APPENDIX A

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ACE LIFTAWAY
YOKESFORD HILL
ROMSEY

ENVIRONMENTAL NOISE MEASUREMENTS

Technical Report: R10147-2 Rev 0

Date: 31st May 2024

For: Ace Liftaway Ltd
Yokesford Hill Estate
Belbins
Romsey
Hants
SO51 0PF

24 Acoustics Document Control Sheet

Project Title: Ace Liftaway, Yokesford Hill, Romsey - Environmental Noise Measurements

Report Ref: R10147-2 Rev 0

Date: 31st May 2024

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For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
0	Approved for Issue	Kiel Edwards	Chris McConnel	Reuben Peckham

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1.0 INTRODUCTION

1.1 24 Acoustics Ltd has been instructed by Ace Liftaway Ltd to undertake noise monitoring in connection with the newly installed wash plant at the Yokesford Hill waste management centre. Noise monitoring has been undertaken in order to determine noise levels from wash plant use at the nearest residential properties in compliance with Planning Conditions 8.

1.2 This report presents the results of noise measurements, undertaken at a number of locations around the site and within the site on 23rd May 2024.

1.3 All noise levels in this report are presented in dB relative to 20 µPa. A definition of the acoustic parameters described in this report is provided in Appendix A.

2.0 SITE DESCRIPTION AND MEASUREMENT CRITERIA

2.1 The Recycling Facility is located in a semi-rural area to the north of Romsey and comprises inert waste storage and sorting facilities. Inert waste is stored in a mound to the north of the site with existing waste sorting plant housed within a series of warehouses to the centre and south of the site.

2.2 Farmland lies to the north, northeast and northwest with industrial and commercial sites to the south, southeast and southwest. A single carriageway road, Yokesford Hill, lies further south and is the main source of ambient noise in the area.

2.3 The new wash plant assists in the sorting and removal of the current inert waste storage mound. The wash plant operates between the consented hours of 07:30 to 19:00 Monday to Friday and 07:30 and 14:30 on Saturdays. There are no operations on Sundays or public/bank holidays.

2.2 Monitoring of noise from site operations is required to comply with the site's planning consent. Planning consent was granted by Hampshire County Council in 2022 (Planning Reference: 21/02392/CMAS and HCC/2021/0442). Condition 6 of the planning consent outlines the requirement of a noise compliance strategy. The approved noise compliance strategy was produced by 24 Acoustics in July 2023 (reference: R10147-1 Rev 0) and outlines appropriate wash plant noise limits to be achieved at the nearest residential properties as well as suitable proxy measurement locations where access to the receptor locations cannot be regularly guaranteed.

2.3 Condition 8 requires a programme of noise monitoring be undertaken once the wash plant is operational and is reproduced below.

> *"Within one month of the wash plant first becoming operational, a Programme of Noise Compliance Monitoring shall be undertaken at the nearest noise sensitive receptors to the site or at agreed proxy locations.*
>
> *The monitoring programme shall consist of noise measurements taken in conjunction with the guidance contained in BS4142:2014+A1:2019, over representative daytime periods whilst the wash plant is operating under normal conditions. Detailed notes shall also be made on the prevailing noise climate and the audibility of the wash plant at each of the noise sensitive receptors.*
>
> *The programme shall demonstrate that the rating noise level (as defined in BS 4142:2014+A1:2019) of the wash plant will not exceed 44dB $L_{Aeq,\ 1\ hour}$ during normal daytime operational periods when assessed at the agreed receptor locations under free field conditions.*
>
> *A report detailing the results of the compliance monitoring shall be submitted to the Waste Planning Authority within 2 weeks after the completion of the programme. The report shall include detailed notes on the prevailing noise climate and the audibility of the wash plant at each of the noise sensitive receptors, and the relevant calculations to determine the wash plant noise levels at the previously agreed receptor locations.*
>
> *If it is determined that the rating noise limit specified in the above condition is exceeded, the assessment shall outline appropriate forms of mitigation to control wash plant noise to acceptable levels. Such remedial actions shall be implemented as soon as is reasonably practicable. Following their implementation, the noise compliance monitoring shall be repeated, with results submitted to the Waste Planning Authority within 2 weeks after the completion of the programme.*
>
> *Reason: To ensure the protection of local amenity, in accordance with Policies 10 (Protecting public health, safety and amenity) and 13 (High-quality design of minerals and waste development) in the Hampshire Minerals and Waste Plan (2013)."*

2.4 In addition to the receptor locations, a control location situated at a suitable distance to the wash plant was also determined, such that the continuous operation of the wash plant could be confirmed during the off-site measurements at the receptor/proxy locations. The control measurement location is shown in Figure 1.

2.5 Measurements were undertaken at locations representative of the respective receptor locations where access or nearby ambient noise sources prevented measurement at the receptor building facades (as identified in the noise compliance strategy). The monitoring locations are described below and shown in Figures 2 to 7.

Measurement Location		Measurement Location Description
1	Wynford Farm, Yokesford Hill	Area of verge within Wynford Industrial Park, at the boundary with Wynford Farm
2	Abbotswood Farm/ The Stables	Public footpath to the south of Receptor 2
3	Monksfield Farm House	Public footpath to the northeast of Receptor 3
4a	Fairbourne Cottage, Bunny Lane	Public footpath to the east of Receptor 4
4b	Fairbourne Cottage, Bunny Lane	Public highway to the west of Receptor 4
5	Hope Cottage, Yokesford Hill	Grass verge outside Hope Cottage
6	Woodcot/Green Bank/ Cobs	Area of verge opposite Ace Liftaway's main entrance off Yokesford Hill

Table 1: Noise Monitoring Locations (shown in Figure 1)

2.6 The respective wash plant noise limits for each measurement location are shown in Table 2.

Location Number and Description		Noise Limit, dB $L_{Aeq, 1\ hour}$
1	Wynford Farm, Yokesford Hill	44
2	Abbotswood Farm/ The Stables	42
3	Monksfield Farm House	42
4a	Fairbourne Cottage, Bunny Lane	42
4b	Fairbourne Cottage, Bunny Lane	43
5	Hope Cottage, Yokesford Hill	44
6	Woodcot/Green Bank/ Cobs	44

Table 2: Noise Monitoring Locations and Wash Plant Noise Limits

3.0 NOISE SURVEY METHODOLOGY

3.1 Noise measurements were undertaken on 23rd May 2024. Measurements were undertaken using the following instrumentation:

- 2 x Rion NL52 sound level meter;
- B&K Type 4231 acoustic calibrator.

3.2 All noise survey instrumentation used conforms to the Class 1 accuracy standard of IEC 61672. Calibration of the sound level meter was checked before and after the surveys in accordance with the manufacturer's instructions. No drift in calibration was recorded.

3.3 Noise measurements were undertaken in samples of one minute in terms of the overall A-weighted L_{eq} sound pressure levels in dB. Fifteen-minute values were then calculated from these one-minute measurements. Single octave measurements were also recorded at each measurement location.

3.4 Instrumentation was mounted on a tripod at a height of approximately 1.5 m above local grade level. Environmental windshields were fitted. Measurements were taken in free field conditions.

3.5 Instrumentation was setup close to the wash plant to capture noise levels throughout the survey. The monitor was setup at a height of 3 m above local ground level approximately 12m from the wash plant's western boundary, as shown in Figure 1. This is intended to provide a quantitate measure of the noise levels produced from site and confirmation that wash plant activity was continuous and stable throughout the survey.

3.6 Further close proximity measurements were undertaken of each element of the wash plant equipment in order to determine source noise levels for specific key items of the system. Source noise levels were captured of material being transported via conveyor to each processing stage, with measurements of each process being captured. These measurements were undertaken to enable the prediction of wash plant noise levels at receptor locations where high levels of ambient noise from other sources prevents the measurement of wash plant noise levels.

3.7 The weather conditions during the survey were fine and dry. Overall wind speed was less than 5 m/s during the survey,. Daytime ambient temperatures ranged between 15 and 18 degrees C.

4.0 NOISE SURVEY RESULTS

Description of Site Activities

4.1 Site activities and wash plant operations were ongoing during the day of the survey. The wash plant comprises a range of units to sort and filter the material, all connected via conveyor systems, with the final material being deposited in holding bays.

4.2 Via analysis of the control location measurement results, the above operations were ongoing during all receptor/proxy location measurements. Control location measurement results are shown in Appendix B.

Measurement Results

4.3 The noise survey results are summarised in Table 3 and Appendix B alongside the measured single octave band results.

Measurement Location	Time Started	Resultant dB $L_{Aeq, 15\ min}$
1	12:29	61
2	14:01	52
3	12:59	48
4a	13:24	42
4b	11:27	54
5	11:53	69
6	12:10	64

Table 3: Summary of Noise Survey Results, 23rd May 2024

4.4 Measurement locations 5 and 6 were significantly affected by road traffic noise from Yokesford Hill and building works at Woodcot. Additionally, measurement location 1 was affected by road traffic, although to a lesser extent, but was significantly affected by noise from other premises within the surrounding industrial estate. Measurements at location 4b were affected by road traffic noise on Bunny Lane as well as noise from Casbrook Household Waste Recycling Centre and the Waltet Materials site to the north and west respectively. Observations and investigations did not identify any noise from wash plant operation at measurement location 1, 4b, 5 and 6 .

4.5 Similarly, noise from wash plant operation was not observed at measurement locations 2, 3 and 4a.

4.6 Following the above, it has been determined that wash plant noise was not audible or measurable at the receptor locations. Therefore, close proximity measurements of the wash plant (undertaken shortly after measurements at the receptor locations) have been used to develop an acoustic model of the site to predict wash plant noise levels at the receptor locations.

4.7 The acoustic model of the site was produced using IMMI v30 noise-mapping software. This has used the propagation methodology of ISO 9613 taking into account the effects of geometric divergence, atmospheric and ground absorption and acoustic screening. The model's parameters included an ambient temperature of 10 degrees centigrade, relative humidity 70% and downwind propagation conditions.

4.8 The acoustic model has considered the layout and topography of the site . Resultant wash plant noise levels at the receptor locations are shown in Table 4.

Receptor Location	Calculated Wash Plant Noise Level dB $L_{Aeq\,T}$	Noise Limit	Difference
1	39	44 dBA	-5
2	39		-5
3	31		-13
4	38		-6
5	43		-1
6	44		0

Table 4: Calculated Wash Plant Noise Levels at Receptor Location

4.9 The calculated wash plant noise levels do not exceed the noise limit at all receptor locations. This is commensurate with the measurement results and observations undertaken at the receptor and proxy measurement locations.

5.0 CONCLUSIONS

5.1 Noise monitoring has been completed at Ace Liftaway's waste management site at Yokesford Hill, Romsey. Planning consent was granted by Hampshire County Council in 2022 (Planning Reference: 21/02392/CMAS and HCC/2021/0442) for the installation of new wash plant. Measurements were undertaken on 23rd May 2024 in accordance with Condition 8 of the site's planning consent and the approved noise compliance strategy.

5.2 Site activities ongoing during the day of the survey included the operation of wash plant.

5.3 Detailed site observations and measurements identified that noise from the wash plant was not significant above existing ambient noise levels from road traffic and neighbouring industrial/commercial uses. Furthermore, detailed noise modelling utilising close proximity source noise measurements of the wash plant provides predicted noise levels that do not exceed the relevant noise limit at the receptor locations.

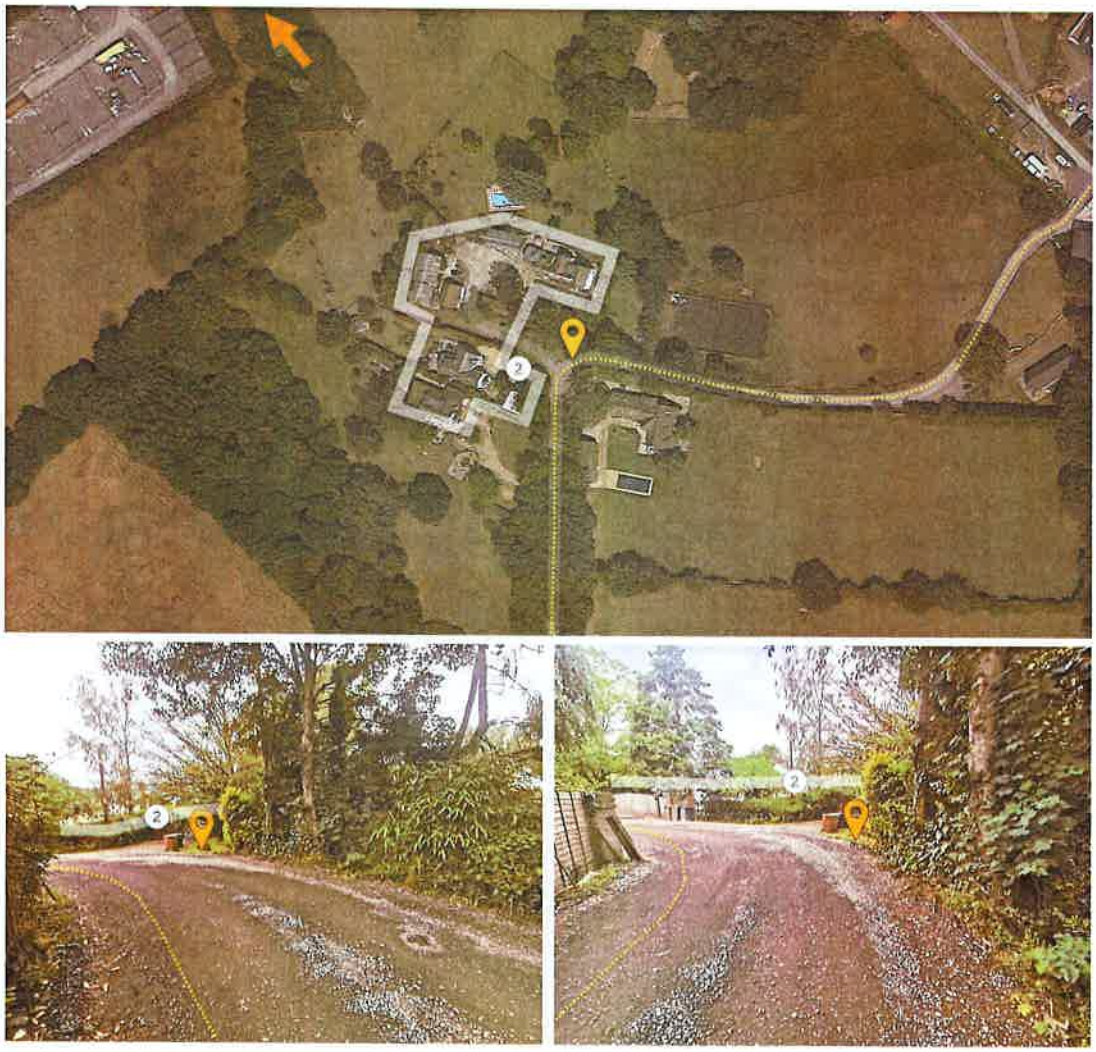
5.4 Based on the above, noise from wash plant operation complies with the relevant noise limit and is acceptable.

- Control Measurement Location
- Wash Plant Location
- Receptor Locations
- Ace Liftaway Site
- Public Footpath

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Site Location and Receptor Locations		24Acoustics
DWG No: Figure 1	**Scale:** N.T.S.	**Rev:** -	
Date: May 2024	**Drawn By:** KE	**Job No:** 10147	

N°	Receptor Location
	Proxy Measurement Location
—	Ace Liftaway Site

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 1 (Wynford Farm) – Proxy Measurement Position.	
DWG No: Figure 2	**Scale:** N.T.S.	**Rev:** -
Date: May 2024	**Drawn By:** KE	**Job No:** 10147



Public Footpath

Receptor Location

Proxy Measurement Location

Ace Liftaway Site Direction

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 2 (Abbottswood Farm/The Stables/Cherry Tree Cottage) – Proxy Measurement Position.	
DWG No: Figure 3	**Scale:** N.T.S.	**Rev:** -
Date: May 2024	**Drawn By:** KE	**Job No:** 10147

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Public Footpath

Receptor Location

Proxy Measurement Location

Ace Liftaway Site Direction

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 3 (Monksfield Farm House) – Proxy Measurement Position.	
DWG No: Figure 4	**Scale:** N.T.S.	**Rev:** -
Date: May 2024	**Drawn By:** KE	**Job No:** 10147

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Public Footpath

N° Receptor Location

Proxy Measurement Locations

Ace Liftaway Site Direction

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 4 (Fairbourne Cottage) – Proxy Measurement Positions.	
DWG No: Figure 5	**Scale:** N.T.S.	**Rev:** -
Date: May 2024	**Drawn By:** KE	**Job No:** 10147

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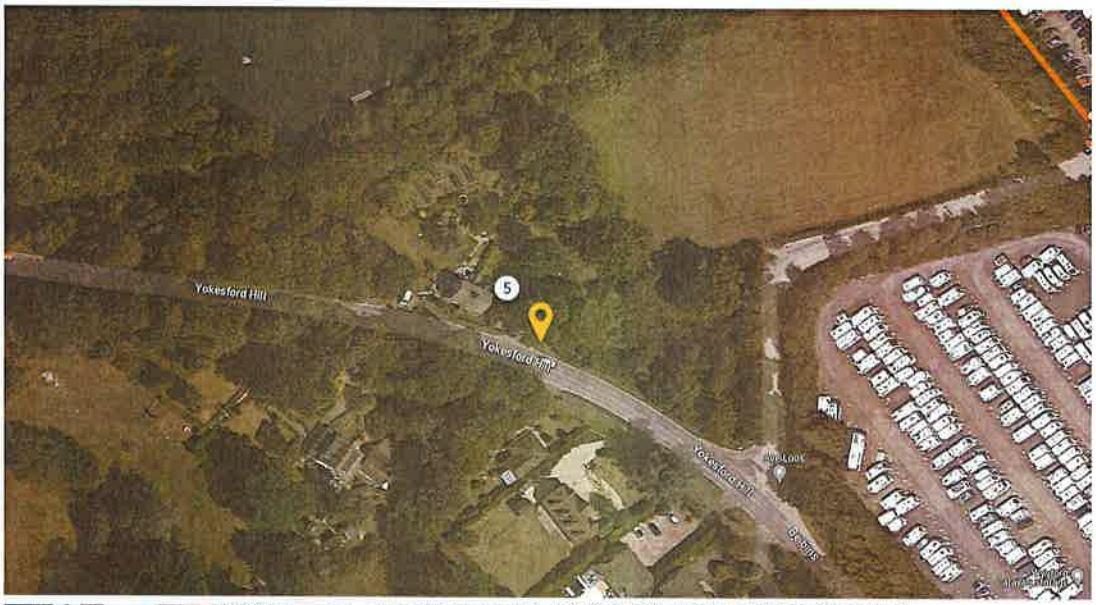

Nº Receptor Location

Proxy Measurement Location

Ace Liftaway Site

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 5 (Hope Cottage) – Proxy Measurement Position.		24Acoustics
DWG No: Figure 6	**Scale:** N.T.S.	**Rev:** -	
Date: May 2024	**Drawn By:** KE	**Job No:** 10147	

(N°) Receptor Location

Proxy Measurement Location

Ace Liftaway Site

Project: Ace Liftaway, Yokesford Hill, Romsey	**Title:** Receptor Location 6 (Woodcot/Green Bank/Cobs/Mankotta/Monkswood/The Hollies) – Proxy Measurement Position.		24Acoustics
DWG No: Figure 7	**Scale:** N.T.S.	**Rev:** -	
Date: May 2024	**Drawn By:** KE	**Job No:** 10147	

APPENDIX A: NOISE UNITS

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in important by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB(A). The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB(A) corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the " value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time internal, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The LA_{90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: NOISE SURVEY RESULTS SUMMARY

Location	Start Time	Measured dB LAeq $_{15\ min}$	Comments
1	12:29	61	Industrial estate activity noise, car passbys from industrial units, road traffic on Yokesford Hill
2	14:01	50	Tracked loader, residential noise
3	12:59	48	Tracked loader, sheep noise
4a	13:24	42	Tracked loader, birdsong
4b	11:27	54	Tip and industrial noise to the north/west, birdsong, car passbys,
5	11:53	69	Construction work at Woodcot, car passbys
6	12:10	64	Car passbys, construction work at Woodcot, occasional standing traffic turning into site

Table B1: Noise survey results, 23rd May 2024.

Location	Single Octave Band Sound Pressure Level (dB)									
	16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
1	64	71	66	60	58	59	56	54	49	42
2	66	65	59	48	45	48	46	42	42	32
3	67	64	54	48	42	41	46	39	28	19
4a	66	64	52	43	36	43	43	35	30	27
4b	67	71	62	50	48	49	51	46	42	36
5	72	70	68	63	64	63	67	61	52	45
6	72	69	64	61	60	59	62	57	49	40

Table B2: Noise survey results, 23rd May 2024.

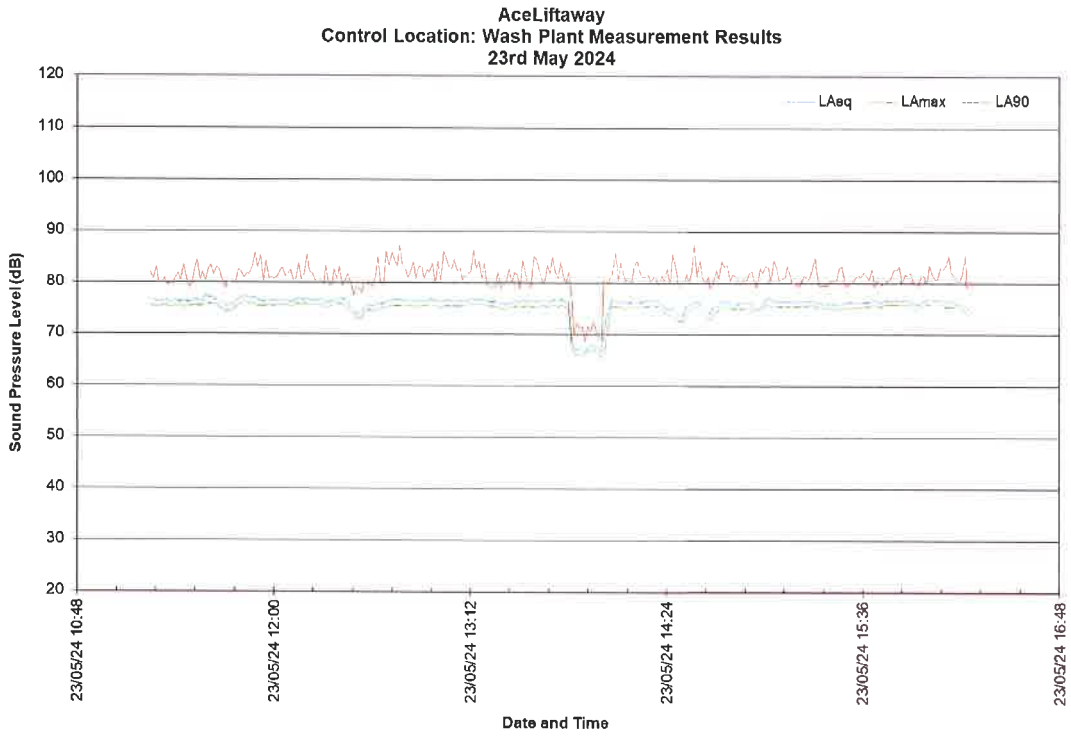

Figure B1: Control Location Measurement Results, 23rd May 2024.

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PROPOSED NEW WASH PLANT
ACE LIFTAWAY LTD
YOKESFORD HILL

NOISE IMPACT ASSESSMENT

Technical Report: R8963-1 Rev 0

Date: 15th June 2021

For: Ace Liftaway Ltd
The Waste Centre
Yokesford Hill Estate
Belbins
Romsey
Hampshire
SO51 0PF

24 Acoustics Document Control Sheet

Project Title: Proposed New Wash Plant, Ace Liftaway Ltd, Yokesford Hill - Noise Impact Assessment

Report Ref: R8963-1 Rev 0

Date: 15th June 2021

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Reviewed and Approved by	Reuben Peckham BEng MPhil CEng MIOA	Principal Consultant		15/06/2021
For and on behalf of 24 Acoustics Ltd				

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1.0 INTRODUCTION

1.1 24 Acoustics Ltd has been instructed by Ace Liftaway Ltd to undertake a noise impact assessment for the proposed operation of new wash plant at their Yolksford Hill Recycling Facility, Romsey, Hampshire.

1.2 This report presents the results of the assessment, following background noise surveys undertaken in May 2021.

1.3 All noise levels presented in this report are in decibels (dB) relative to 20 μPa. A glossary of the acoustic terminology used is provided in Appendix A.

2.0 SITE DESCRIPTION AND PROPOSED OPERATION

2.1 The Recycling Facility is located in a semi-rural area to the north of Romsey and comprises inert waste storage and waste sorting facilities. Inert waste is stored in a mound to the north of the site with existing waste sorting plant housed within a series of warehouses to the south of the site.

2.2 The site is bounded by farmland to the north, northeast and northwest with industrial and commercial sites to the south, southeast and south west. A single carriageway road, Yolksford Hill, lies further south and is the main source of ambient noise in the area.

2.3 It is proposed to operate new wash plant within the site. This will assist in the sorting and removal of the current inert waste storage mound. The wash plant will operate between 07:00 to 18:00 hours Monday to Friday and between 07:00 and 14:30 hours on Saturdays. There will be no operations on Sundays.

2.4 Planning consent has been granted to construct a warehouse extension (planning reference: 19/01864/CMAS), comprising two new warehouses to the north of the existing buildings. It is understood that these buildings will be constructed following the removal of the existing inert waste mound from the warehouse extensions footprint. Removal of the inert waste mound be facilitated by the proposed new wash plant.

2.5 Current operations include tracked and wheeled loaders, diggers and an excavator together with HGVs for the movement of waste in and out of the site. It is understood that the current level of mobile plant movement will not change following the installation of new wash plant.

2.6 The closest residential properties to the proposed wash plant are located at Wynford Farm (Receptor 1), approximately 220m to the south, and Abbotswood Farm (Receptor 2), approximately 400m to the east.

2.7 Figure 1 provides an aerial image of the site and surrounding area, showing the location of the nearest receptor locations. Figure 2 shows the proposed site layout.

3.0 ASSESSMENT CRITERIA

National Planning Policy Framework and Noise Policy Statement for England

3.1 The National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions, while recognising that many developments will create some noise.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

> *"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."*

3.4 The National Planning Practice Guidance (NPPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The NPPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.

3.5 The NPPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system. Table 1 is reproduced from the NPPG and summarises the noise exposure hierarchy, based on the likely average response.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life	No Observed Adverse Effect	No specific measures required
Lowest Observable Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/ or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/ or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extension and regular changes in behaviour and/ or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/ awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 1: NPPG Noise Exposure Hierarchy

3.6 In general terms it is considered that a noise impact with an effect level which is lower than SOAEL is acceptable (providing the effect is mitigated to a minimum). There is currently, however, a discontinuity between the above guidance and objective technical criteria for use in planning noise impact assessments.

British Standard 4142:2014+A1:2019

3.7 BS 4142:2014+A1:2019 [Reference 4] provides a method for rating the effects of industrial and commercial noise/ sound on residential areas. The standard advocates a comparison between the typical measured L_{A90} background noise level and L_{Aeq} noise level from the source being considered. For rating purposes if the noise source is tonal, intermittent or otherwise distinctive in character, a rating correction is applied.

3.8 The standard states that a difference between the rating level and the background level of around +10 dB is an indication of a significant adverse impact, depending on the context and a difference of around +5 dB is likely to be an indication of an adverse impact again depending on the context. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact (depending upon the context).

4.0 APPROACH TO THE ASSESSMENT

4.1 The following assessment methodology has been used:

i. A background noise survey has been undertaken to determine existing levels of background noise at the nearest residential properties to the site.

ii. Calculations have been undertaken, based on measurements of similar wash plant operations, to calculate the noise level from the proposed operations at receptor locations.

iii. An assessment of the likely noise impact associated with the proposals has been undertaken, based upon the technical guidance advocated within BS 4142.

5.0 BACKGROUND MEASUREMENT RESULTS

5.1 Background noise measurements were undertaken on site between the 17th and 24th May 2021 to determine the noise level at the nearest residential properties to the proposed wash plant. Noise monitoring equipment was installed at the locations described below and are shown in Figure 1.

- Location 1: To the southern corner of the site, representative of noise conditions at Receptor 1 (Wynford Farm), free field conditions;
- Location 2: To the western corner of the site, representative of noise conditions at Receptor 2 (Abbotswood Farm), free field conditions.

5.2 The noise measurements were undertaken with the following instrumentation:

- 2xRion NL31 Class 1 accuracy sound level meters;
- Bruel and Kjaer Type 4231 Class 1 accuracy acoustic calibrator.

5.3 Measurements were undertaken in samples of 5 minutes in terms of the overall free-field A-weighted L_{eq}, L_{90} and $L_{max,f}$ noise levels. The instrumentation was calibrated before and after the surveys in accordance with the manufacturer's instructions. No significant drift in calibration was recorded. The instrument microphone was fitted with an environmental weather shields during the measurements.

5.4 Weather conditions during the survey were variable with periods of wind and rain. Measurements affected by meteorological conditions have been removed from the assessment.

5.5 Existing industrial noise was noted during the measurements, associated with the surrounding industrial/commercial uses. Measurements influenced by industrial and commercial noise have been removed from the assessment.

5.6 The results of the background noise survey are shown graphically in Appendix B and summarised for the relevant operational period in Table 1. Due to activity noise from site operations, weekend measurements (during site down time) and hourly periods before and after site opening hours have been used to determine the representative background noise level for the relevant period.

Location	Representative Background Noise Level 07:00- 18:00 hours dB $L_{A90,\ 1\ hour}$
1	45
2	44

Table 2: Summary of Background Noise Survey Results

6.0 SOURCE NOISE MEASUREMENTS AND RESULTS

6.1 Source-term sound power level data has been provided from measurements undertaken by CDEnviro in 2018 of similar wash plant. The sound power level data stated in the assessment has been analysed and provides a source noise sound power level as shown in Table 3.

Wash Plant Sound Power Level, dB Octave Band Centre Frequency, Hz								dBA
63	125	250	500	1k	2k	4k	8k	
98	94	90	94	93	94	93	92	103

Table 3: Wash Plant Sound Power Levels

6.2 The proposed wash plant will be screened from Receptor 1 by the existing buildings. Additionally, the existing inert waste mound will provide screening to Receptor 2, however, the wash plant's function will be to remove the inert waste mound and to free space for the construction of new extension warehouses (shown in Figure 2). This will reduce the size of the mound over a period of years, removing the screening provided to Receptor 2, with the future warehouses introducing partial screening to Receptor 2 following their construction.

6.3 To account for future changes in site layout, screening and topography, a number of scenarios have been considered, as described below:

- Scenario 1 - current site conditions: Inert waste mound present, warehouse extension not constructed;
- Scenario 2 - transitional site conditions: Inert waste mound removed by proposed wash plant, warehouse extension not constructed;
- Scenario 3 – future site conditions: Inert waste mound removed by proposed wash plant, warehouse extension constructed.

6.4 Based on the above, calculations have been undertaken to determine the noise level from the proposed wash plant at each receptor location for each scenario, including corrections for distance, directivity, atmospheric influence and screening (where applicable). Resultant noise levels are shown in Table 4.

Scenario	Predicted Wash Plant Noise Level, dB $L_{Aeq,\ 1\ hour}$	
	Receptor 1	Receptor 2
1 – Current Site Conditions	26	20
2 – Transitional Site Conditions	26	36
3 – Future Site Conditions	26	31

Table 4: Predicted Wash Plant Noise Levels

6.5 Predicted noise levels indicate that the transitional period (scenario 2), after the removal of the mound and before the construction of the warehouse extension, will provide the highest wash plant noise levels at the receptor locations. The highest predicted levels have been used in the following section to provide a robust, worse case assessment.

7.0 NOISE IMPACT ASSESSMENT

7.1 An assessment of noise associated with the proposed wash plant (based on scenario 2) has been undertaken in accordance with the rating methodology of BS 4142 and is shown in the Tables 5 and 6 below. Due to screening and the significant distances involved, is not considered likely that tonal or otherwise distinctive noise characteristics from the proposed wash plant will be audible at the receptor locations.

Receptor 1: BS 4142 Assessment, Scenario 2	
	Plant Operational Period 07:00 to 18:00 hours
Representative Background Noise Level dB $L_{A90,\ 1\ hour}$	44
Source Specific Noise Level dB $L_{Aeq,\ 1\ hour}$	26
Rating Correction	0
Rating Noise Level dBA	26
Difference dBA	-18

Table 5: BS4142 Noise Impact Assessment, Receptor 1 (Wynford Farm)

Receptor 2: BS 4142 Assessment, Scenario 2	
	Plant Operational Period 07:00 to 18:00 hours
Representative Background Noise Level dB $L_{A90,\ 1\ hour}$	45
Source Specific Noise Level dB $L_{Aeq,\ 1\ hour}$	36
Rating Correction	0
Rating Noise Level dBA	36
Difference dBA	-9

Table 6: BS4142 Noise Impact Assessment, Receptor 2 (Abbotswood Farm)

7.2 The assessment indicates that the noise impact at both Receptor Locations will be 'low' at all times during the transitional site conditions (scenario 2). Noise from wash plant during other site conditions (scenario 1 and 3) will be lower at Receptor 2.

7.3 On this basis it is considered that noise from proposed wash plant is acceptable and would cause an impact magnitude, as defined in the PPG, below LOAEL with no observed adverse effect.

8.0 CONCLUSIONS

8.1 24 Acoustics Ltd has been instructed by Ace Liftaway Ltd to undertake a noise assessment for the proposed operation of new wash plant at their Yolksford Hill Recycling Facility, Romsey, Hampshire.

8.2 The assessment has been carried out following background noise surveys undertaken at locations representative of the most sensitive residential properties to the site.

8.3 Calculations have been undertaken, based on source noise data for similar wash plant activities, to determine the level of wash plant noise incident at the nearest Receptor Locations.

8.4 The assessment has indicated that the proposals will result in a low noise impact at the nearest residential properties. This will place the impact magnitude below LOAEL (lowest observable adverse effect level) as defined in the Planning Practice Guidance. Therefore, noise from the proposed new wash plant is considered acceptable.

REFERENCES

1. Department for Communities and Local Government. National Planning Policy Framework, 2012.

2. DEFRA. Noise Policy Statement for England, 2010.

3. Department of Communities and Local Government. National Planning Practice Guidance, March 2014.

4. British Standards Institution. British Standard 4142:2014 Methods for rating and assessing industrial and commercial sound, 2014.

5. British Standards Institution. British Standard 7445: 1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use.

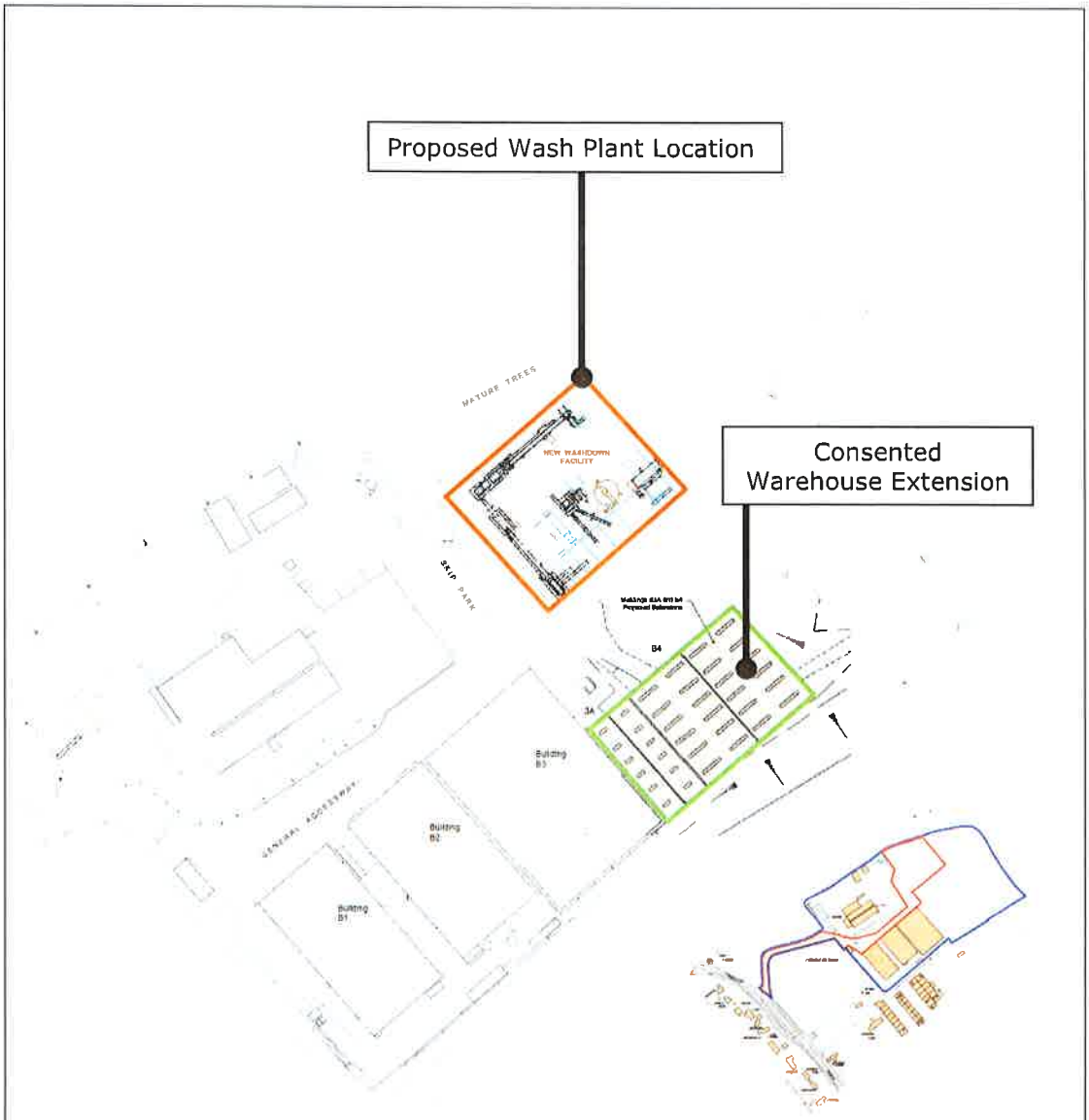
Measurement Location 1

Measurement Location 2

Proposed Plant Location

Nº Receptor Location

Project: Ace Liftaway, Yokesford Hill	**Title:** Site Location, Receptors & Noise Survey Locations	
DWG No: Figure 1	**Scale:** N.T.S.	**Rev:** -
Date: June 2021	**Drawn By:** KE	**Job No:** 8963-1



Project: Ace Liftaway, Yokesford Hill	**Title:** Proposed Site Layout		
DWG No: Figure 2	**Scale:** N.T.S.	**Rev:** -	
Date: June 2021	**Drawn By:** KE	**Job No:** 8963-1	

APPENDIX A: ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time internal, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

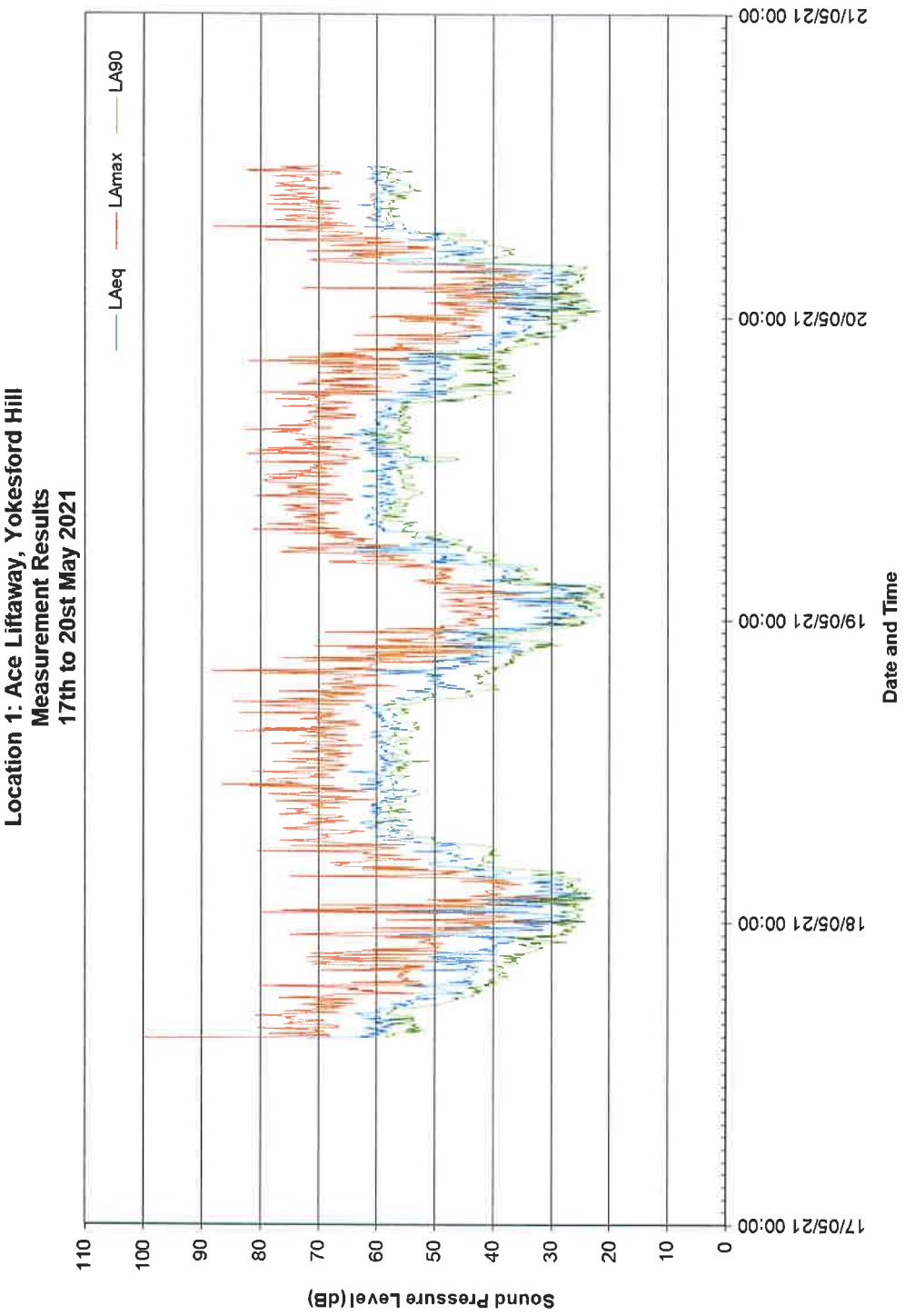
iii) The L_{A10} noise level

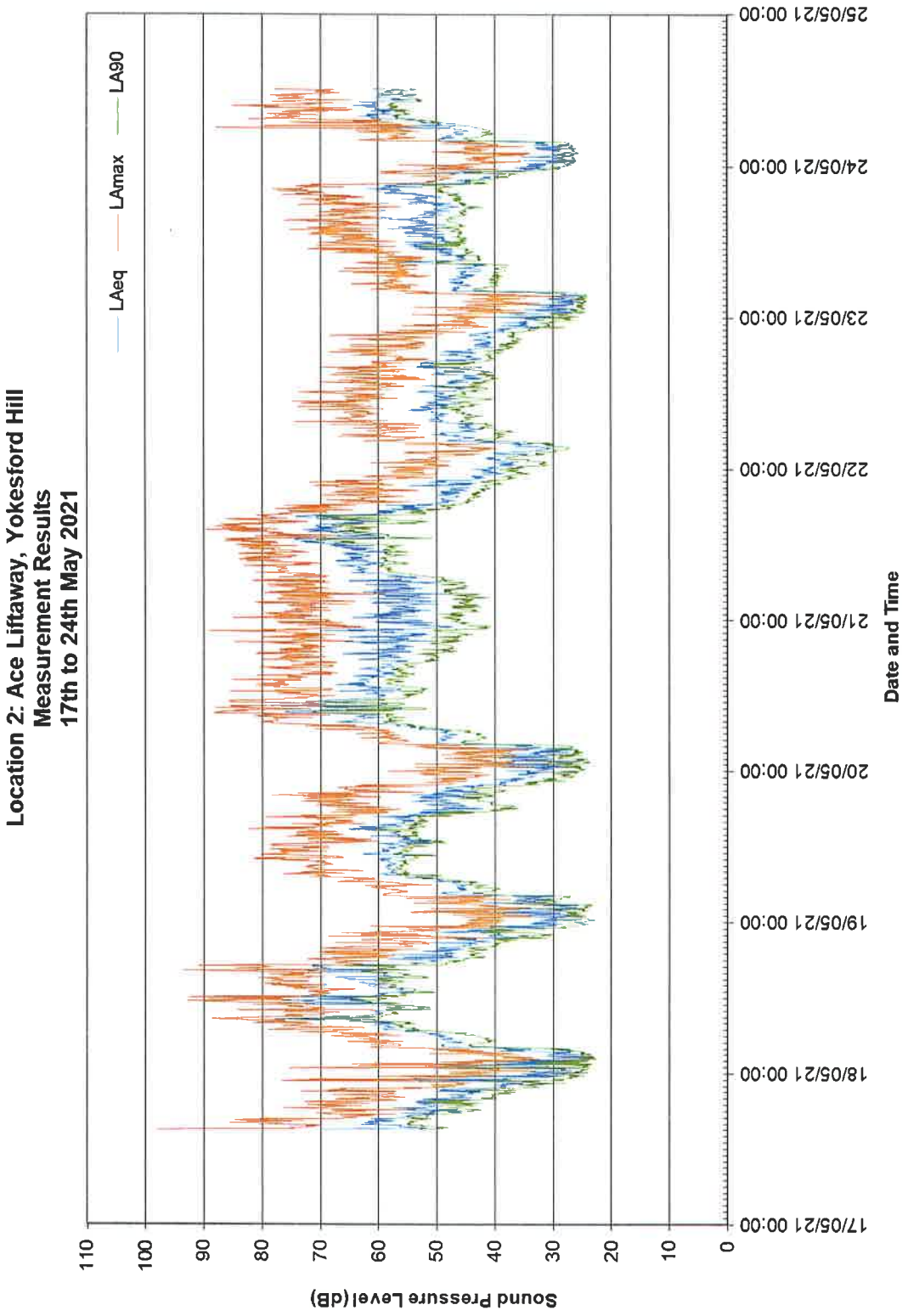
This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: ENVIRONMENTAL NOISE MEASUREMENTS




Location 2: Ace Liftaway, Yokesford Hill
Measurement Results
17th to 24th May 2021
LAeq
LAmax
LA90
Sound Pressure Level (dB)
110
100
90
80
70
60
50
40
30
20
10
0
17/05/21 00:00
18/05/21 00:00
19/05/21 00:00
20/05/21 00:00
21/05/21 00:00
22/05/21 00:00
23/05/21 00:00
24/05/21 00:00
25/05/21 00:00
Date and Time