 20:15	62.5	41	52.6	87.7
05/09/2020 20:30	48.1	40.2	51.7	57.5
05/09/2020 20:45	63.1	39.3	51.3	88.9
05/09/2020 21:00	48.5	41.6	51.9	61.4
05/09/2020 21:15	45	33.8	48.6	55.3
05/09/2020 21:30	45.6	37.7	48.8	57.6
05/09/2020 21:45	44.7	35.8	48.5	56.3
05/09/2020 22:00	43.5	28.2	47.4	56.2
05/09/2020 22:15	45.6	36.6	49.1	56.5
05/09/2020 22:30	44	34.6	47.7	54.1
05/09/2020 22:45	44.7	34.7	48.5	56.6
05/09/2020 23:00	43	33.2	47.2	55.4
05/09/2020 23:15	42.5	32.1	46	56.9
05/09/2020 23:30	43.9	30.4	47.8	58.2
05/09/2020 23:45	41.5	29.5	45.4	53.6
06/09/2020 00:00	43	31.2	46.8	55.5
06/09/2020 00:15	40.2	27.5	44.5	56

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
06/09/2020 00:30	33.6	26.4	36.5	48.9
06/09/2020 00:45	41.7	26.8	45.7	56.8
06/09/2020 01:00	39	26.6	42.9	54.7
06/09/2020 01:15	40	24.6	44.6	55
06/09/2020 01:30	37.2	24.3	41.2	53.9
06/09/2020 01:45	37.1	24	41.8	49.3
06/09/2020 02:00	36.7	21.9	41.4	51
06/09/2020 02:15	37	24.5	40.9	52.3
06/09/2020 02:30	37.3	25.7	39.7	53.6
06/09/2020 02:45	35.5	27.2	38.2	51.9
06/09/2020 03:00	37.3	25.1	41	55.7
06/09/2020 03:15	40.2	24.3	43.5	56.2
06/09/2020 03:30	37.7	27.7	42	51.6
06/09/2020 03:45	37.7	26.4	40.3	53.5
06/09/2020 04:00	38.5	23.6	40	57.8
06/09/2020 04:15	35.8	24.8	39.8	51.8
06/09/2020 04:30	40.8	24.7	43.9	58
06/09/2020 04:45	36.7	25.7	38.5	54.7
06/09/2020 05:00	38.6	25.5	42.6	55.5
06/09/2020 05:15	38.7	26.5	42.4	54
06/09/2020 05:30	41	25.4	45.5	56.2
06/09/2020 05:45	40.5	27.6	45.1	55.4
06/09/2020 06:00	40.8	29.8	44.6	56.2
06/09/2020 06:15	41.9	31.9	45.3	59.8
06/09/2020 06:30	43.7	35.9	46.8	59.7
06/09/2020 06:45	43	31.2	46.8	56
06/09/2020 07:00	46.9	38.1	50.6	61
06/09/2020 07:15	45.6	38.7	48.8	57.5
06/09/2020 07:30	47.1	36.2	50.7	60.5
06/09/2020 07:45	47.3	39.4	50	65
06/09/2020 08:00	46.1	38.7	48.8	59.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
06/09/2020 08:15	46.1	38.4	49.6	61.5
06/09/2020 08:30	47.8	37.6	51.6	60.5
06/09/2020 08:45	49.6	39.2	51.5	64.9
06/09/2020 09:00	45.4	37.5	47.8	62.5
06/09/2020 09:15	46.2	39.4	49.4	65.1
06/09/2020 09:30	46.2	39.7	48.8	54.9
06/09/2020 09:45	46.3	41	48.4	61.4
06/09/2020 10:00	48.8	43.9	51.5	59.4
06/09/2020 10:15	48.6	42	51.7	58.4
06/09/2020 10:30	49.9	43.2	52	63.4
06/09/2020 10:45	49.1	44.8	51.4	59.8
06/09/2020 11:00	49.1	44.5	51.6	62.1
06/09/2020 11:15	48.9	44.2	51.4	59.5
06/09/2020 11:30	50.2	43.9	52.8	60.6
06/09/2020 11:45	59.8	46.6	54.6	86
06/09/2020 12:00	47.9	40.7	51	57
06/09/2020 12:15	50.2	44.7	53.4	59.9
06/09/2020 12:30	59.8	46	54.3	85.6
06/09/2020 12:45	51.5	45.2	53.8	67.1
06/09/2020 13:00	51.8	45.7	54.8	60.4
06/09/2020 13:15	51	44.3	53.7	62.1
06/09/2020 13:30	50.1	44.7	53	60.4
06/09/2020 13:45	48.7	44.2	51.2	58
06/09/2020 14:00	60.3	45.6	53.5	87.3
06/09/2020 14:15	53.1	46	55.3	79.3
06/09/2020 14:30	52.5	46.5	54.8	65.1
06/09/2020 14:45	60.2	47.7	55.1	86.5
06/09/2020 15:00	60.8	45.6	55.4	87.1
06/09/2020 15:15	51.3	46.5	53.9	60.5
06/09/2020 15:30	50.9	45.1	53.7	61.7
06/09/2020 15:45	61.4	45.5	55	87.5

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
06/09/2020 16:00	59.7	46.2	54.6	85.3
06/09/2020 16:15	47.9	41.5	50.6	71.3
06/09/2020 16:30	49.1	44.4	51.4	59.6
06/09/2020 16:45	59.2	39.8	49.5	86.2
06/09/2020 17:00	60	42	51.5	86.2
06/09/2020 17:15	46	39	49.6	63.6
06/09/2020 17:30	50.5	41.7	54.3	61.2
06/09/2020 17:45	63.2	46	56	86.8
06/09/2020 18:00	49.8	42.1	52.8	63.4
06/09/2020 18:15	48.1	42.7	50.8	58.2
06/09/2020 18:30	59.5	42	53.4	85.8
06/09/2020 18:45	49.9	43	52.9	64.3
06/09/2020 19:00	48.6	43.2	51.5	57.6
06/09/2020 19:15	50.6	42.5	51.9	72.1
06/09/2020 19:30	48.4	42.3	51.2	58.1
06/09/2020 19:45	60.3	42.5	51.8	86.8
06/09/2020 20:00	48	42.7	50.9	57.9
06/09/2020 20:15	48	40.4	51.1	60.9
06/09/2020 20:30	60.9	39.3	49.4	87.8
06/09/2020 20:45	46	37.9	49.4	55.1
06/09/2020 21:00	45.6	37	48.9	55.3
06/09/2020 21:15	44.2	33.4	48.2	55.5
06/09/2020 21:30	45.8	33.4	48.8	63.9
06/09/2020 21:45	44.6	32.2	48.9	56.3
06/09/2020 22:00	44.9	31.2	48.5	60
06/09/2020 22:15	45.3	33.8	48.8	60.8
06/09/2020 22:30	42.7	28.1	47	56.9
06/09/2020 22:45	42.7	26.5	46.3	55.6
06/09/2020 23:00	41.9	25	46	54.2
06/09/2020 23:15	41.2	27.4	45.3	53.2
06/09/2020 23:30	41.9	27.8	46	55.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
06/09/2020 23:45	49.6	27.6	48.1	68.4
07/09/2020 00:00	40.9	26.4	44.6	55.4
07/09/2020 00:15	42.1	26.2	46.4	56
07/09/2020 00:30	34.4	25.4	37.4	53.3
07/09/2020 00:45	39.1	26.5	43.1	53.9
07/09/2020 01:00	49.2	27.3	47.7	68.3
07/09/2020 01:15	41.3	28.5	45.6	54.2
07/09/2020 01:30	39.7	25.6	44.5	56.9
07/09/2020 01:45	39	23.7	43.1	53.4
07/09/2020 02:00	38.8	24.4	42.8	55.8
07/09/2020 02:15	40.6	26	44.7	56.4
07/09/2020 02:30	39.5	26.6	43.8	53.4
07/09/2020 02:45	39	27	42.9	52.7
07/09/2020 03:00	39.2	24.3	43.4	53.2
07/09/2020 03:15	40.9	25.5	45.2	55.9
07/09/2020 03:30	42.8	28.1	46.6	55.2
07/09/2020 03:45	42.3	27.2	46.9	56.7
07/09/2020 04:00	47.7	34	51.3	67.9
07/09/2020 04:15	45.7	32.5	49.9	57.3
07/09/2020 04:30	42.6	32	46.6	55.4
07/09/2020 04:45	45.9	36.9	49.4	57.4
07/09/2020 05:00	49	40.7	53.1	58.8
07/09/2020 05:15	49.2	43	52.4	59.1
07/09/2020 05:30	48.8	41	52.3	58
07/09/2020 05:45	49.9	41.9	53.4	60.2
07/09/2020 06:00	51.2	43.8	54.5	61.8
07/09/2020 06:15	50.4	45.4	53.3	58.3
07/09/2020 06:30	60.1	47.1	54.9	86.1
07/09/2020 06:45	51.9	46.4	54.5	65.7
07/09/2020 07:00	51.3	46.4	53.8	64.4
07/09/2020 07:15	52.2	48.3	54.5	59.9

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
07/09/2020 07:30	51.6	48.1	54.2	60.8
07/09/2020 07:45	53.8	51	55.5	65
07/09/2020 08:00	62.6	48.4	54.6	87.6
07/09/2020 08:15	52.8	48.6	55	64.8
07/09/2020 08:30	53.5	49.5	55.7	67.3
07/09/2020 08:45	58.4	49.4	56.8	84.5
07/09/2020 09:00	54.6	49.7	57.1	65.5
07/09/2020 09:15	56.5	48.9	57.3	78.6
07/09/2020 09:30	54.2	49.2	56.8	65.3
07/09/2020 09:45	53.5	48.1	55.9	65.2
07/09/2020 10:00	61.5	46.9	56	86.2
07/09/2020 10:15	52.8	47.7	55.6	62.4
07/09/2020 10:30	55.3	50	58.2	66.8
07/09/2020 10:45	62	51.8	58.4	86.6
07/09/2020 11:00	55.3	51	57.6	75.4
07/09/2020 11:15	56	51.6	58.2	70.6
07/09/2020 11:30	57.7	52.3	59.8	77.4
07/09/2020 11:45	63.4	51.5	59.2	87.9
07/09/2020 12:00	55.9	51.1	58.3	65.9
07/09/2020 12:15	57.3	52.4	59	78.7
07/09/2020 12:30	57	52.9	59.2	67
07/09/2020 12:45	62.5	53.2	60.6	86.2
07/09/2020 13:00	58.2	53.5	60.6	72
07/09/2020 13:15	56.9	51.9	58.3	74.4
07/09/2020 13:30	56.1	51.5	58.6	67.8
07/09/2020 13:45	55.5	49.9	58.1	67.4
07/09/2020 14:00	63	50.9	58.2	88.6
07/09/2020 14:15	54.1	48.6	56.6	63.6
07/09/2020 14:30	53.6	48.4	56.4	65.4
07/09/2020 14:45	63.3	51	59.8	88.4
07/09/2020 15:00	57.9	52.5	60.8	70.3

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
07/09/2020 15:15	56.9	51.6	59.5	71.6
07/09/2020 15:30	56	51	58.8	69.9
07/09/2020 15:45	55.2	50.9	57.6	64.1
07/09/2020 16:00	62.8	52	59.3	87.5
07/09/2020 16:15	57.9	53.5	60.3	70.6
07/09/2020 16:30	55.9	50.1	58.8	69.9
07/09/2020 16:45	62.1	51.1	58.8	86.3
07/09/2020 17:00	56.4	52.2	58.8	64
07/09/2020 17:15	56.6	52.3	59	64.2
07/09/2020 17:30	55.8	51	58.3	64
07/09/2020 17:45	54.2	49.2	56.9	63.1
07/09/2020 18:00	62.8	50.4	58.3	87.7
07/09/2020 18:15	55	50.1	57.7	65.7
07/09/2020 18:30	53.4	48.5	56.2	65.2
07/09/2020 18:45	59.5	46.5	55.3	86.9
07/09/2020 19:00	51.4	44.1	54.3	64.8
07/09/2020 19:15	51.2	42.8	54.7	65.5
07/09/2020 19:30	49.5	42	52.9	59.2
07/09/2020 19:45	59.3	43.1	55.1	84.7
07/09/2020 20:00	59.4	40.6	53.4	85.6
07/09/2020 20:15	48.6	40.8	52.2	61.1
07/09/2020 20:30	48.2	37.8	51.9	62.6
07/09/2020 20:45	58.8	39.3	51.6	85.4
07/09/2020 21:00	49.5	41.5	52.9	64
07/09/2020 21:15	48.3	40.5	51.7	60.5
07/09/2020 21:30	48.7	40.5	51.8	63.5
07/09/2020 21:45	47.5	35.2	51.4	63.3
07/09/2020 22:00	46.4	34.1	50.5	61.2
07/09/2020 22:15	61.8	34.8	51.8	87.9
07/09/2020 22:30	44.6	32.1	48.6	59.5
07/09/2020 22:45	44	29.4	47.2	68.2

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
07/09/2020 23:00	42.7	28.3	46.6	59.5
07/09/2020 23:15	41	26.1	44.8	55.8
07/09/2020 23:30	41.7	27.3	46.4	58.5
07/09/2020 23:45	39.2	28.2	43	55.7
08/09/2020 00:00	38.9	28.4	43	53.6
08/09/2020 00:15	39.8	29	43.7	58
08/09/2020 00:30	40.3	27.4	44.4	55.1
08/09/2020 00:45	40.1	28.7	43.8	57.5
08/09/2020 01:00	40.5	29.2	42.5	58.9
08/09/2020 01:15	42.1	28.6	43.4	61.4
08/09/2020 01:30	40.9	26.2	43.8	60.8
08/09/2020 01:45	35.5	25.7	37.9	53.7
08/09/2020 02:00	36.7	26.1	39.3	60.2
08/09/2020 02:15	42.1	31.2	44.9	58.8
08/09/2020 02:30	37.5	24.9	40.6	57.3
08/09/2020 02:45	39.1	25.2	43	53
08/09/2020 03:00	42	25	45.8	58.8
08/09/2020 03:15	39.4	24.3	42.2	60
08/09/2020 03:30	37.8	23.9	41.7	53
08/09/2020 03:45	41.5	26.2	45.6	57.7
08/09/2020 04:00	44.2	25.9	46.5	66.4
08/09/2020 04:15	44.9	30.1	48.8	62.5
08/09/2020 04:30	46.8	30.4	50.5	62.1
08/09/2020 04:45	45.7	29.1	49.9	58
08/09/2020 05:00	46.4	31.7	50.5	59.1
08/09/2020 05:15	48.5	37.2	52.2	60.5
08/09/2020 05:30	48.9	38	52.8	59.3
08/09/2020 05:45	47.2	37.3	50.8	57.4
08/09/2020 06:00	47.5	38.2	51.2	60.3
08/09/2020 06:15	47.5	41.2	50.7	58.4
08/09/2020 06:30	59.2	45.1	54.8	85.6

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
08/09/2020 06:45	52.2	45.3	54.8	65.6
08/09/2020 07:00	52	44.9	55.1	66.6
08/09/2020 07:15	53.8	48.1	56.5	65.8
08/09/2020 07:30	54.5	49	57	66.9
08/09/2020 07:45	62.1	52.3	59.9	87
08/09/2020 08:00	55.8	51.7	57.9	72
08/09/2020 08:15	54.7	50.5	56.9	69.4
08/09/2020 08:30	55.3	49.9	57.9	67.1
08/09/2020 08:45	61.1	50.2	58	86.2
08/09/2020 09:00	54.3	47.7	57.1	64.4
08/09/2020 09:15	53.6	47.3	56.4	64.5
08/09/2020 09:30	54.1	48.7	56.9	67.3
08/09/2020 09:45	54.9	49.4	57.9	65.9
08/09/2020 10:00	63.6	46.8	56.9	89
08/09/2020 10:15	53.1	45.3	56.5	62.6
08/09/2020 10:30	55.5	49.6	58.1	66.3

Table A2: Location MP2 Survey Results - dB

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
28/08/2020 12:45	64.8	56.4	67.5	78.3
28/08/2020 13:00	66.1	59.3	67.9	82.4
28/08/2020 13:15	65	58.5	67.4	77.2
28/08/2020 13:30	64.9	58.1	67.4	74.7
28/08/2020 13:45	65.2	58.1	67.7	78.2
28/08/2020 14:00	64.6	58.3	67.2	74.1
28/08/2020 14:15	64.2	57	66.4	83.8
28/08/2020 14:30	65.3	56	67.4	82.2
28/08/2020 14:45	65.4	57.2	67.7	85.5
28/08/2020 15:00	64.5	58.3	67.1	75.5
28/08/2020 15:15	64.9	54.8	66.8	83.3
28/08/2020 15:30	63.1	56.2	66	75.3
28/08/2020 15:45	66	58.6	68.5	80.6
28/08/2020 16:00	64.7	55.7	67.5	74.6
28/08/2020 16:15	65	58	67.8	74.7
28/08/2020 16:30	65.1	57.6	67.6	79.4
28/08/2020 16:45	65.8	60.2	68.3	75.4
28/08/2020 17:00	66.3	58.3	68.3	83.7
28/08/2020 17:15	64.6	56.2	67.7	75.6
28/08/2020 17:30	65.2	57.4	68	77.1
28/08/2020 17:45	65.2	58.3	67.9	78.2
28/08/2020 18:00	65.6	57.5	67.8	82.8
28/08/2020 18:15	64	55.9	66.9	78.9
28/08/2020 18:30	63.2	52.1	66.9	73.1
28/08/2020 18:45	64.1	53.7	67.2	78.8
28/08/2020 19:00	63.3	52.7	66.6	80.3
28/08/2020 19:15	62.2	47.7	66.1	75.3
28/08/2020 19:30	62.7	50.3	66.9	76.2
28/08/2020 19:45	63.2	49.7	66.4	81.2

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
28/08/2020 20:00	62.9	49.1	65.5	82.5
28/08/2020 20:15	60.9	45.5	65.4	72.4
28/08/2020 20:30	60.9	46.8	65.4	69.7
28/08/2020 20:45	61.5	47	64.8	81
28/08/2020 21:00	60	42.8	64.5	73.3
28/08/2020 21:15	59.8	35.9	64.6	73.5
28/08/2020 21:30	59.4	42	63.9	76.3
28/08/2020 21:45	59.3	36.2	64	73.2
28/08/2020 22:00	57.9	40.4	62.3	73.7
28/08/2020 22:15	58.4	38.1	63.1	74.3
28/08/2020 22:30	58.5	37.3	61	80.1
28/08/2020 22:45	58.5	35.4	62.6	75.3
28/08/2020 23:00	55.7	32	59.7	69.9
28/08/2020 23:15	56.7	35	61.1	73
28/08/2020 23:30	54.6	30.5	58.1	70.1
28/08/2020 23:45	54.4	28.4	58.4	71.9
29/08/2020 00:00	52.1	28.4	55.7	68.4
29/08/2020 00:15	55.2	29.2	58.3	72.7
29/08/2020 00:30	49.3	26	49.9	71.8
29/08/2020 00:45	52.1	27.1	55.1	70.3
29/08/2020 01:00	53.7	26.1	56.5	73.1
29/08/2020 01:15	53.7	26.4	56.9	73.4
29/08/2020 01:30	52.4	26.8	54.6	72.6
29/08/2020 01:45	53.7	26.8	56.3	73.9
29/08/2020 02:00	45.1	26.1	38.5	67.3
29/08/2020 02:15	51.6	26.9	53.5	72.9
29/08/2020 02:30	50.3	25.6	52.1	70.2
29/08/2020 02:45	50.5	24.6	51.5	71.8
29/08/2020 03:00	55.1	26.7	53.9	82.5
29/08/2020 03:15	51.6	25.2	54	71.1
29/08/2020 03:30	52.8	28.7	56.2	70.5

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
29/08/2020 03:45	54.6	27.9	57.1	72.4
29/08/2020 04:00	47.1	25.2	40.8	73.2
29/08/2020 04:15	54.4	26.9	56.9	74.2
29/08/2020 04:30	54.3	26.1	57	73.6
29/08/2020 04:45	53	26.4	54.2	72.1
29/08/2020 05:00	55.9	25.9	59.6	76.2
29/08/2020 05:15	55.5	26.8	58.1	74.1
29/08/2020 05:30	56.1	27.8	58.8	76
29/08/2020 05:45	57.6	30.4	61.2	74.3
29/08/2020 06:00	58.8	34.6	61.9	76.4
29/08/2020 06:15	59.5	38.3	63.4	75.3
29/08/2020 06:30	61.4	41.5	64.6	80.4
29/08/2020 06:45	60.7	43.9	65.5	75.3
29/08/2020 07:00	60.7	44	65.5	73.7
29/08/2020 07:15	60.7	46.4	65	74.1
29/08/2020 07:30	64.3	46.2	66	89.2
29/08/2020 07:45	63.2	52.7	67.2	74.9
29/08/2020 08:00	63.5	48	66.9	80.9
29/08/2020 08:15	62.7	50.4	66.7	78.8
29/08/2020 08:30	61.9	48.3	65.9	76.9
29/08/2020 08:45	63.1	49.6	66.3	79.8
29/08/2020 09:00	61.8	49.9	65.6	75.6
29/08/2020 09:15	61.8	49.2	65.8	75.4
29/08/2020 09:30	62.7	54.8	66.1	71.8
29/08/2020 09:45	63.3	54.3	66.5	74.8
29/08/2020 10:00	63.7	49.3	66.1	82.9
29/08/2020 10:15	63.9	55.9	66.4	79.1
29/08/2020 10:30	64.1	55.9	66.8	83.9
29/08/2020 10:45	65.4	54.5	66.8	87.7
29/08/2020 11:00	63.5	55.8	66.3	75.1
29/08/2020 11:15	64	56.1	66.5	81.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
29/08/2020 11:30	63.2	55	65.8	79.5
29/08/2020 11:45	65.1	56.4	67.3	88.6
29/08/2020 12:00	64.6	57.1	66.2	83.6
29/08/2020 12:15	64	56.8	66.8	73.4
29/08/2020 12:30	62.8	54.7	65.5	77.6
29/08/2020 12:45	64.1	55.9	66.4	80.9
29/08/2020 13:00	62.3	54	65.4	71.1
29/08/2020 13:15	63.6	55.3	66.4	74.4
29/08/2020 13:30	63.2	55.4	66.1	76.1
29/08/2020 13:45	63	56.5	65.6	75.6
29/08/2020 14:00	64.4	56.4	65.9	83
29/08/2020 14:15	62.8	53.6	65.8	72.5
29/08/2020 14:30	62.7	55.5	65.4	72.2
29/08/2020 14:45	65.2	54.2	66.3	86.7
29/08/2020 15:00	62.3	50.9	65.8	72.6
29/08/2020 15:15	63	53.7	66.1	80.5
29/08/2020 15:30	62.2	52.2	65.5	75.3
29/08/2020 15:45	61.6	52.7	65.3	69.5
29/08/2020 16:00	64.4	53.3	66.2	84.5
29/08/2020 16:15	62.1	51.5	65.6	76.6
29/08/2020 16:30	63.1	53.3	66.1	80.1
29/08/2020 16:45	65.2	52.1	66.2	85.5
29/08/2020 17:00	61.2	50.8	64.9	74.9
29/08/2020 17:15	62.1	52.6	65.2	79.3
29/08/2020 17:30	62.8	53.7	66	75.5
29/08/2020 17:45	61.7	49.7	65.8	73.8
29/08/2020 18:00	64.5	52	66.1	88.2
29/08/2020 18:15	60.8	50.8	64.8	74.3
29/08/2020 18:30	65.1	48.2	65.2	91.5
29/08/2020 18:45	64.5	51.2	65.6	85.2
29/08/2020 19:00	60.3	45	64.7	73.3

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
29/08/2020 19:15	61.9	47.9	65.1	83.1
29/08/2020 19:30	60.5	48.1	64.7	76.6
29/08/2020 19:45	60.8	44.3	63.9	81.4
29/08/2020 20:00	58.4	41.8	63.1	70.6
29/08/2020 20:15	59	43.4	61.9	80.2
29/08/2020 20:30	58.4	41.1	63.1	72.2
29/08/2020 20:45	56.3	37	61.1	70.2
29/08/2020 21:00	60.5	38.3	61.2	82.5
29/08/2020 21:15	57	34.9	61.7	69.9
29/08/2020 21:30	57.2	38.7	61.6	76.4
29/08/2020 21:45	55.8	32.9	60.4	72.2
29/08/2020 22:00	56.9	33.8	61.8	73.9
29/08/2020 22:15	60.8	32.6	61.4	83.6
29/08/2020 22:30	54.9	35.1	58.9	69.3
29/08/2020 22:45	56.3	27.9	60.5	75.7
29/08/2020 23:00	62	28.6	62.5	80.8
29/08/2020 23:15	53	24.2	56.2	70.2
29/08/2020 23:30	52.9	24.2	57	70
29/08/2020 23:45	52.2	24.4	56.4	68.8
30/08/2020 00:00	51.2	22.2	54.8	67.2
30/08/2020 00:15	51.7	22.6	54.8	69.9
30/08/2020 00:30	51.1	27	53.6	69.8
30/08/2020 00:45	50.3	25	49.2	68.9
30/08/2020 01:00	50.5	25	52.5	68.7
30/08/2020 01:15	51.4	25.2	54.2	69.2
30/08/2020 01:30	52.2	26.1	52.7	74.2
30/08/2020 01:45	42.8	24.5	38.5	66.5
30/08/2020 02:00	48.2	24	48.1	70
30/08/2020 02:15	50.2	24.6	52.6	72.9
30/08/2020 02:30	45.6	23.9	42.5	67.8
30/08/2020 02:45	51.4	24.3	53	73

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
30/08/2020 03:00	51.8	24.5	53.2	73.5
30/08/2020 03:15	52.1	25.8	54.8	70.5
30/08/2020 03:30	50.7	24.6	45.6	75.6
30/08/2020 03:45	51.7	23.6	55.6	68.7
30/08/2020 04:00	52.4	24	54.9	72.7
30/08/2020 04:15	50.8	24.9	50.4	69.7
30/08/2020 04:30	42.8	24.9	31	68.9
30/08/2020 04:45	51.9	25.3	51.7	73.2
30/08/2020 05:00	49.3	26.3	48.8	69
30/08/2020 05:15	50.7	25.4	53.8	69.6
30/08/2020 05:30	51.3	26.9	54.4	67.7
30/08/2020 05:45	54.6	30.8	58.4	75
30/08/2020 06:00	54.9	32.3	58.7	76.3
30/08/2020 06:15	56.9	32.3	61.3	75.6
30/08/2020 06:30	57	34.3	61.1	74.8
30/08/2020 06:45	56.8	35.6	61.2	73.3
30/08/2020 07:00	60.7	40.8	62	78.2
30/08/2020 07:15	58	42	62.5	72.4
30/08/2020 07:30	58.9	42.4	63.5	78.4
30/08/2020 07:45	58	44.3	62.6	71.3
30/08/2020 08:00	58.3	42.1	63.1	71.2
30/08/2020 08:15	65.4	42.6	63.3	94.7
30/08/2020 08:30	60.1	44.5	64.6	75.8
30/08/2020 08:45	60.1	47.1	64.7	73.8
30/08/2020 09:00	60.6	43.2	64.7	76.1
30/08/2020 09:15	61.1	47.2	65.4	76.3
30/08/2020 09:30	61.7	45.3	64.5	82.7
30/08/2020 09:45	65.7	47.2	66	89.7
30/08/2020 10:00	62.5	51.6	65.5	82.9
30/08/2020 10:15	62.7	52.3	65.9	78.2
30/08/2020 10:30	62.5	49.2	64.8	85.7

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
30/08/2020 10:45	64.1	51.5	66	83.8
30/08/2020 11:00	62.4	50.9	65.4	77.8
30/08/2020 11:15	62.8	50.5	65.5	85
30/08/2020 11:30	65.7	53.9	66	87.8
30/08/2020 11:45	61.9	52.2	65.3	74
30/08/2020 12:00	63.8	53.1	65.4	85
30/08/2020 12:15	61.3	48.3	64.8	73.1
30/08/2020 12:30	62.8	50.9	64.8	85.5
30/08/2020 12:45	63	51.3	65.2	82.1
30/08/2020 13:00	61.9	50.1	65.3	76.1
30/08/2020 13:15	63.1	49.5	65	85.7
30/08/2020 13:30	61.3	49.4	64.6	77.6
30/08/2020 13:45	61.2	49.4	64.3	80.4
30/08/2020 14:00	64.6	53.8	65.6	85.7
30/08/2020 14:15	60.3	49.1	64.1	70.2
30/08/2020 14:30	61.6	51	65	75.2
30/08/2020 14:45	63.1	49.1	65.2	83.1
30/08/2020 15:00	64.1	48.5	64.7	86.2
30/08/2020 15:15	60.8	48.9	64.3	78.9
30/08/2020 15:30	61.3	48.2	64.9	77.8
30/08/2020 15:45	62.6	52.7	64.9	85.6
30/08/2020 16:00	62.8	47	64.4	83.9
30/08/2020 16:15	60.8	47.6	64.5	74.7
30/08/2020 16:30	61.8	48.1	65.2	80.2
30/08/2020 16:45	63.2	48.5	64.7	84
30/08/2020 17:00	61.9	49.7	65	77.9
30/08/2020 17:15	62	51	65.1	75.2
30/08/2020 17:30	60.5	45.5	64.6	72.5
30/08/2020 17:45	60.7	49.8	64.6	70.9
30/08/2020 18:00	63.5	44.3	65.2	82.6
30/08/2020 18:15	60.8	49.5	64.9	71.3

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
30/08/2020 18:30	60.6	47	64.7	71.5
30/08/2020 18:45	62.6	48.8	64.7	83.3
30/08/2020 19:00	62	51.7	65	82.7
30/08/2020 19:15	59.9	46	64.3	71.6
30/08/2020 19:30	60.3	46.9	64.3	79
30/08/2020 19:45	61.7	50.6	65.2	76.3
30/08/2020 20:00	62.5	47.7	64.3	83.2
30/08/2020 20:15	59.9	46.7	64.1	74.9
30/08/2020 20:30	59.5	46.6	63.4	74.1
30/08/2020 20:45	60.7	43.2	63.8	81.1
30/08/2020 21:00	59.2	43.1	63.6	71.9
30/08/2020 21:15	58.4	40.5	62.8	73.2
30/08/2020 21:30	57.1	37.3	62.1	70.9
30/08/2020 21:45	59	44	63.5	71.7
30/08/2020 22:00	58.7	33.1	60.8	79.9
30/08/2020 22:15	57.2	38.2	61.6	71
30/08/2020 22:30	56.9	34.4	62	69.6
30/08/2020 22:45	55.1	29.3	60.2	69.2
30/08/2020 23:00	55.7	31.1	60.3	69.6
30/08/2020 23:15	56.3	32	60.9	70.7
30/08/2020 23:30	55.1	27.9	59.8	73.5
30/08/2020 23:45	56.2	26.6	61.1	72.1
31/08/2020 00:00	56.1	26.7	60.3	71.5
31/08/2020 00:15	52.3	25.7	56.5	69.5
31/08/2020 00:30	56.2	28.6	60.2	77.5
31/08/2020 00:45	53.4	26.5	55.5	73.4
31/08/2020 01:00	50	24	50.9	74.9
31/08/2020 01:15	49.9	25.5	51.8	68.1
31/08/2020 01:30	50.5	25.8	51.4	68.9
31/08/2020 01:45	51.6	25.5	55.5	70.2
31/08/2020 02:00	49.9	23.3	53.3	67.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
31/08/2020 02:15	49.9	22.6	50.1	68
31/08/2020 02:30	52.8	25.9	54.4	73.3
31/08/2020 02:45	50.6	23.9	50.9	72.4
31/08/2020 03:00	43.8	21.5	35.4	67.7
31/08/2020 03:15	50.8	21.7	52.1	70.7
31/08/2020 03:30	51.3	22.5	52.2	72
31/08/2020 03:45	51.4	24.4	51.8	72.2
31/08/2020 04:00	49.8	24.3	49.6	71.2
31/08/2020 04:15	52.6	24.8	54.9	72.8
31/08/2020 04:30	52.8	24.4	55.2	71.7
31/08/2020 04:45	52.2	24	54.4	73.6
31/08/2020 05:00	53.6	23.7	55.6	73.3
31/08/2020 05:15	53.5	24.6	57	72.6
31/08/2020 05:30	55.3	29.4	58.6	74.3
31/08/2020 05:45	53.5	26.2	56.4	75.2
31/08/2020 06:00	55.7	26.6	59.4	74
31/08/2020 06:15	58.3	37.4	62.2	75.4
31/08/2020 06:30	60.8	38.7	63.3	81.3
31/08/2020 06:45	57.8	40.2	62.6	70.4
31/08/2020 07:00	58	38.8	62.2	75.4
31/08/2020 07:15	59	40.9	63.7	73.7
31/08/2020 07:30	59.7	44	64	74.7
31/08/2020 07:45	61.7	43.5	65.1	82
31/08/2020 08:00	59.8	41.1	64.4	73.7
31/08/2020 08:15	61.8	42.6	64.8	83.9
31/08/2020 08:30	62.3	41.6	64.1	84.2
31/08/2020 08:45	59.8	48.6	64.2	72.1
31/08/2020 09:00	60.6	46.6	64.9	73.6
31/08/2020 09:15	60.4	43.5	64.7	72.5
31/08/2020 09:30	60.5	45.6	64.7	75.2
31/08/2020 09:45	63.2	48.2	65.5	87.2

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
31/08/2020 10:00	63.8	49.2	66	83.5
31/08/2020 10:15	62	51.4	65.4	74.9
31/08/2020 10:30	61.5	48.4	65.1	73.2
31/08/2020 10:45	64.1	51.9	65.9	82.8
31/08/2020 11:00	62.7	50.4	65.6	80
31/08/2020 11:15	62.2	52.3	65.3	74.7
31/08/2020 11:30	62.6	51.7	65.8	77.4
31/08/2020 11:45	62.6	51.9	65.8	74
31/08/2020 12:00	64	53.6	66.1	81.9
31/08/2020 12:15	64.1	52.9	66.3	84.8
31/08/2020 12:30	62.4	53.3	65.4	75.7
31/08/2020 12:45	64.1	54.5	65.6	83.5
31/08/2020 13:00	61.9	53.6	64.8	75.8
31/08/2020 13:15	62.2	53.4	65.1	73
31/08/2020 13:30	62.4	53.6	65	76.5
31/08/2020 13:45	63.3	52.9	65.7	81.6
31/08/2020 14:00	64.9	53.8	65.9	86.2
31/08/2020 14:15	62.9	55	65.9	74.1
31/08/2020 14:30	62.4	53.2	65.4	72.7
31/08/2020 14:45	65.1	51	65.2	89.5
31/08/2020 15:00	62.7	53.9	65.7	75.4
31/08/2020 15:15	62.2	51.4	65.4	76.5
31/08/2020 15:30	62.4	53.5	65.2	73.6
31/08/2020 15:45	61.8	50	65.1	75.9
31/08/2020 16:00	64.4	54.2	65.9	83.9
31/08/2020 16:15	62.3	50.8	65.9	74.9
31/08/2020 16:30	62.8	53.7	65.9	74.2
31/08/2020 16:45	64	49.4	65.7	83.2
31/08/2020 17:00	62.2	52.8	65.5	74.5
31/08/2020 17:15	62.3	50.4	65.6	73.8
31/08/2020 17:30	62.9	53.5	65.9	73.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
31/08/2020 17:45	63.5	55.3	66.7	73.4
31/08/2020 18:00	65.2	53.7	66.6	84.6
31/08/2020 18:15	61.9	50.6	65.5	75.5
31/08/2020 18:30	62.4	53.3	65.8	73.4
31/08/2020 18:45	63	50	66	80.8
31/08/2020 19:00	60.9	49.8	64.6	72
31/08/2020 19:15	61	49.2	65	72.9
31/08/2020 19:30	60.5	49	64.2	74
31/08/2020 19:45	61.9	47	64.6	80.6
31/08/2020 20:00	61.7	47.2	64.8	82.1
31/08/2020 20:15	60.2	46.9	64.1	71.2
31/08/2020 20:30	58.2	41.3	62.9	72
31/08/2020 20:45	60.6	43.9	63.3	81.2
31/08/2020 21:00	58.4	39.5	63.1	75.1
31/08/2020 21:15	59.3	42.2	63.8	71.3
31/08/2020 21:30	57.2	40.7	62.2	68.3
31/08/2020 21:45	57.7	37.9	62	73.1
31/08/2020 22:00	58.9	44.6	63.1	72.2
31/08/2020 22:15	60.5	35.9	61.7	83.1
31/08/2020 22:30	55	26.4	59.1	70.5
31/08/2020 22:45	55.8	32.7	60	72.5
31/08/2020 23:00	55.5	27.7	59.9	73
31/08/2020 23:15	54.7	28.2	57.9	75.1
31/08/2020 23:30	55	25.6	59.8	70
31/08/2020 23:45	54.8	26.7	55.3	76.5
01/09/2020 00:00	53.4	26.5	55.8	71.6
01/09/2020 00:15	51.7	24.4	54.5	71.6
01/09/2020 00:30	52.5	24.3	51.5	75.4
01/09/2020 00:45	48.2	23.8	46.5	68.8
01/09/2020 01:00	52.3	25.7	54	73.5
01/09/2020 01:15	49.7	24.3	51	67.4

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
01/09/2020 01:30	51.6	27	52.1	72.2
01/09/2020 01:45	53.2	24.9	56.6	70.8
01/09/2020 02:00	49.8	24.3	49.7	68.9
01/09/2020 02:15	54.8	26.4	57.8	73.3
01/09/2020 02:30	47.5	23.7	46.9	70.1
01/09/2020 02:45	52.2	24.4	53.8	74.1
01/09/2020 03:00	48.7	26.7	50.4	68.2
01/09/2020 03:15	52.1	28.1	55.2	72.5
01/09/2020 03:30	55.7	27.5	59.1	75.2
01/09/2020 03:45	54.3	26.4	57.8	70.2
01/09/2020 04:00	54.9	28.6	57.9	76.6
01/09/2020 04:15	56.9	32.7	60.4	75.3
01/09/2020 04:30	56.2	30.7	60.8	71.8
01/09/2020 04:45	56.9	27.9	61.1	74.4
01/09/2020 05:00	57.2	31.8	61.8	72.7
01/09/2020 05:15	57.7	35.5	62.2	72.6
01/09/2020 05:30	59.7	40.8	63.8	74
01/09/2020 05:45	60.9	36.3	65.5	76.4
01/09/2020 06:00	59.4	40.8	64.1	75.6
01/09/2020 06:15	62.8	43	66.9	76.4
01/09/2020 06:30	63.2	48.2	66.6	80.2
01/09/2020 06:45	62.6	49.3	66.5	82.5
01/09/2020 07:00	62.9	46.4	66.8	79.9
01/09/2020 07:15	63.2	49.1	67.2	74.3
01/09/2020 07:30	64.2	52.9	67.7	77.5
01/09/2020 07:45	64	52.5	67.4	76.2
01/09/2020 08:00	65	53.5	68	80.8
01/09/2020 08:15	64.3	55	67.6	76.6
01/09/2020 08:30	63.9	51.2	67.4	76.6
01/09/2020 08:45	65.6	51.4	68.2	83.8
01/09/2020 09:00	62.6	51.5	66.2	76

Date and Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
01/09/2020 09:15	62.4	50.7	66.2	73.4
01/09/2020 09:30	63	50.5	66.7	74.7
01/09/2020 09:45	62.7	51.8	65.8	75.9
01/09/2020 10:00	63.5	49.9	65.9	83.6
01/09/2020 10:15	61.8	45.6	65.4	74.9
01/09/2020 10:30	63.6	51.2	66.3	83.7
01/09/2020 10:45	63.6	48	65.7	81.6
01/09/2020 11:00	61.5	50.7	65.1	72.8

Appendix 3: Proposed Fencing Plan - Bryn-y-Maes Drawing Number 2395/0300.003

Appendix 4: Proposed Fencing Details – Bryn-y-Maes Drawing Number 2395/0300.004

Appendix 5: Kingspan Documentation

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Help Wales reduce its Carbon Footprint

recycle ailgylchu