SPIRE ENVIRONMENTAL
NOISE, VIBRATION AND AIR QUALITY CONSULTANTS

Mr E.J. Lidster

West Green Recycling, West Green Way, Barnsley, S71 5SN

Retrospective Planning Application Nº 2023/ENQ/00122

R23.1826-1-AG

Noise Impact Assessment

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Notice

EXECUTIVE SUMMARY

Spire Environmental Consultants Limited have been appointed by Caulmert Limited on behalf of Mr E.J. Lidster to undertake an environmental noise assessment for operation of an aggregate washing plant at West Green Recycling, West Green Way, Barnsley, S71 5SN.

The noise assessment of the proposed aggregate recycling plant has been assessed separately and combined with the current permitted operation of the hydraulic pecker, mobile crusher, mobile trommel screen, and mobile plant operating at the site, to give the overall combined noise levels of site operations at the West Green Recycling site.

Background sound level surveys have been undertaken at 19 Grace Street, 546 Burton Road and Bleach Croft Farm. The noise levels of the proposed aggregate washing plant and existing hydraulic pecker, mobile crusher, mobile trommel screen and associated mobile plant have been predicted and assessed against the L_{A90} + 10 dB and maximum 55 dB(A) criteria in government guidance for mineral operations.

The predicted noise levels do not exceed the L_{A90} + 10 dB and maximum 55 dB(A) criteria of at the closest residential properties to the site.

In accordance with the Noise Policy Statement for England (NPSE), site operations are predicted to be at the No Observed Effect Level (NOEL).

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1. INTRODUCTION

Appointment & Background

1.1 Spire Environmental Consultants Limited have been appointed by Caulmert Limited on behalf of Mr E.J. Lidster to undertake an environmental noise assessment for a retrospective application to operate an aggregate washing plant at West Green Recycling, West Green Way, Barnsley, S71 5SN.

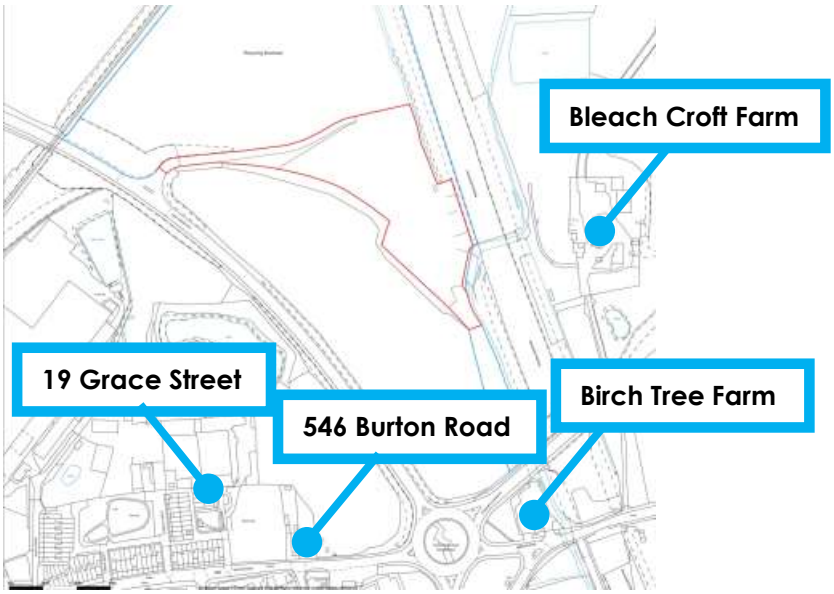
1.2 Monitoring of the existing background sound levels was conducted for a continuous period between 27 September and 04 October 2023 at locations representative of the closest residential receptors at 19 Grace Street, 546 Burton Road and Bleach Croft Farm. The noise measurements were taken with type 1 tripod mounted sound level meters at a height of 1.5m above the ground.

1.3 This report is necessarily technical in nature, so to assist the reader, a glossary of acoustic terminology can be found in **Appendix A**.

Site Setting

1.4 The location of the aggregate recycling site is shown within the red line in the centre of **Figure 1** (below). The closest residential receptors at 19 Grace Street, 546 Burton Road, Bleach Croft Farm and Birch Tree Farm are also shown below.

Figure 1: Location plan



2. STANDARDS AND GUIDANCE

Introduction

2.1 The existing and proposed operations at the West Green Recycling are concerned with aggregate recycling. In line with the latest government guidance on mineral sites, although mineral will not be extracted prior to processing on the site, the government noise criteria for mineral sites, includes those for related similar processes such as aggregates recycling and disposal of construction waste. The government criteria for minerals sites is detailed below.

National Planning Policy Framework (NPPF)

2.2 Published in February 2019, this document sets out the Government's planning policies for England and supersedes the previous NPPF published in 2012. It makes the following reference to noise in the section entitled *Conserving and enhancing the natural environment*:

"170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

[…]

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

2.3 It also makes the following references to noise in the Section entitled *Ground conditions and pollution*:

"180. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

> See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010)."

And

> "182. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

Noise Policy Statement for England (NPSE)

2.4 The following phrases have been adopted to assess the noise impacts of a proposed development:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. There is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life can be detected.

Government Mineral Guidance

Daytime Mineral Operations

2.5 Mineral planning authorities should aim to establish a noise limit through a planning condition, at noise sensitive properties that does not exceed the background noise level ($L_{A90,1h}$) by more than 10 dB(A) during normal working hours (07:00 – 19:00) hours. Where it would be difficult not to exceed the background level by more than 10 dB(A), without imposing unreasonable burdens on the mineral operator, the limit should be set as near as practicable. In any event, the total noise from the operations should not exceed 55 dB(A) $L_{Aeq,1h}$ (free field).

Evening Mineral Operations

2.6 During the evening period (19:00 – 22:00), the noise limits should not exceed the background noise level ($L_{A90,1h}$) by more than 10 dB(A) and should not exceed 55 dB(A) $L_{Aeq,1h}$ (free field).

Night-time Mineral Operations

2.7 During the night-time period (22:00 – 07:00), noise limits should be set to reduce to a minimum any adverse impacts, without imposing unreasonable burdens on the mineral operator. In any event, the noise limit should not exceed 42 dB(A) $L_{Aeq,1h}$ (free field) at any noise sensitive property.

Short-term Operations

2.8 Activities such as soil stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, construction of new permanent landforms and aspects of site road construction and maintenance.

2.9 Increased temporary daytime noise limits of up to 70 dB(A) $L_{Aeq,1h}$ (free field) for periods of up to 8 weeks in a year at specified noise-sensitive properties should be considered to facilitate essential site preparation and restoration work and construction of baffle mounds, where it is clear that this will bring longer-term environmental benefits to the site or its environs.

2.10 Where work is likely to take longer than 8 weeks, a lower limit over a longer period should be considered. In some wholly exceptional cases, where there is no viable alternative, a higher limit for a very limited period, may be appropriate in order to attain the environmental benefits. Within this framework, the 70 dB(A) $L_{Aeq,1h}$ (free-field) limit referred to above should be regarded as the normal maximum.

3. ENVIRONMENTAL NOISE SURVEY

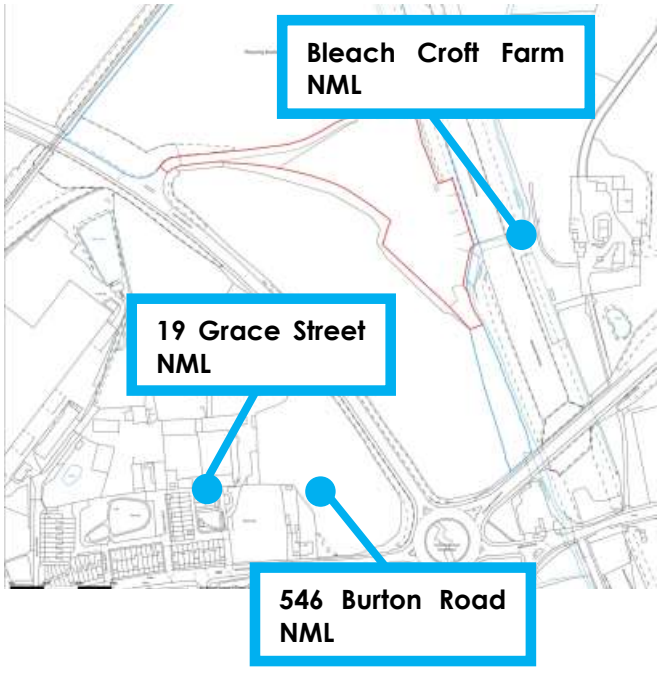
Environmental Noise Survey Methodology

3.1 The existing background sound levels were measured at locations representative of the noise climate at the closest residential receptors.

3.2 At Bleach Croft Farm, environmental noise monitoring was conducted on the vehicle access road to the west of this property. At 19 Grace Street, the noise monitoring was conducted in the rear garden. At 546 Burton Road environmental noise monitoring was conducted on agricultural land to the rear of this property. The monitoring locations are shown in **Figure 2** (below).

3.3 The noise monitoring was conducted using type 1 tripod mounted sound level meters at a height of 1.5m from the ground, in free-field locations.

Figure 2: Noise monitoring locations



Measurement Equipment

3.4 The noise surveys were undertaken using Class 1 sound level meters. Calibration checks were undertaken prior to and upon completion of the surveys. No significant calibration drift was found to have occurred. All laboratory calibration (biennial for the sound level meters and annual for the calibrator) was up-to-date at the time. The equipment used for the survey is summarised in **Table 2** below.

Table 2: Noise monitoring equipment

Equipment	Manufacturer	Serial Number	Calibration due Date
Sound Level Meters	Cirrus	G056773	14 October 2024
		G301768	14 October 2024
		G061905	08 February 2024
Acoustic Calibrator		55186	14 October 2023

Meteorological Conditions

3.5 Representative weather conditions obtained from Leeds Bradford Airport for the survey period are shown in **Table 3** (below).

Date	Temperature (°C)		Average Wind		Precipitation
	Maximum	Minimum	Speed (m/s)	Direction	
27 September	17.2	10.0	4.9	SW	Light Rain
28 September	15.0	12.8	4.9	SW	Light Rain
29 September	16.4	11.1	4.7	SW	None
30 September	13.9	8.9	3.6	Variable	Light Rain
1 October	17.8	12.2	3.1	SW	Light Rain
2 October	15.0	8.9	2.7	Variable	Light Rain
3 October	12.8	8.9	4.8	SW	Light Rain
4 October	16.1	11.1	4.9	SW	Light Rain

Table 3 – Weather conditions during the survey periods

3.6 During the survey periods, the temperature was between 8.9 and 17.8 °C. The wind speed was between 2.7 and 4.9 m/s. The wind direction was from the south west and a variable direction. There was light rain for seven days of the survey period.

19 Grace Street Measured daytime levels

3.7 A Summary of the measured noise levels, recorded during the daytime period at 19 Grace Street are shown in in **Table 4** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (16h)}$	dB $L_{A90,1h\ (16h)}$	*dB $L_{Amax,f,1h\ (16h)}$
# Wednesday 27 September	45.5 – 68.9 (59.4)	41.0 – 50.8 (46.9)	65.4 – 85.1 (85.1)
Thursday 28 September	40.4 – 66.5 (56.9)	36.2 – 43.6 (41.7)	57.5 – 91.6 (91.6)
Friday 29 September	46.2 – 76.9 (65.5)	40.7 – 46.8 (43.8)	66.2 – 101.2 (101.2)
Saturday 30 September	45.5 – 59.8 (54.6)	41.2 – 49.9 (44.7)	64.0 – 89.4 (89.4)
Sunday 1 October	44.8 – 50.0 (46.9)	35.8 – 44.0 (40.8)	61.9 – 85.3 (85.3)
Monday 2 October	46.0 – 50.9 (48.6)	38.3 – 44.5 (42.9)	67.4 – 81.6 (81.6)
Tuesday 3 October	43.3 – 52.9 (48.3)	40.3 – 46.8 (44.2)	59.9 – 81.3 (81.3)

*Maximum obtained over survey period
Over 11-hour period

Table 4 19 Grace Street daytime noise monitoring summary

3.8 During the daytime period (07:00 – 23:00 hours), the measured ambient noise level was between 40.4 and 76.9 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 35.8 and 50.8 $L_{A90,1h}$. During the daytime (16-hour period), the ambient noise level was between 46.9 and 65.5 $L_{Aeq,16h}$. The corresponding background noise level was between 40.8 and 46.9 $L_{A90,16h}$. The noise climate was influenced by road traffic noise, reversing alarms from the glass manufacturing plant to the west and bird song. Site operations were inaudible.

3.9 The measured ambient noise levels were influenced by the intermittent operation of a vibrating plate in the garden of this property between 13:00 and 14:00 hours on Wednesday 27 September, between 11:00 and 12:00 hours on Thursday 28 September and between 08:00 and 09:00 on Friday 29 September.

19 Grace Street Measured night-time levels

3.10 A Summary of the measured noise levels, recorded during the night-time periods are shown in **Table 5** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (8h)}$	dB $L_{A90,1h\ (8h)}$	*dB$L_{Amax,f,1h(8h)}$
Wednesday 27 – Thursday 28 September	41.1 – 48.9 (45.4)	37.4 – 43.1 (40.1)	53.2 – 71.7 (71.7)
Thursday 28 – Friday 29 September	35.6 – 45.4 (41.2)	28.2 – 42.6 (34.7)	47.2 – 67.2 (67.2)
Friday 29 – Saturday 30 September	38.2 – 44.8 (41.8)	31.2 – 40.9 (37.1)	50.8 – 65.8 (65.8)
Saturday 30 September – Sunday 1 October	40.8 – 49.7 (46.1)	32.9 – 39.3 (36.2)	61.4 – 72.8 (72.8)
Sunday 1 – Monday 2 October	37.3 – 46.5 (42.7)	29.7 – 42.8 (36.6)	58.0 – 73.0 (73.0)
Monday 2 – Tuesday 3 October	43.1 – 50.2 (47.8)	36.9 – 44.9 (39.8)	60.0 – 75.8 (75.8)
Tuesday 3 – Wednesday 4 October	39.7 – 47.5 (43.4)	35.6 – 43.3 (38.6)	58.1 – 66.8 (66.8)

*Maximum obtained over survey period

Table 5 19 Grace Street night-time noise monitoring summary

3.11 During the night-time period (23:00 – 07:00 hours), the measured ambient noise level was between 35.6 and 50.2 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 28.2 and 44.9 $L_{A90,1h}$. During the night-time (8-hour period), the ambient noise level was between 41.2 and 47.8 $L_{Aeq,8h}$. The corresponding background noise level was between 34.7 and 40.1 $L_{A90,8h}$. The noise climate was influenced by road traffic noise.

546 Burton Road Measured daytime levels

3.12 A Summary of the measured noise levels, recorded during the daytime period at the 19 Grace Street are shown in in **Table 6** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (16h)}$	dB $L_{A90,1h\ (16h)}$	*dB $L_{Amax,f,1h\ (16h)}$
# Wednesday 27 September	46.9 – 56.1 (53.9)	41.2 – 52.8 (49.2)	63.3 – 81.0 (81.0)
Thursday 28 September	47.9 – 53.1 (51.7)	39.3 – 48.0 (45.8)	64.8 – 77.8 (77.8)
Friday 29 September	49.2 – 54.5 (52.4)	39.9 – 49.1 (46.0)	65.0 – 76.4 (76.4)
Saturday 30 September	50.3 – 56.2 (53.2)	43.6 – 52.2 (47.2)	66.6 – 81.2 (81.2)
Sunday 1 October	49.1 – 54.0 (52.0)	39.8 – 47.6 (44.3)	62.6 – 83.5 (83.5)
Monday 2 October	51.8 – 56.3 (54.7)	41.6 – 52.0 (48.7)	65.3 – 80.6 (80.6)
Tuesday 3 October	48.3 – 54.9 (53.5)	38.9 – 50.3 (47.0)	65.6 – 81.7 (81.7)

*Maximum obtained over survey period
Over 11-hour period

Table 6 546 Burton Road daytime noise monitoring summary

3.13 During the daytime period (07:00 – 23:00 hours), the measured ambient noise level was between 46.9 and 56.3 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 38.9 and 52.8 $L_{A90,1h}$. During the daytime (16-hour period), the ambient noise level was between 51.7 and 54.7 $L_{Aeq,16h}$. The noise climate was influenced by road traffic noise, reversing alarms from the glass manufacturing plant to the west and bird song. Site operations were inaudible.

546 Burton Road Measured night-time levels

3.14 A Summary of the measured noise levels, recorded during the night-time periods are shown in **Table 7** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (8h)}$	dB $L_{A90,1h\ (8h)}$	*dB$L_{Amax,f,1h(8h)}$
Wednesday 27 – Thursday 28 September	43.1 – 50.1 (47.1)	35.5 – 43.1 (39.6)	58.1 – 67.9 (67.9)
Thursday 28 – Friday 29 September	42.5 – 53.4 (48.3)	28.5 – 45.2 (34.8)	58.2 – 70.5 (70.5)
Friday 29 – Saturday 30 September	43.2 – 51.4 (47.2)	29.7 – 42.0 (35.3)	59.9 – 70.2 (70.2)
Saturday 30 September – Sunday 1 October	43.6 – 49.4 (46.8)	29.7 – 40.7 (35.0)	61.4 – 78.8 (78.8)
Sunday 1 – Monday 2 October	44.9 – 53.7 (49.8)	29.0 – 45.2 (36.0)	63.7 – 78.1 (78.1)
Monday 2 – Tuesday 3 October	44.8 – 54.7 (51.0)	33.4 – 47.8 (39.0)	62.0 – 71.5 (71.5)
Tuesday 3 – Wednesday 4 October	43.8 – 52.6 (47.9)	32.8 – 44.4 (36.4)	62.0 – 72.2 (72.2)

*Maximum obtained over survey period

Table 7 546 Burton Road night-time noise monitoring summary

3.15 During the night-time period (23:00 – 07:00 hours), the measured ambient noise level was between 42.5 and 54.7 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 28.5 and 47.8 $L_{A90,1h}$. During the night-time (8-hour period), the ambient noise level was between 46.8 and 51.0 $L_{Aeq,8h}$. The corresponding background noise level was between 34.8 and 39.6 $L_{A90,8h}$. The noise climate was influenced by road traffic noise.

Bleach Croft Farm Measured daytime levels

3.16 A Summary of the measured noise levels, recorded during the daytime period at the 19 Grace Street are shown in in **Table 8** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (16h)}$	dB $L_{A90,1h\ (16h)}$	*dB $L_{Amax,f,1h\ (16h)}$
# Wednesday 27 September	46.6 – 50.2 (48.4)	42.1 – 45.8 (43.6)	59.9 – 74.0 (74.0)
Thursday 28 September	39.8 – 46.8 (44.8)	33.9 – 41.3 (39.6)	58.5 – 69.7 (69.7)
Friday 29 September	40.7 – 48.8 (45.3)	35.0 – 43.7 (40.0)	56.1 – 83.4 (83.4)
Saturday 30 September	43.2 – 53.8 (48.8)	36.3 – 47.1 (40.5)	62.0 – 83.8 (83.8)
Sunday 1 October	38.7 – 46.8 (43.3)	32.6 – 41.1 (36.7)	54.9 – 80.5 (80.5)
Monday 2 October	43.8 – 50.5 (47.5)	37.8 – 44.4 (41.0)	58.9 – 82.8 (82.8)
Tuesday 3 October	41.0 – 49.0 (46.2)	34.4 – 45.0 (41.3)	61.1 – 80.9 (80.9)

*Maximum obtained over survey period
Over 11-hour period

Table 8 Bleach Croft Farm daytime noise monitoring summary

3.17 During the daytime period (07:00 – 23:00 hours), the measured ambient noise level was between 38.7 and 53.8 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 32.6 and 47.1 $L_{A90,1h}$. During the daytime (16-hour period), the ambient noise level was between 43.3 and 48.8 $L_{Aeq,16h}$. The corresponding background noise level was between 36.7 and 43.6 $L_{A90,16h}$. The noise climate was influenced by road traffic noise dogs barking and bird song. Site operations were inaudible.

Bleach Croft Farm Measured night-time levels

3.18 A Summary of the measured noise levels, recorded during the night-time periods are shown in **Table 9** (below). The full results are shown in **Appendix B.**

Survey Period	dB $L_{Aeq,1h\ (8h)}$	dB $L_{A90,1h(8h)}$	*dB$L_{Amax,f,1h(8h)}$
Wednesday 27 – Thursday 28 September	38.9 – 49.4 (45.4)	32.7 – 42.9 (37.0)	54.5 – 70.9 (70.9)
Thursday 28 – Friday 29 September	33.5 – 46.9 (40.4)	28.1 – 37.5 (31.3)	47.7 – 77.4 (77.4)
Friday 29 – Saturday 30 September	34.0 – 44.7 (38.8)	28.3 – 34.9 (30.9)	48.3 – 70.1 (70.1)
Saturday 30 September – Sunday 1 October	36.3 – 48.9 (42.8)	29.6 – 36.1 (32.4)	51.6 – 78.2 (78.2)
Sunday 1 – Monday 2 October	34.3 – 43.7 (39.7)	28.2 – 38.1 (31.4)	54.3 – 78.0 (78.0)
Monday 2 – Tuesday 3 October	39.0 – 50.4 (44.9)	31.2 – 40.4 (35.2)	61.0 – 82.1 (82.1)
Tuesday 3 – Wednesday 4 October	35.5 – 45.4 (40.1)	29.7 – 39.4 (32.4)	57.1 – 73.8 (73.8)

*Maximum obtained over survey period

Table 9 Bleach Croft Farm night-time noise monitoring summary

3.19 During the night-time period (23:00 – 07:00 hours), the measured ambient noise level was between 33.5 and 50.4 $L_{Aeq,1h}$. The corresponding background noise level during this period was between 28.1 and 42.9 $L_{A90,1h}$. During the night-time (8-hour period), the ambient noise level was between 38.8 and 45.4 $L_{Aeq,8h}$. The corresponding background noise level was between 30.9 and 37.0 $L_{A90,8h}$. The noise climate was influenced by road traffic noise.

4. NOISE ASSESSMENT

Introduction

4.1 Aggregate recycling operations have been permitted to occur at the site since 1991. An aggregate wash plant was recently installed at the site; however the Local Authority have determined that planning permission is required because the works do not benefit from the express consent granted under Class L of Part 7 to Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order (2015) (as amended).

4.2 This noise assessment has been provided in support of a retrospective planning application Nº 2023/ENQ/00122.

Noise Sources

4.3 At the aggregate recycling facility, a hydraulic pecker, mobile crusher, mobile trommel screen and associated mobile plant were operating. These are shown in pictures 1 – 3 (below).

Pictures 1 – 3 (left to right) Kleeman mobile crusher/MDS M412 mobile trommel/hydraulic pecker

4.4 Noise measurements of the existing plant were undertaken on Wednesday 4 October 2023 using a class 1 sound level meter, mounted on a tripod at a height of 1.5m from the ground. These noise measurements are shown in **Table 10** (below).

4.5 An aggregate washing plant is also proposed to be operating at the site. The measured noise level has been obtained from manufacturers data. This is also shown in Table 2 (below).

Plant type	Measured noise level dB(A)
Kleeman impact crusher loaded by excavator @ 10m	87.5
MDS M412 mobile trommel loaded by excavator @ 5m	88.2
Excavator with Toku hydraulic pecker attachment @ 5m	90.1
Aggregate wash plant @ 10m	73.0

Table 10 Measured noise levels of existing and proposed plant

Operating Hours

4.6 The operating hours of the site are as follows:

- Monday to Friday 07:00 – 18:00 hours
- Saturday 07:00 – 15:00 hours
- No operations on Sundays or Bank Holidays

19 Grace Street background sound levels

4.7 The frequency of the background sound level ($L_{A90,1h}$) recorded in the rear garden of 19 Grace Street during the site operating hours (07:00 – 18:00 hours) Monday to Friday and (07:00 – 15:00) hours on Saturday. These periods are shown in **Figure 3** below. Recorded background sound levels were between 41 and 51 $L_{A90,1h}$. However, the most frequently recorded background sound level was 45 $L_{A90,1h}$, which was recorded 15 times (26%). This is most representative of the noise climate at this location.

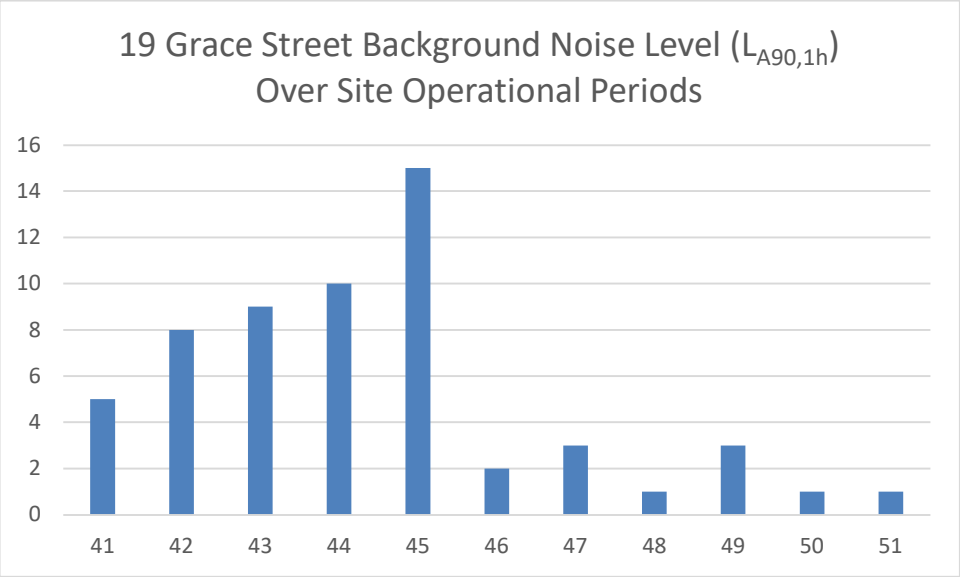


Figure 3 19 Grace Steet background noise levels over site operational periods

546 Burton Road background sound levels

4.8 The frequency of the background sound level ($L_{A90,1h}$) recorded in a field at the rear of 546 Burton Road during the site operating hours (07:00 – 18:00 hours) Monday to Friday and (07:00 – 15:00) hours on Saturday. These periods are shown in **Figure 4** below. Recorded background sound levels were between 45 and 53 $L_{A90,1h}$. However, the most frequently recorded background sound level was 47 $L_{A90,1h}$, which was recorded 14 times (25%). This is most representative of the noise climate at this location.

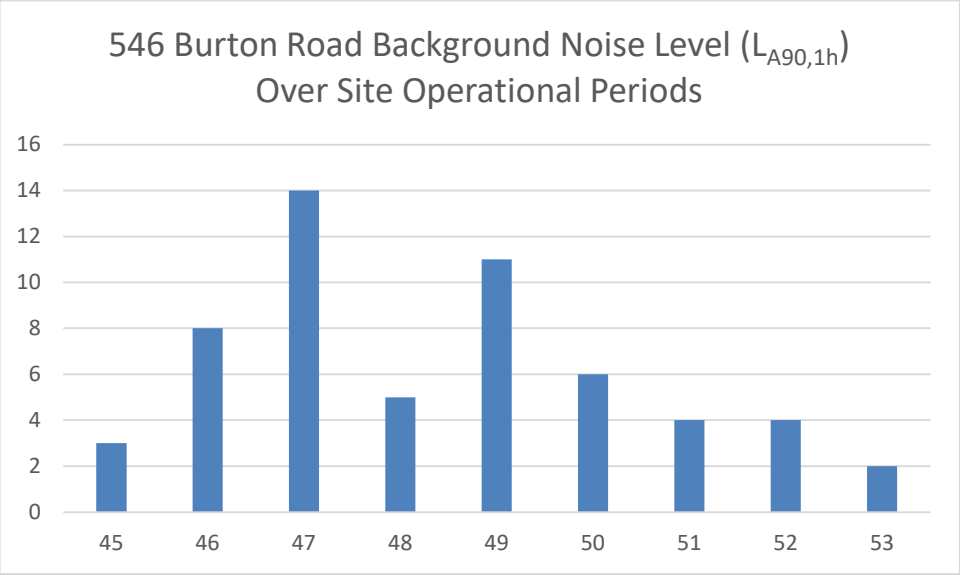


Figure 4 **546 Burton Road background noise levels over site operational periods**

Bleach Croft Farm background sound levels

4.9 The frequency of the background sound level ($L_{A90,1h}$) recorded close to the vehicle access road to Bleach Croft Farm during the site operating hours (07:00 – 18:00 hours) Monday to Friday and (07:00 – 15:00) hours on Saturday. These periods are shown in **Figure 5** below. Recorded background sound levels were between 36 and 46 $L_{A90,1h}$. However, the most frequently recorded background sound level was 43 $L_{A90,1h}$, which was recorded 14 times (25%). This is most representative of the noise climate at this location.

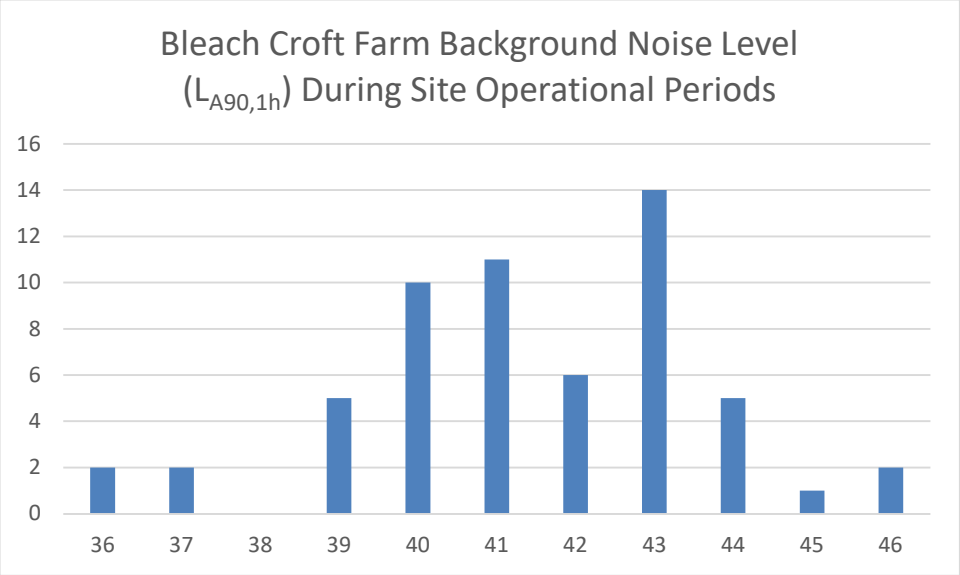


Figure 5 **Bleach Croft Farm background noise levels over site operational periods**

Background Assessment

4.10 The noise assessment will use the most frequently occurring background sound levels recorded at each receptor during the site operational periods. Existing site operations were inaudible at the closest noise sensitive receptors; therefore they are representative of the existing background noise levels at these locations.

4.11 At the closest noise receptors at 19 Grace Street, 546 Burton Road and Bleach Croft Farm, the most frequently occurring background noise levels during the site operational periods were 45, 47 and 43 $L_{A90,1h}$. These levels will be used as the baseline levels in the noise assessment.

4.12 Noise monitoring was not conducted at Birch Tree Farm. This receptor is located between the A628 to the north and Barnsley Road to the south. Road traffic noise will therefore be the dominant noise source at this location. The noise sensitive receptor at 546 Burton Road is located at a similar distance to existing sources of road traffic noise, therefore the background sound levels at this location will be used to represent Birch Tree Farm.

Mineral Noise Assessment

4.13 The noise assessment will use the most frequently occurring background sound levels recorded at each receptor during the site operational periods. Existing site operations were inaudible at the closest noise sensitive receptors; therefore they are representative of the existing background noise levels at these locations.

4.14 The residential properties at Bleach Croft Farm and Birch Tree Farm are located at the base of a former railway embankment of approximately 15 m in height. The attenuation from this embankment has been included in the noise predictions for Bleach Croft Farm and Birch Tree Farm.

4.15 The attenuation from an existing 10m high soil bund to the west of the site (picture 4 below) has been included in the noise predictions for 19 Grace Street and 546 Burton Road for the operation of the crushing and screening plants only, as these properties have line of sight to the proposed aggregate screening plant.

Picture 4 West Green Way – Aggregate washing plant & soil bund on south western boundary

Reference	Existing $L_{A90,1h}$	Predicted Worst Case dB $L_{Aeq,1h}$	Background ($L_{A90,1h}$) + 10 dB(A) Limit	Difference dB(A)	
				Lower Daytime Limit $L_{A90,1h}$ + 10	Upper Daytime Limit 55 dB $L_{Aeq,1h}$
19 Grace Street	45	40	55	-15	-15
546 Burton Road	47	40	55	-15	-15
Bleach Croft Farm	43	26	53	-27	-29
Birch Tree Farm	47	23	55	-32	-32

Table 11 Aggregate washing plant noise prediction summary

Reference	Existing $L_{A90,1h}$	Predicted Worst Case dB $L_{Aeq,1h}$	Background ($L_{A90,1h}$) + 10 dB(A) Limit	Difference dB(A)	
				Lower Daytime Limit $L_{A90,1h}$ + 10	Upper Daytime Limit 55 dB $L_{Aeq,1h}$
19 Grace Street	45	42	55	--13	-13
546 Burton Road	47	43	55	-12	-12
Bleach Croft Farm	43	41	53	-12	-14
Birch Tree Farm	47	37	55	--18	-18

Table 12 Aggregate washing plant and existing operations noise prediction summary

4.16 A summary of the predicted noise levels during the operation of the aggregate washing plant is shown in **Table 11** (above). The predicted noise levels of the combined operation of the aggregate washing plant, mobile crushing plant, mobile trommel screening plant and associated mobile plant movements is shown in **Table 12** (above). The noise predictions and barrier calculations are shown in **Appendix C & D**.

4.17 During the operation of the aggregate washing plant (**Table 11)** the predicted levels are between 15 and 32 below the background + 10 dB(A) (up to 55 dB(A)) and up to 55 dB(A) criteria.

4.18 When considering the operation of the aggregate washing plant and existing operations (**Table 12**), the predicted levels are between 12 and 18 below the background + 10 dB(A) (up to 55 dB(A)) and up to 55 dB(A) criteria.

NPSE Noise Assessment

4.19 All of the predicted noise levels are below the existing background noise levels, therefore site operations will be at the No Observed Effect Level (NOEL).

5. CONCLUSIONS

5.1 Spire Environmental Consultants Limited has been appointed by Caulmert on behalf of Mr E.J. Lidster, to undertake an environmental noise assessment for the operation of an aggregate washing plant at West Green Recycling, West Green Way, Barnsley, S71 5SN.

5.2 Background sound level surveys were undertaken al locations representative of the closest residential properties. The surveys, and subsequent assessment work, have been undertaken in accordance with current standards and guidance.

5.3 A detailed noise assessment has been undertaken to determine the noise impact of the aggregate washing plant only and combined with the operation of a hydraulic pecker, mobile crusher, mobile trommel screen and associated mobile plant movements.

5.4 Predicted noise levels are well below the background L_{A90} + 10 dB(A) criteria in the government guidance for daytime operations at mineral sites.

5.5 The predicted noise levels are below the existing background noise levels; therefore site operations will be at the No Observed Effect Level (NOEL).

APPENDICES

APPENDIX A: Glossary of Terms

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Acoustic Terminology

Term	Description
dB (decibel)	The scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
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.
$L_{Aeq,T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} and L_{90}	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_{10} is the level exceeded for 10% of the time, and the L_{90} is the level exceeded for 90% of the time.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Façade Level	A sound field determined at a distance of 1m in front of a large sound reflecting object such as a building façade.

APPENDIX B: Measured Background Noise Levels

Table B1: 19 Grace Street Wednesday 27/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
27/09/2023 12:00:00	1-hour	52.0	74.8	53.4	48.3
27/09/2023 13:00:00	1-hour	68.9	85.1	58.3	49.2
27/09/2023 14:00:00	1-hour	53.1	81.5	54.2	48.6
27/09/2023 15:00:00	1-hour	53.3	78.5	54.7	49.4
27/09/2023 16:00:00	1-hour	55.4	76.7	56.3	50.8
27/09/2023 17:00:00	1-hour	58.4	80.2	62.7	50.0
27/09/2023 18:00:00	1-hour	50.3	69.1	52.0	47.7
27/09/2023 19:00:00	1-hour	48.5	67.7	50.5	45.2
27/09/2023 20:00:00	1-hour	47.3	65.4	49.3	43.3
27/09/2023 21:00:00	1-hour	46.5	66.3	48.5	42.8
27/09/2023 22:00:00	1-hour	45.5	66.5	47.5	41.0
Over survey period		**59.4**	***85.1**	**53.4**	**46.9**

*Maximum over survey period

Table B2: 19 Grace Street Wednesday 27/09/2023 – Thursday 28/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
27/09/2023 23:00:00	1-hour	48.1	71.7	49.9	42.2
28/09/2023 00:00:00	1-hour	48.9	69.6	50.8	43.1
28/09/2023 01:00:00	1-hour	44.6	61.0	47.1	40.0
28/09/2023 02:00:00	1-hour	41.1	63.2	42.7	37.4
28/09/2023 03:00:00	1-hour	45.0	67.5	45.2	38.8
28/09/2023 04:00:00	1-hour	42.3	62.1	43.5	39.0
28/09/2023 05:00:00	1-hour	42.4	53.2	44.3	39.3
28/09/2023 06:00:00	1-hour	43.9	68.4	45.0	41.1
Over survey period		**45.4**	***71.7**	**46.1**	**40.1**

*Maximum over survey period

Table B3: 19 Grace Street Thursday 28/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
28/09/2023 07:00:00	1-hour	45.2	62.8	46.7	42.8
28/09/2023 08:00:00	1-hour	45.6	69.7	46.8	43.6
28/09/2023 09:00:00	1-hour	44.7	70.4	45.9	41.7
28/09/2023 10:00:00	1-hour	44.1	68.0	45.3	41.4
28/09/2023 11:00:00	1-hour	64.7	91.6	70.1	42.1
28/09/2023 12:00:00	1-hour	66.5	89.6	70.5	42.0
28/09/2023 13:00:00	1-hour	46.3	66.6	47.7	42.0
28/09/2023 14:00:00	1-hour	47.0	67.1	47.8	42.9
28/09/2023 15:00:00	1-hour	46.3	74.8	47.1	42.4
28/09/2023 16:00:00	1-hour	47.6	71.3	47.9	42.6
28/09/2023 17:00:00	1-hour	46.4	66.2	47.3	42.8
28/09/2023 18:00:00	1-hour	46.6	66.5	47.9	43.1
28/09/2023 19:00:00	1-hour	45.1	63.7	46.7	42.0
28/09/2023 20:00:00	1-hour	45.6	68.1	46.7	41.2
28/09/2023 21:00:00	1-hour	43.4	67.1	43.8	38.3
28/09/2023 22:00:00	1-hour	40.4	57.5	42.5	36.2
Over survey period		**56.9**	***91.6**	**49.4**	**41.7**

*Maximum over survey period

Table B4: 19 Grace Street Thursday 28/09/2023 – Friday 29/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
28/09/2023 23:00:00	1-hour	41.6	65.3	42.0	35.8
29/09/2023 00:00:00	1-hour	37.4	67.2	39.1	31.6
29/09/2023 01:00:00	1-hour	35.8	47.2	38.0	31.5
29/09/2023 02:00:00	1-hour	35.6	61.8	38.3	28.2
29/09/2023 03:00:00	1-hour	36.6	57.0	40.0	29.8
29/09/2023 04:00:00	1-hour	40.5	51.1	42.9	36.7
29/09/2023 05:00:00	1-hour	44.3	63.7	45.8	41.2
29/09/2023 06:00:00	1-hour	45.4	65.9	46.8	42.6
Over survey period		**41.2**	***67.2**	**41.6**	**34.7**

*Maximum over survey period

Table B5: 19 Grace Street Friday 29/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
29/09/2023 07:00:00	1-hour	51.0	79.8	48.6	44.2
29/09/2023 08:00:00	1-hour	76.9	98.6	79.3	46.8
29/09/2023 09:00:00	1-hour	66.9	101.2	63.4	45.0
29/09/2023 10:00:00	1-hour	61.1	88.2	57.2	43.2
29/09/2023 11:00:00	1-hour	46.4	66.2	48.0	43.4
29/09/2023 12:00:00	1-hour	47.1	70.3	48.7	43.7
29/09/2023 13:00:00	1-hour	48.8	76.9	49.1	43.2
29/09/2023 14:00:00	1-hour	53.7	78.8	55.6	46.5
29/09/2023 15:00:00	1-hour	53.7	80.3	55.1	44.9
29/09/2023 16:00:00	1-hour	48.6	73.8	49.8	44.7
29/09/2023 17:00:00	1-hour	49.4	75.0	49.9	44.6
29/09/2023 18:00:00	1-hour	51.2	71.1	55.2	43.7
29/09/2023 19:00:00	1-hour	51.0	68.2	55.4	43.0
29/09/2023 20:00:00	1-hour	46.2	68.7	46.3	41.6
29/09/2023 21:00:00	1-hour	48.6	69.1	49.5	40.7
29/09/2023 22:00:00	1-hour	48.3	67.8	49.6	41.1
Over survey period		**65.5**	***101.2**	**53.8**	**43.8**

*Maximum over survey period

Table B6: 19 Grace Street Friday 29/09/2023 – Saturday 30/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
29/09/2023 23:00:00	1-hour	43.3	61.0	44.8	40.9
30/09/2023 00:00:00	1-hour	42.0	59.5	43.8	39.6
30/09/2023 01:00:00	1-hour	41.0	57.2	42.7	38.3
30/09/2023 02:00:00	1-hour	40.8	65.3	41.9	37.9
30/09/2023 03:00:00	1-hour	38.2	54.2	40.8	31.2
30/09/2023 04:00:00	1-hour	38.5	50.8	41.2	31.2
30/09/2023 05:00:00	1-hour	42.1	51.2	44.5	37.0
30/09/2023 06:00:00	1-hour	44.8	65.8	47.0	40.3
Over survey period		**41.8**	***65.8**	**43.4**	**37.1**

*Maximum over survey period

Table B7: 19 Grace Street Saturday 30/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
30/09/2023 07:00:00	1-hour	45.8	64.0	47.9	41.2
30/09/2023 08:00:00	1-hour	45.5	64.3	47.2	41.3
30/09/2023 09:00:00	1-hour	52.4	81.5	51.6	41.7
30/09/2023 10:00:00	1-hour	59.0	89.0	57.1	41.3
30/09/2023 11:00:00	1-hour	50.6	76.8	49.5	42.9
30/09/2023 12:00:00	1-hour	57.9	81.7	59.8	44.7
30/09/2023 13:00:00	1-hour	51.8	73.5	54.3	44.4
30/09/2023 14:00:00	1-hour	49.0	68.4	50.7	45.4
30/09/2023 15:00:00	1-hour	53.3	80.8	55.8	46.4
30/09/2023 16:00:00	1-hour	59.8	89.4	58.5	49.9
30/09/2023 17:00:00	1-hour	57.3	81.0	60.1	48.5
30/09/2023 18:00:00	1-hour	57.2	77.5	61.1	48.9
30/09/2023 19:00:00	1-hour	52.1	73.1	53.7	47.8
30/09/2023 20:00:00	1-hour	49.7	68.9	51.3	44.8
30/09/2023 21:00:00	1-hour	47.0	70.8	48.6	43.1
30/09/2023 22:00:00	1-hour	47.3	70.4	48.4	42.1
Over survey period		**54.6**	***89.4**	**53.5**	**44.7**

*Maximum over survey period

Table B8: 19 Grace Street Saturday 30/09/2023 – Sunday 01/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
30/09/2023 23:00:00	1-hour	43.5	61.4	45.8	39.3
01/10/2023 00:00:00	1-hour	42.2	64.6	44.1	36.5
01/10/2023 01:00:00	1-hour	40.8	63.8	43.2	33.8
01/10/2023 02:00:00	1-hour	41.7	67.2	43.0	32.9
01/10/2023 03:00:00	1-hour	47.9	71.1	44.2	36.2
01/10/2023 04:00:00	1-hour	49.5	72.8	50.9	35.2
01/10/2023 05:00:00	1-hour	49.7	70.6	54.1	37.1
01/10/2023 06:00:00	1-hour	42.6	66.9	44.5	38.3
Over survey period		**46.1**	***72.8**	**46.2**	**36.2**

*Maximum over survey period

Table B9: 19 Grace Street Sunday 01/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
01/10/2023 07:00:00	1-hour	45.2	66.4	46.8	39.9
01/10/2023 08:00:00	1-hour	44.9	65.1	47.2	39.6
01/10/2023 09:00:00	1-hour	46.1	73.6	47.7	42.4
01/10/2023 10:00:00	1-hour	47.0	70.5	48.4	42.8
01/10/2023 11:00:00	1-hour	47.5	84.4	47.5	42.6
01/10/2023 12:00:00	1-hour	50.0	71.6	52.6	44.0
01/10/2023 13:00:00	1-hour	46.0	61.9	47.6	42.3
01/10/2023 14:00:00	1-hour	49.4	85.3	48.0	41.8
01/10/2023 15:00:00	1-hour	46.5	70.4	48.0	42.2
01/10/2023 16:00:00	1-hour	44.8	63.1	46.8	40.4
01/10/2023 17:00:00	1-hour	46.0	66.9	47.3	40.6
01/10/2023 18:00:00	1-hour	46.6	69.9	47.9	41.1
01/10/2023 19:00:00	1-hour	47.0	67.7	47.2	40.8
01/10/2023 20:00:00	1-hour	46.9	67.2	47.2	41.0
01/10/2023 21:00:00	1-hour	46.6	65.4	47.8	35.8
01/10/2023 22:00:00	1-hour	45.0	65.4	44.3	36.0
Over survey period		**46.9**	***85.3**	**47.6**	**40.8**

*Maximum over survey period

Table B10: 19 Grace Street Sunday -01/10/2023 – Monday 02/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
01/10/2023 23:00:00	1-hour	39.6	61.8	42.2	33.3
02/10/2023 00:00:00	1-hour	39.8	61.0	41.4	35.3
02/10/2023 01:00:00	1-hour	40.2	63.1	42.3	36.2
02/10/2023 02:00:00	1-hour	37.3	59.7	40.1	29.7
02/10/2023 03:00:00	1-hour	43.4	73.0	44.3	34.4
02/10/2023 04:00:00	1-hour	42.3	59.4	44.3	39.0
02/10/2023 05:00:00	1-hour	44.7	58.0	46.6	41.8
02/10/2023 06:00:00	1-hour	46.5	65.2	48.2	42.8
Over survey period		**42.7**	***73.0**	**43.7**	**36.6**

*Maximum over survey period

Table B11: 19 Grace Street Monday 02/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
02/10/2023 07:00:00	1-hour	47.9	67.4	49.2	44.5
02/10/2023 08:00:00	1-hour	49.6	80.6	49.7	43.7
02/10/2023 09:00:00	1-hour	50.9	74.9	51.3	44.4
02/10/2023 10:00:00	1-hour	48.7	71.7	48.8	42.5
02/10/2023 11:00:00	1-hour	46.5	72.0	48.0	42.3
02/10/2023 12:00:00	1-hour	46.0	67.7	47.2	41.6
02/10/2023 13:00:00	1-hour	48.2	69.9	51.1	41.4
02/10/2023 14:00:00	1-hour	48.7	81.6	50.7	43.6
02/10/2023 15:00:00	1-hour	48.1	75.4	49.3	44.3
02/10/2023 16:00:00	1-hour	48.4	75.8	49.6	43.5
02/10/2023 17:00:00	1-hour	48.0	73.4	49.2	43.8
02/10/2023 18:00:00	1-hour	49.3	77.0	51.9	43.8
02/10/2023 19:00:00	1-hour	49.6	69.8	52.8	43.7
02/10/2023 20:00:00	1-hour	50.8	77.1	53.6	43.4
02/10/2023 21:00:00	1-hour	48.3	70.3	51.6	41.6
02/10/2023 22:00:00	1-hour	44.9	74.4	47.5	38.3
Over survey period		**48.6**	***81.6**	**50.1**	**42.9**

*Maximum over survey period

Table B12: 19 Grace Street Monday 02/10/2023 – Tuesday 03/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
02/10/2023 23:00:00	1-hour	50.0	72.9	53.6	40.7
03/10/2023 00:00:00	1-hour	48.4	75.8	52.5	37.8
03/10/2023 01:00:00	1-hour	46.6	73.3	48.9	37.6
03/10/2023 02:00:00	1-hour	39.9	60.0	41.6	36.9
03/10/2023 03:00:00	1-hour	43.1	65.9	43.8	39.2
03/10/2023 04:00:00	1-hour	50.2	74.3	47.4	38.0
03/10/2023 05:00:00	1-hour	46.9	61.8	48.5	43.5
03/10/2023 06:00:00	1-hour	49.4	72.4	51.2	44.9
Over survey period		**47.8**	***75.8**	**48.4**	**39.8**

*Maximum over survey period

Table B13: 19 Grace Street Tuesday 03/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
03/10/2023 07:00:00	1-hour	49.7	68.9	51.4	46.8
03/10/2023 08:00:00	1-hour	49.2	72.7	50.6	46.3
03/10/2023 09:00:00	1-hour	52.9	81.3	56.0	45.6
03/10/2023 10:00:00	1-hour	48.7	70.3	50.2	44.9
03/10/2023 11:00:00	1-hour	48.2	68.0	50.3	44.8
03/10/2023 12:00:00	1-hour	47.7	61.9	49.6	44.8
03/10/2023 13:00:00	1-hour	48.9	77.1	50.8	45.3
03/10/2023 14:00:00	1-hour	49.3	72.0	50.7	45.5
03/10/2023 15:00:00	1-hour	47.8	65.6	49.4	45.0
03/10/2023 16:00:00	1-hour	47.8	64.5	49.7	44.9
03/10/2023 17:00:00	1-hour	48.2	73.8	49.0	45.2
03/10/2023 18:00:00	1-hour	47.2	74.3	48.4	44.4
03/10/2023 19:00:00	1-hour	45.2	62.4	46.5	42.6
03/10/2023 20:00:00	1-hour	44.1	59.9	46.0	40.8
03/10/2023 21:00:00	1-hour	43.3	62.5	44.8	40.7
03/10/2023 22:00:00	1-hour	46.2	68.8	45.0	40.3
Over survey period		**48.3**	***81.3**	**49.3**	**44.2**

* Maximum over survey period

Table B14: 19 Grace Street Tuesday 03/10/2023 – Wednesday 04/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
03/10/2023 23:00:00	1-hour	43.7	66.8	43.4	38.8
04/10/2023 00:00:00	1-hour	41.4	62.4	42.9	38.4
04/10/2023 01:00:00	1-hour	41.0	63.6	42.2	37.7
04/10/2023 02:00:00	1-hour	40.2	58.4	42.2	36.7
04/10/2023 03:00:00	1-hour	39.7	58.1	41.6	35.6
04/10/2023 04:00:00	1-hour	41.3	60.4	43.5	36.3
04/10/2023 05:00:00	1-hour	45.6	60.2	48.0	41.9
04/10/2023 06:00:00	1-hour	47.5	66.1	49.1	43.3
Over survey period		**43.4**	***66.8**	**44.1**	**38.6**

*Maximum over survey period

Table B15: 546 Burton Road Wednesday 27/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
27/09/2023 12:00:00	1-hour	53.8	74.4	55.9	49.6
27/09/2023 13:00:00	1-hour	54.9	81.0	56.8	50.7
27/09/2023 14:00:00	1-hour	55.0	70.7	57.1	51.6
27/09/2023 15:00:00	1-hour	55.3	74.4	57.2	51.9
27/09/2023 16:00:00	1-hour	56.1	79.8	57.6	52.7
27/09/2023 17:00:00	1-hour	55.7	75.2	57.3	52.8
27/09/2023 18:00:00	1-hour	54.8	71.9	56.5	51.5
27/09/2023 19:00:00	1-hour	52.6	65.2	54.8	48.8
27/09/2023 20:00:00	1-hour	50.1	65.3	52.4	46.0
27/09/2023 21:00:00	1-hour	48.5	64.9	51.0	43.9
27/09/2023 22:00:00	1-hour	46.9	63.3	49.9	41.2
Over survey period		**53.9**	***81.0**	**55.1**	**49.2**

*Maximum over survey period

Table B16: 546 Burton Road Wednesday 27/09/2023 – Thursday 28/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
27/09/2023 23:00:00	1-hour	47.1	66.4	49.7	42.0
28/09/2023 00:00:00	1-hour	47.8	62.2	50.8	42.5
28/09/2023 01:00:00	1-hour	46.1	58.1	49.9	38.7
28/09/2023 02:00:00	1-hour	43.1	62.9	46.1	35.5
28/09/2023 03:00:00	1-hour	44.9	61.0	48.2	36.8
28/09/2023 04:00:00	1-hour	45.1	60.8	48.7	37.9
28/09/2023 05:00:00	1-hour	48.5	67.9	51.2	40.0
28/09/2023 06:00:00	1-hour	50.1	67.7	53.2	43.1
Over survey period		**47.1**	***67.9**	**49.7**	**39.6**

*Maximum over survey period

Table B17: 546 Burton Road Thursday 28/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
28/09/2023 07:00:00	1-hour	52.2	71.2	54.8	47.0
28/09/2023 08:00:00	1-hour	51.3	67.0	53.8	47.1
28/09/2023 09:00:00	1-hour	51.6	68.5	54.3	45.6
28/09/2023 10:00:00	1-hour	52.5	72.0	54.8	45.2
28/09/2023 11:00:00	1-hour	52.0	72.8	54.7	46.0
28/09/2023 12:00:00	1-hour	53.1	77.8	55.5	45.9
28/09/2023 13:00:00	1-hour	52.2	64.8	55.0	46.6
28/09/2023 14:00:00	1-hour	52.5	68.7	54.9	47.0
28/09/2023 15:00:00	1-hour	52.2	76.2	54.3	47.1
28/09/2023 16:00:00	1-hour	51.4	72.0	53.3	46.7
28/09/2023 17:00:00	1-hour	52.3	71.0	53.9	47.9
28/09/2023 18:00:00	1-hour	52.7	75.1	54.2	48.0
28/09/2023 19:00:00	1-hour	50.5	68.3	52.6	46.4
28/09/2023 20:00:00	1-hour	50.6	65.4	53.1	45.3
28/09/2023 21:00:00	1-hour	48.7	66.7	51.3	42.2
28/09/2023 22:00:00	1-hour	47.9	65.6	51.4	39.3
Over survey period		**51.7**	***77.8**	**53.9**	**45.8**

*Maximum over survey period

Table B18: 546 Burton Road Thursday 28/09/2023 – Friday 29/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
28/09/2023 23:00:00	1-hour	45.6	63.0	49.2	36.2
29/09/2023 00:00:00	1-hour	44.2	61.8	48.3	31.2
29/09/2023 01:00:00	1-hour	42.5	58.2	46.0	30.4
29/09/2023 02:00:00	1-hour	45.2	65.9	49.6	28.5
29/09/2023 03:00:00	1-hour	46.6	64.9	50.4	29.6
29/09/2023 04:00:00	1-hour	48.0	64.6	52.4	36.0
29/09/2023 05:00:00	1-hour	50.2	63.2	54.0	41.3
29/09/2023 06:00:00	1-hour	53.4	70.5	56.6	45.2
Over survey period		**48.3**	***70.5**	**50.8**	**34.8**

*Maximum over survey period

Table B19: 546 Burton Road Friday 29/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
29/09/2023 07:00:00	1-hour	54.4	68.5	57.2	48.7
29/09/2023 08:00:00	1-hour	54.5	70.5	56.9	49.1
29/09/2023 09:00:00	1-hour	52.8	68.4	55.5	47.7
29/09/2023 10:00:00	1-hour	51.6	67.2	54.5	46.0
29/09/2023 11:00:00	1-hour	52.0	69.4	54.6	47.0
29/09/2023 12:00:00	1-hour	52.2	65.0	54.9	47.1
29/09/2023 13:00:00	1-hour	51.9	70.7	54.5	46.1
29/09/2023 14:00:00	1-hour	53.0	75.1	55.2	47.1
29/09/2023 15:00:00	1-hour	52.6	76.4	55.0	47.9
29/09/2023 16:00:00	1-hour	52.2	75.2	54.2	47.2
29/09/2023 17:00:00	1-hour	53.0	74.2	55.2	46.9
29/09/2023 18:00:00	1-hour	53.0	67.7	55.7	46.6
29/09/2023 19:00:00	1-hour	52.5	74.0	55.5	44.7
29/09/2023 20:00:00	1-hour	50.2	67.7	54.0	41.6
29/09/2023 21:00:00	1-hour	50.6	76.4	53.6	42.1
29/09/2023 22:00:00	1-hour	49.2	70.3	52.9	39.9
Over survey period		**52.4**	***76.4**	**55.0**	**46.0**

*Maximum over survey period

Table B20: 546 Burton Road Friday 29/09/2023 – Saturday 30/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
29/09/2023 23:00:00	1-hour	46.1	70.2	48.6	38.2
30/09/2023 00:00:00	1-hour	44.0	59.9	47.8	35.7
30/09/2023 01:00:00	1-hour	44.1	62.3	46.8	33.9
30/09/2023 02:00:00	1-hour	43.2	62.7	46.0	33.3
30/09/2023 03:00:00	1-hour	45.5	63.1	48.9	29.7
30/09/2023 04:00:00	1-hour	45.9	63.7	50.0	30.7
30/09/2023 05:00:00	1-hour	49.6	62.6	53.8	38.5
30/09/2023 06:00:00	1-hour	51.4	66.2	55.2	42.0
Over survey period		**47.2**	***70.2**	**49.6**	**35.3**

*Maximum over survey period

Table B21: 546 Burton Road Saturday 30/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
30/09/2023 07:00:00	1-hour	53.0	67.1	56.3	44.5
30/09/2023 08:00:00	1-hour	53.0	72.0	55.6	46.6
30/09/2023 09:00:00	1-hour	52.8	70.7	55.2	46.9
30/09/2023 10:00:00	1-hour	52.0	71.3	54.5	45.7
30/09/2023 11:00:00	1-hour	52.6	71.4	55.4	46.2
30/09/2023 12:00:00	1-hour	51.7	74.0	52.7	44.9
30/09/2023 13:00:00	1-hour	51.7	69.9	53.6	46.2
30/09/2023 14:00:00	1-hour	52.0	66.6	54.1	47.9
30/09/2023 15:00:00	1-hour	52.5	70.2	54.6	48.1
30/09/2023 16:00:00	1-hour	54.9	81.2	56.2	49.7
30/09/2023 17:00:00	1-hour	55.7	69.5	57.8	51.2
30/09/2023 18:00:00	1-hour	56.2	72.1	58.1	52.2
30/09/2023 19:00:00	1-hour	54.3	69.7	56.4	49.8
30/09/2023 20:00:00	1-hour	51.8	67.0	54.5	47.0
30/09/2023 21:00:00	1-hour	51.0	70.7	53.7	44.9
30/09/2023 22:00:00	1-hour	50.3	67.8	53.5	43.6
Over survey period		**53.2**	***81.2**	**55.1**	**47.2**

*Maximum over survey period

Table B22: 546 Burton Road Saturday 30/09/2023 – Sunday 01/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
30/09/2023 23:00:00	1-hour	48.1	65.3	51.4	40.7
01/10/2023 00:00:00	1-hour	49.4	78.8	50.5	36.8
01/10/2023 01:00:00	1-hour	44.5	65.0	48.4	32.9
01/10/2023 02:00:00	1-hour	43.6	68.2	46.6	29.7
01/10/2023 03:00:00	1-hour	44.2	62.1	47.6	32.1
01/10/2023 04:00:00	1-hour	44.9	61.4	48.9	32.2
01/10/2023 05:00:00	1-hour	48.0	65.0	51.9	38.1
01/10/2023 06:00:00	1-hour	47.8	68.0	51.8	37.2
Over survey period		**46.8**	***78.8**	**49.6**	**35.0**

*Maximum over survey period

Table B23: 546 Burton Road Sunday 01/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
01/10/2023 07:00:00	1-hour	50.3	66.1	53.9	41.3
01/10/2023 08:00:00	1-hour	51.7	68.7	55.3	43.8
01/10/2023 09:00:00	1-hour	53.8	69.7	57.0	47.6
01/10/2023 10:00:00	1-hour	51.5	71.3	54.3	46.1
01/10/2023 11:00:00	1-hour	53.0	72.3	55.2	46.6
01/10/2023 12:00:00	1-hour	52.4	75.4	54.5	47.1
01/10/2023 13:00:00	1-hour	54.0	83.5	55.6	46.2
01/10/2023 14:00:00	1-hour	51.5	71.9	54.2	45.0
01/10/2023 15:00:00	1-hour	52.8	79.1	54.2	45.2
01/10/2023 16:00:00	1-hour	51.7	73.1	54.1	44.6
01/10/2023 17:00:00	1-hour	51.2	65.8	54.2	43.9
01/10/2023 18:00:00	1-hour	53.4	78.7	55.7	45.2
01/10/2023 19:00:00	1-hour	51.8	75.9	55.0	42.6
01/10/2023 20:00:00	1-hour	51.8	69.0	55.3	43.1
01/10/2023 21:00:00	1-hour	50.1	62.6	54.1	40.6
01/10/2023 22:00:00	1-hour	49.1	66.6	52.9	39.8
Over survey period		**52.0**	***83.5**	**54.7**	**44.3**

*Maximum over survey period

Table B24: 546 Burton Road Sunday -01/10/2023 – Monday 02/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
01/10/2023 23:00:00	1-hour	48.3	65.2	52.5	35.9
02/10/2023 00:00:00	1-hour	45.5	63.7	49.0	32.6
02/10/2023 01:00:00	1-hour	44.9	65.9	48.3	31.7
02/10/2023 02:00:00	1-hour	45.7	64.8	49.2	29.0
02/10/2023 03:00:00	1-hour	49.4	78.1	52.3	34.7
02/10/2023 04:00:00	1-hour	50.5	68.7	54.1	36.6
02/10/2023 05:00:00	1-hour	51.8	70.4	55.3	42.3
02/10/2023 06:00:00	1-hour	53.7	69.8	56.9	45.2
Over survey period		**49.8**	***78.1**	**52.2**	**36.0**

*Maximum over survey period

Table B25: 546 Burton Road Monday 02/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
02/10/2023 07:00:00	1-hour	55.4	75.0	58.0	49.8
02/10/2023 08:00:00	1-hour	55.0	70.2	57.4	50.4
02/10/2023 09:00:00	1-hour	56.3	72.9	58.5	52.0
02/10/2023 10:00:00	1-hour	54.8	67.9	57.5	50.0
02/10/2023 11:00:00	1-hour	55.3	69.3	57.9	50.9
02/10/2023 12:00:00	1-hour	55.6	77.9	58.0	50.8
02/10/2023 13:00:00	1-hour	55.0	80.0	56.5	47.2
02/10/2023 14:00:00	1-hour	54.3	71.2	56.7	49.4
02/10/2023 15:00:00	1-hour	55.0	68.8	57.6	50.8
02/10/2023 16:00:00	1-hour	54.5	74.9	56.5	48.9
02/10/2023 17:00:00	1-hour	55.8	69.2	58.1	51.4
02/10/2023 18:00:00	1-hour	55.5	80.6	57.9	49.8
02/10/2023 19:00:00	1-hour	54.0	71.1	56.9	47.2
02/10/2023 20:00:00	1-hour	52.5	65.3	55.8	45.6
02/10/2023 21:00:00	1-hour	52.1	70.2	55.4	43.7
02/10/2023 22:00:00	1-hour	51.8	72.9	55.4	41.6
Over survey period		**54.7**	***80.6**	**57.1**	**48.7**

*Maximum over survey period

Table B26: 546 Burton Road Monday 02/10/2023 – Tuesday 03/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
02/10/2023 23:00:00	1-hour	50.4	65.4	54.0	41.5
03/10/2023 00:00:00	1-hour	48.9	66.8	52.6	36.4
03/10/2023 01:00:00	1-hour	49.0	69.2	52.2	35.7
03/10/2023 02:00:00	1-hour	44.8	62.5	47.3	33.4
03/10/2023 03:00:00	1-hour	47.5	62.0	51.6	35.6
03/10/2023 04:00:00	1-hour	50.5	71.5	54.4	36.7
03/10/2023 05:00:00	1-hour	54.1	69.7	57.7	44.5
03/10/2023 06:00:00	1-hour	54.7	65.6	57.9	47.8
Over survey period		**51.0**	***71.5**	**53.5**	**39.0**

*Maximum over survey period

Table B27: 546 Burton Road Tuesday 03/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
03/10/2023 07:00:00	1-hour	54.5	70.6	57.0	49.4
03/10/2023 08:00:00	1-hour	54.6	70.6	57.0	50.3
03/10/2023 09:00:00	1-hour	54.9	65.6	57.9	49.4
03/10/2023 10:00:00	1-hour	54.8	71.1	57.8	48.7
03/10/2023 11:00:00	1-hour	54.5	70.9	57.5	49.0
03/10/2023 12:00:00	1-hour	53.8	66.9	56.6	49.0
03/10/2023 13:00:00	1-hour	53.7	65.8	56.2	49.6
03/10/2023 14:00:00	1-hour	53.5	68.9	56.1	48.8
03/10/2023 15:00:00	1-hour	54.4	80.0	56.7	49.3
03/10/2023 16:00:00	1-hour	54.6	78.3	56.5	49.1
03/10/2023 17:00:00	1-hour	52.7	67.1	55.1	48.4
03/10/2023 18:00:00	1-hour	54.1	81.7	55.4	46.8
03/10/2023 19:00:00	1-hour	52.8	80.2	54.3	43.8
03/10/2023 20:00:00	1-hour	49.9	68.9	52.9	41.5
03/10/2023 21:00:00	1-hour	48.7	71.4	51.8	40.1
03/10/2023 22:00:00	1-hour	48.3	70.2	51.8	38.9
Over survey period		**53.5**	***81.7**	**55.7**	**47.0**

* Maximum over survey period

Table B28: 546 Burton Road Tuesday 03/10/2023 – Wednesday 04/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
03/10/2023 23:00:00	1-hour	44.8	68.8	48.1	35.9
04/10/2023 00:00:00	1-hour	44.5	62.8	48.1	35.1
04/10/2023 01:00:00	1-hour	43.8	62.0	46.7	33.8
04/10/2023 02:00:00	1-hour	44.9	62.7	47.9	32.8
04/10/2023 03:00:00	1-hour	46.3	62.6	50.6	33.3
04/10/2023 04:00:00	1-hour	47.8	68.3	51.8	35.2
04/10/2023 05:00:00	1-hour	49.8	67.8	53.1	40.9
04/10/2023 06:00:00	1-hour	52.6	72.2	55.7	44.4
Over survey period		**47.9**	***72.2**	**50.3**	**36.4**

*Maximum over survey period

Table B29: Bleach Croft Farm Wednesday 27/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
27/09/2023 12:00:00	1-hour	46.6	63.7	49.0	42.2
27/09/2023 13:00:00	1-hour	47.3	65.1	49.6	43.4
27/09/2023 14:00:00	1-hour	47.7	66.1	49.5	43.6
27/09/2023 15:00:00	1-hour	47.9	63.4	50.2	44.3
27/09/2023 16:00:00	1-hour	49.4	64.2	51.6	45.6
27/09/2023 17:00:00	1-hour	50.2	67.5	52.6	45.8
27/09/2023 18:00:00	1-hour	49.4	74.0	51.5	44.6
27/09/2023 19:00:00	1-hour	48.5	61.6	51.5	43.1
27/09/2023 20:00:00	1-hour	48.2	59.9	51.0	42.3
27/09/2023 21:00:00	1-hour	48.3	68.8	51.2	42.1
27/09/2023 22:00:00	1-hour	47.8	61.0	51.1	42.1
Over survey period		**48.4**	***74.0**	**50.8**	**43.6**

*Maximum over survey period

Table B30: Bleach Croft Farm Wednesday 27/09/2023 – Thursday 28/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
27/09/2023 23:00:00	1-hour	49.4	63.3	52.3	42.9
28/09/2023 00:00:00	1-hour	48.7	59.7	51.9	42.3
28/09/2023 01:00:00	1-hour	46.1	62.6	49.1	36.6
28/09/2023 02:00:00	1-hour	38.9	54.8	42.0	32.7
28/09/2023 03:00:00	1-hour	41.4	56.5	44.3	33.3
28/09/2023 04:00:00	1-hour	39.8	54.5	42.8	34.2
28/09/2023 05:00:00	1-hour	40.4	62.7	42.9	35.6
28/09/2023 06:00:00	1-hour	44.9	70.9	45.1	38.1
Over survey period		**45.4**	***70.9**	**46.3**	**37.0**

*Maximum over survey period

Table B31: Bleach Croft Farm Thursday 28/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
28/09/2023 07:00:00	1-hour	44.5	68.7	46.4	40.4
28/09/2023 08:00:00	1-hour	44.3	69.7	45.8	40.8
28/09/2023 09:00:00	1-hour	44.7	66.1	46.0	39.2
28/09/2023 10:00:00	1-hour	44.1	67.0	45.3	39.1
28/09/2023 11:00:00	1-hour	46.5	69.2	47.4	39.9
28/09/2023 12:00:00	1-hour	45.6	66.0	48.0	40.5
28/09/2023 13:00:00	1-hour	45.5	68.3	48.0	40.1
28/09/2023 14:00:00	1-hour	45.5	66.4	47.4	41.3
28/09/2023 15:00:00	1-hour	44.4	59.8	46.5	40.7
28/09/2023 16:00:00	1-hour	46.8	68.6	47.9	41.2
28/09/2023 17:00:00	1-hour	45.6	61.6	47.5	41.3
28/09/2023 18:00:00	1-hour	45.4	66.1	47.5	41.0
28/09/2023 19:00:00	1-hour	43.6	58.5	46.0	39.6
28/09/2023 20:00:00	1-hour	43.6	64.1	45.7	37.9
28/09/2023 21:00:00	1-hour	43.0	66.7	43.8	35.9
28/09/2023 22:00:00	1-hour	39.8	60.3	42.9	33.9
Over survey period		**44.8**	***69.7**	**46.4**	**39.6**

*Maximum over survey period

Table B32: Bleach Croft Farm Thursday 28/09/2023 – Friday 29/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
28/09/2023 23:00:00	1-hour	40.3	64.0	41.4	33.1
29/09/2023 00:00:00	1-hour	35.5	47.7	39.3	29.3
29/09/2023 01:00:00	1-hour	33.5	48.7	36.7	28.9
29/09/2023 02:00:00	1-hour	37.7	59.7	40.1	28.1
29/09/2023 03:00:00	1-hour	35.0	54.0	39.1	28.5
29/09/2023 04:00:00	1-hour	36.3	57.2	39.1	30.6
29/09/2023 05:00:00	1-hour	39.3	50.8	41.8	34.7
29/09/2023 06:00:00	1-hour	46.9	77.4	45.8	37.5
Over survey period		**40.4**	***77.4**	**40.4**	**31.3**

*Maximum over survey period

Table B33: Bleach Croft Farm Friday 29/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
29/09/2023 07:00:00	1-hour	45.5	67.1	45.9	40.4
29/09/2023 08:00:00	1-hour	45.9	74.8	47.0	40.5
29/09/2023 09:00:00	1-hour	47.1	68.6	48.4	42.8
29/09/2023 10:00:00	1-hour	48.8	83.4	47.3	41.0
29/09/2023 11:00:00	1-hour	46.7	62.5	48.5	43.2
29/09/2023 12:00:00	1-hour	47.0	62.9	49.2	42.5
29/09/2023 13:00:00	1-hour	44.1	56.9	46.6	40.4
29/09/2023 14:00:00	1-hour	43.4	66.7	45.1	40.4
29/09/2023 15:00:00	1-hour	46.2	66.2	47.7	43.7
29/09/2023 16:00:00	1-hour	45.3	56.1	47.0	42.7
29/09/2023 17:00:00	1-hour	44.8	68.8	45.6	39.9
29/09/2023 18:00:00	1-hour	43.6	66.2	45.6	39.2
29/09/2023 19:00:00	1-hour	42.7	66.3	44.5	37.4
29/09/2023 20:00:00	1-hour	40.7	61.5	42.9	35.9
29/09/2023 21:00:00	1-hour	40.7	56.4	43.5	35.3
29/09/2023 22:00:00	1-hour	43.7	71.4	43.7	35.0
Over survey period		**45.3**	***83.4**	**46.6**	**40.0**

*Maximum over survey period

Table B34: Bleach Croft Farm Friday 29/09/2023 – Saturday 30/09/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
29/09/2023 23:00:00	1-hour	38.0	56.3	40.7	33.5
30/09/2023 00:00:00	1-hour	37.6	51.6	40.9	31.7
30/09/2023 01:00:00	1-hour	34.5	51.7	37.8	29.4
30/09/2023 02:00:00	1-hour	34.0	48.3	37.3	29.2
30/09/2023 03:00:00	1-hour	34.7	48.4	38.6	28.4
30/09/2023 04:00:00	1-hour	34.8	63.8	38.0	28.3
30/09/2023 05:00:00	1-hour	38.7	55.9	42.0	32.1
30/09/2023 06:00:00	1-hour	44.7	70.1	45.5	34.9
Over survey period		**38.8**	***70.1**	**40.1**	**30.9**

*Maximum over survey period

Table B35: Bleach Croft Farm Saturday 30/09/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
30/09/2023 07:00:00	1-hour	49.7	70.8	50.6	37.3
30/09/2023 08:00:00	1-hour	45.3	69.1	46.9	36.3
30/09/2023 09:00:00	1-hour	43.2	62.0	45.8	36.7
30/09/2023 10:00:00	1-hour	45.6	69.1	46.0	36.4
30/09/2023 11:00:00	1-hour	47.0	72.0	46.0	38.7
30/09/2023 12:00:00	1-hour	47.2	68.5	46.7	39.2
30/09/2023 13:00:00	1-hour	46.0	68.9	46.6	39.7
30/09/2023 14:00:00	1-hour	45.8	66.2	47.8	41.0
30/09/2023 15:00:00	1-hour	48.2	70.0	50.5	43.3
30/09/2023 16:00:00	1-hour	51.5	76.0	52.7	47.1
30/09/2023 17:00:00	1-hour	52.7	81.3	54.5	45.4
30/09/2023 18:00:00	1-hour	53.8	83.8	55.3	45.9
30/09/2023 19:00:00	1-hour	49.6	79.9	50.5	44.5
30/09/2023 20:00:00	1-hour	47.6	78.1	48.7	40.8
30/09/2023 21:00:00	1-hour	44.7	78.8	46.4	38.4
30/09/2023 22:00:00	1-hour	44.0	76.4	46.1	37.0
Over survey period		**48.8**	***83.8**	**48.8**	**40.5**

*Maximum over survey period

Table B36: Bleach Croft Farm Saturday 30/09/2023 – Sunday 01/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
30/09/2023 23:00:00	1-hour	40.5	73.0	43.6	34.2
01/10/2023 00:00:00	1-hour	37.7	51.6	41.3	31.9
01/10/2023 01:00:00	1-hour	40.2	62.0	42.2	31.2
01/10/2023 02:00:00	1-hour	36.3	60.2	39.2	29.6
01/10/2023 03:00:00	1-hour	37.0	69.0	39.7	31.1
01/10/2023 04:00:00	1-hour	43.2	78.2	44.6	31.0
01/10/2023 05:00:00	1-hour	48.9	77.0	51.3	36.1
01/10/2023 06:00:00	1-hour	42.0	74.7	43.2	34.3
Over survey period		**42.8**	***78.2**	**43.1**	**32.4**

*Maximum over survey period

Table B37: Bleach Croft Farm Sunday 01/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
01/10/2023 07:00:00	1-hour	41.2	63.5	44.6	34.5
01/10/2023 08:00:00	1-hour	42.9	63.8	45.6	34.5
01/10/2023 09:00:00	1-hour	43.6	69.7	46.4	36.4
01/10/2023 10:00:00	1-hour	44.3	60.9	46.6	39.3
01/10/2023 11:00:00	1-hour	44.3	67.4	46.2	39.2
01/10/2023 12:00:00	1-hour	46.8	80.5	47.4	41.1
01/10/2023 13:00:00	1-hour	45.2	78.8	46.1	39.1
01/10/2023 14:00:00	1-hour	42.9	76.6	44.5	38.3
01/10/2023 15:00:00	1-hour	43.5	62.6	45.5	38.0
01/10/2023 16:00:00	1-hour	44.7	69.6	45.4	37.6
01/10/2023 17:00:00	1-hour	43.0	63.2	45.4	38.1
01/10/2023 18:00:00	1-hour	42.5	58.0	45.2	37.2
01/10/2023 19:00:00	1-hour	41.7	63.0	44.1	35.2
01/10/2023 20:00:00	1-hour	40.6	58.5	43.7	33.9
01/10/2023 21:00:00	1-hour	39.6	63.6	42.6	32.6
01/10/2023 22:00:00	1-hour	38.7	54.9	41.9	32.6
Over survey period		**43.3**	***80.5**	**45.1**	**36.7**

*Maximum over survey period

Table B38: Bleach Croft Farm Sunday -01/10/2023 – Monday 02/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
01/10/2023 23:00:00	1-hour	38.8	57.5	42.0	30.4
02/10/2023 00:00:00	1-hour	40.4	78.0	43.3	28.7
02/10/2023 01:00:00	1-hour	34.9	52.0	37.2	28.4
02/10/2023 02:00:00	1-hour	34.3	61.4	37.7	28.2
02/10/2023 03:00:00	1-hour	37.2	54.4	41.0	29.7
02/10/2023 04:00:00	1-hour	38.4	54.3	42.0	31.5
02/10/2023 05:00:00	1-hour	41.8	56.3	44.9	36.1
02/10/2023 06:00:00	1-hour	43.7	60.5	46.4	38.1
Over survey period		**39.7**	***78.0**	**41.8**	**31.4**

*Maximum over survey period

Table B39: Bleach Croft Farm Monday 02/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
02/10/2023 07:00:00	1-hour	47.5	82.3	48.9	41.7
02/10/2023 08:00:00	1-hour	46.9	65.2	49.3	41.0
02/10/2023 09:00:00	1-hour	48.0	67.7	49.0	41.8
02/10/2023 10:00:00	1-hour	44.9	59.8	47.3	40.4
02/10/2023 11:00:00	1-hour	46.5	63.2	48.3	43.5
02/10/2023 12:00:00	1-hour	43.8	60.5	46.0	39.5
02/10/2023 13:00:00	1-hour	44.3	58.9	47.2	38.7
02/10/2023 14:00:00	1-hour	45.5	65.1	47.9	41.0
02/10/2023 15:00:00	1-hour	46.8	64.0	49.3	42.3
02/10/2023 16:00:00	1-hour	47.3	76.8	48.8	44.4
02/10/2023 17:00:00	1-hour	46.9	69.2	48.7	42.2
02/10/2023 18:00:00	1-hour	48.8	82.8	48.9	40.5
02/10/2023 19:00:00	1-hour	50.4	81.5	50.5	40.4
02/10/2023 20:00:00	1-hour	50.5	82.5	51.1	40.6
02/10/2023 21:00:00	1-hour	48.8	77.3	49.2	40.0
02/10/2023 22:00:00	1-hour	45.6	78.3	46.1	37.8
Over survey period		**47.5**	***82.8**	**48.5**	**41.0**

*Maximum over survey period

Table B40: Bleach Croft Farm Monday 02/10/2023 – Tuesday 03/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
02/10/2023 23:00:00	1-hour	50.4	82.1	49.9	40.4
03/10/2023 00:00:00	1-hour	43.7	76.0	45.8	34.3
03/10/2023 01:00:00	1-hour	45.1	78.9	46.4	34.2
03/10/2023 02:00:00	1-hour	39.7	80.1	40.3	31.2
03/10/2023 03:00:00	1-hour	39.0	72.1	41.1	31.7
03/10/2023 04:00:00	1-hour	40.4	75.2	42.7	32.5
03/10/2023 05:00:00	1-hour	42.5	71.8	45.5	37.3
03/10/2023 06:00:00	1-hour	45.3	61.0	48.1	39.9
Over survey period		**44.9**	***82.1**	**45.0**	**35.2**

*Maximum over survey period

Table B41: Bleach Croft Farm Tuesday 03/10/2023 Daytime period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Daytime					
03/10/2023 07:00:00	1-hour	46.9	66.3	48.8	43.0
03/10/2023 08:00:00	1-hour	45.7	66.6	47.4	42.5
03/10/2023 09:00:00	1-hour	48.5	80.9	49.2	42.6
03/10/2023 10:00:00	1-hour	46.5	66.0	48.4	42.2
03/10/2023 11:00:00	1-hour	46.2	61.3	48.8	42.7
03/10/2023 12:00:00	1-hour	46.8	61.1	48.8	43.4
03/10/2023 13:00:00	1-hour	48.2	61.4	50.7	45.0
03/10/2023 14:00:00	1-hour	49.0	79.4	49.4	43.3
03/10/2023 15:00:00	1-hour	46.8	74.9	48.7	43.3
03/10/2023 16:00:00	1-hour	46.7	62.8	48.6	43.3
03/10/2023 17:00:00	1-hour	46.6	63.8	48.7	42.5
03/10/2023 18:00:00	1-hour	45.5	63.4	47.1	41.6
03/10/2023 19:00:00	1-hour	42.3	58.2	44.3	38.6
03/10/2023 20:00:00	1-hour	41.3	61.7	44.0	36.4
03/10/2023 21:00:00	1-hour	42.0	75.1	43.5	35.9
03/10/2023 22:00:00	1-hour	41.0	62.1	42.5	34.4
Over survey period		**46.2**	***80.9**	**47.4**	**41.3**

* Maximum over survey period

Table B42: Bleach Croft Farm Tuesday 03/10/2023 – Wednesday 04/10/2023 Night-time period

Start time & date	Period (T)	dB $L_{Aeq,T}$	dB L_{AFmax}	dB $L_{A10,T}$	dB $L_{A90,T}$
Night-time					
03/10/2023 23:00:00	1-hour	37.6	58.9	40.3	31.7
04/10/2023 00:00:00	1-hour	37.5	66.2	40.7	30.8
04/10/2023 01:00:00	1-hour	35.5	68.1	37.5	29.7
04/10/2023 02:00:00	1-hour	36.6	63.9	40.1	29.8
04/10/2023 03:00:00	1-hour	36.2	57.1	39.9	29.9
04/10/2023 04:00:00	1-hour	38.1	61.8	41.7	31.2
04/10/2023 05:00:00	1-hour	42.1	56.9	44.8	36.9
04/10/2023 06:00:00	1-hour	45.4	73.8	46.7	39.4
Over survey period		**40.1**	***73.8**	**41.5**	**32.4**

*Maximum over survey period

APPENDIX C: Noise Predictions

Appendix C1 Kleeman impact crusher loaded by excavator

Site operation	Noise sensitive receptor/predicted $L_{Aeq,1h}$			
	1	2	3	4
Kleeman impact crusher loaded by excavator @ 10m	87.7	87.7	87.7	87.7
On-time	100%	100%	100%	100%
Correction for 1 hour	-	-	-	-
Distance, source to receiver (m)	330	343	215	350
Distance correction dB (A)	-30.1	-30.4	-26.2	-30.6
Barrier correction	-19.4	-19.4	-23.0	-22.8
Sound exposure level dB $L_{Aeq,1h}$	38.2	37.9	38.5	34.3

Appendix C2 MDS M412 mobile trommel loaded by excavator

Site operation	Noise sensitive receptor/predicted $L_{Aeq,1h}$			
	1	2	3	4
MDS M412 mobile trommel loaded by excavator @ 5m	88.4	88.4	88.4	88.4
On-time	100%	100%	100%	100%
Correction for 1 hour	-	-	-	-
Distance, source to receiver (m)	303	312	203	330
Distance correction dB (A)	-35.5	-35.7	-32.0	-36.3
Barrier correction	-23.6	-23.6	-21.5	-21.0
Sound exposure level dB $L_{Aeq,1h}$	29.3	29.1	34.9	31.1

Appendix C3 Excavator with Toku hydraulic pecker attachment

Site operation	Noise sensitive receptor/predicted $L_{Aeq,1h}$			
	1	2	3	4
Excavator with Toku hydraulic pecker attachment @ 5m	90.1	90.1	90.1	90.1
On-time	50%	50%	50%	50%
Correction for 1 hour	-3.0	-3.0	-3.0	-3.0
Distance, source to receiver (m)	306	340	278	405
Distance correction dB (A)	-35.6	-36.5	-34.7	-38.1
Barrier correction	-24.7	-24.7	-21.0	-20.4
Sound exposure level dB $L_{Aeq,1h}$	26.8	25.9	31.4	28.6

Appendix C4 Aggregate wash plant

Site operation	Noise sensitive receptor/predicted $L_{Aeq,1h}$			
	1	2	3	4
Aggregate wash plant @ 10m	73.0	73.0	73.0	73.0
On-time	100%	100%	100%	100%
Correction for 1 hour	-	-	-	-
Distance, source to receiver (m)	269	254	171	255
Distance correction dB (A)	-28.3	-27.7	-24.1	-27.8
*Soft ground/barrier correction	*5.15	*5.02	-22.9	-22.5
Sound exposure level dB $L_{Aeq,1h}$	39.6	40.3	26.0	22.7

Appendix C5 Combined operations

Site operation	Noise sensitive receptor/predicted $L_{Aeq,1h}$			
	1	2	3	4
Kleeman impact crusher loaded by excavator	38.2	37.9	38.5	34.3
MDS M412 mobile trommel loaded by excavator	29.3	29.1	34.9	31.1
Excavator with Toku hydraulic pecker attachment	26.8	25.9	31.4	28.6
Aggregate wash plant	39.6	40.3	26.0	22.7
Sound exposure level dB $L_{Aeq,1h}$	42.3	42.6	40.8	36.9

APPENDIX D: Barrier Calculations

Appendix D1 Kleeman Crusher – 19 Grace Street

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	80.3	86.2	82.8	80.1	82.5	81.1	81.9	79.6	76.1	66.6	
Source - Receiver	330	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	57	Attenuation / dB	7.3	8.8	10.9	13.3	16.0	18.9	21.8	24.8	27.7	30.7	
Receiver - Barrier / m	273	Resultant level / dB	73.0	77.4	71.9	66.8	66.5	62.2	60.1	54.8	48.4	35.9	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			40.9	60.0	66.7	71.5	79.3	81.1	83.1	80.6	75.0	60.0	87.7
A-Weighted levels, with barrier / dB			33.6	51.2	55.8	58.2	63.3	62.2	61.3	55.8	47.3	29.3	68.3

Appendix D2 Kleeman Crusher – 546 Burton Road

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	80.3	86.2	82.8	80.1	82.5	81.1	81.9	79.6	76.1	66.6	
Source - Receiver	343	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	57	Attenuation / dB	7.3	8.8	10.9	13.3	16.0	18.9	21.8	24.8	27.7	30.7	
Receiver - Barrier / m	286	Resultant level / dB	73.0	77.4	71.9	66.8	66.5	62.2	60.1	54.8	48.4	35.9	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			40.9	60.0	66.7	71.5	79.3	81.1	83.1	80.6	75.0	60.0	87.7
A-Weighted levels, with barrier / dB			33.6	51.2	55.8	58.2	63.3	62.2	61.3	55.8	47.3	29.3	68.3

Appendix D3 Kleeman Crusher – Bleach Croft Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	80.3	86.2	82.8	80.1	82.5	81.1	81.9	79.6	76.1	66.6	
Source - Receiver	215	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	65	Attenuation / dB	9.4	11.5	14.0	16.8	19.6	22.6	25.6	28.5	31.6	34.6	
Receiver - Barrier / m	150	Resultant level / dB	70.9	74.7	68.8	63.3	62.9	58.5	56.3	51.1	44.5	32.0	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			40.9	60.0	66.7	71.5	79.3	81.1	83.1	80.6	75.0	60.0	87.7
A-Weighted levels, with barrier / dB			31.5	48.5	52.7	54.7	59.7	58.5	57.5	52.1	43.4	25.4	64.7

Appendix D4 Kleeman Crusher – Birch Tree Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	80.3	86.2	82.8	80.1	82.5	81.1	81.9	79.6	76.1	66.6	
Source - Receiver	350	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	65	Attenuation / dB	9.2	11.3	13.8	16.5	19.4	22.3	25.3	28.3	31.3	34.3	
Receiver - Barrier / m	285	Resultant level / dB	71.1	74.9	69.0	63.6	63.1	58.8	56.6	51.3	44.8	32.3	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			40.9	60.0	66.7	71.5	79.3	81.1	83.1	80.6	75.0	60.0	87.7
A-Weighted levels, with barrier / dB			31.7	48.7	52.9	55.0	59.9	58.8	57.8	52.3	43.7	25.7	64.9

Appendix D5 MDS M412 mobile trommel – 19 Grace Street

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	84	82.6	83.3	80.3	85.9	83.7	81.6	76.6	67.6	56.7	
Source - Receiver	303	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	15	Attenuation / dB	10.6	13.0	15.6	18.4	21.3	24.3	27.3	30.3	33.3	36.3	
Receiver - Barrier / m	288	Resultant level / dB	73.4	69.6	67.7	61.9	64.6	59.4	54.3	46.3	34.3	20.4	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			44.6	56.4	67.2	71.7	82.7	83.7	82.8	77.6	66.5	50.1	88.4
A-Weighted levels, with barrier / dB			34.0	43.4	51.6	53.3	61.4	59.4	55.5	47.3	33.2	13.8	64.8

Appendix D6 MDS M412 mobile trommel – 546 Burton Road

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	84	82.6	83.3	80.3	85.9	83.7	81.6	76.6	67.6	56.7	
Source - Receiver	312	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	15	Attenuation / dB	10.6	13.0	15.6	18.4	21.4	24.3	27.3	30.3	33.3	36.3	
Receiver - Barrier / m	297	Resultant level / dB	73.4	69.6	67.7	61.9	64.5	59.4	54.3	46.3	34.3	20.4	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			44.6	56.4	67.2	71.7	82.7	83.7	82.8	77.6	66.5	50.1	88.4
A-Weighted levels, with barrier / dB			34.0	43.4	51.6	53.3	61.3	59.4	55.5	47.3	33.2	13.8	64.8

Appendix D7 MDS M412 mobile trommel – Bleach Croft Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	84	82.6	83.3	80.3	85.9	83.7	81.6	76.6	67.6	56.7	
Source - Receiver	203	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	78	Attenuation / dB	9.1	11.2	13.7	16.4	19.2	22.2	25.1	28.1	31.1	34.1	
Receiver - Barrier / m	125	Resultant level / dB	74.9	71.4	69.6	63.9	66.7	61.5	56.5	48.5	36.5	22.6	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			44.6	56.4	67.2	71.7	82.7	83.7	82.8	77.6	66.5	50.1	88.4
A-Weighted levels, with barrier / dB			35.5	45.2	53.5	55.3	63.5	61.5	57.7	49.5	35.4	16.0	66.9

Appendix D8 MDS M412 mobile trommel – Birch Tree Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	84	82.6	83.3	80.3	85.9	83.7	81.6	76.6	67.6	56.7	
Source - Receiver	330	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	78	Attenuation / dB	8.8	10.8	13.2	15.9	18.7	21.6	24.6	27.6	30.6	33.6	
Receiver - Barrier / m	252	Resultant level / dB	75.2	71.8	70.1	64.4	67.2	62.1	57.0	49.0	37.0	23.1	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			44.6	56.4	67.2	71.7	82.7	83.7	82.8	77.6	66.5	50.1	88.4
A-Weighted levels, with barrier / dB			35.8	45.6	54.0	55.8	64.0	62.1	58.2	50.0	35.9	16.5	67.4

Appendix D9 Excavator with Toku hydraulic pecker – 19 Grace Street

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	77.7	78.8	82.7	81.3	83.9	86.1	83.3	81.5	74	59.3	
Source - Receiver	306	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	15	Attenuation / dB	10.6	13.0	15.6	18.4	21.3	24.3	27.3	30.3	33.3	36.3	
Receiver - Barrier / m	291	Resultant level / dB	67.1	65.8	67.1	62.9	62.6	61.8	56.0	51.2	40.7	23.0	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			38.3	52.6	66.6	72.7	80.7	86.1	84.5	82.5	72.9	52.7	90.1
A-Weighted levels, with barrier / dB			27.7	39.6	51.0	54.3	59.4	61.8	57.2	52.2	39.6	16.4	65.4

Appendix D10 Excavator with Toku hydraulic pecker – 546 Burton Road

Barrier height / m	10		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	77.7	78.8	82.7	81.3	83.9	86.1	83.3	81.5	74	59.3	
Source - Receiver	340	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	15	Attenuation / dB	10.6	13.0	15.6	18.4	21.4	24.3	27.3	30.3	33.3	36.3	
Receiver - Barrier / m	325	Resultant level / dB	67.1	65.8	67.1	62.9	62.5	61.8	56.0	51.2	40.7	23.0	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			38.3	52.6	66.6	72.7	80.7	86.1	84.5	82.5	72.9	52.7	90.1
A-Weighted levels, with barrier / dB			27.7	39.6	51.0	54.3	59.3	61.8	57.2	52.2	39.6	16.4	65.4

Appendix D11 Excavator with Toku hydraulic pecker – Bleach Croft Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	77.7	78.8	82.7	81.3	83.9	86.1	83.3	81.5	74	59.3	
Source - Receiver	278	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	120	Attenuation / dB	8.2	10.0	12.3	14.9	17.7	20.6	23.6	26.6	29.6	32.6	
Receiver - Barrier / m	158	Resultant level / dB	69.5	68.8	70.4	66.4	66.2	65.5	59.7	54.9	44.4	26.7	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			38.3	52.6	66.6	72.7	80.7	86.1	84.5	82.5	72.9	52.7	90.1
A-Weighted levels, with barrier / dB			30.1	42.6	54.3	57.8	63.0	65.5	60.9	55.9	43.3	20.1	69.1

Appendix D12 Excavator with Toku hydraulic pecker – Birch Tree Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	77.7	78.8	82.7	81.3	83.9	86.1	83.3	81.5	74	59.3	
Source - Receiver	405	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	120	Attenuation / dB	7.8	9.6	11.8	14.3	17.1	20.0	22.9	25.9	28.9	31.9	
Receiver - Barrier / m	285	Resultant level / dB	69.9	69.2	70.9	67.0	66.8	66.1	60.4	55.6	45.1	27.4	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			38.3	52.6	66.6	72.7	80.7	86.1	84.5	82.5	72.9	52.7	90.1
A-Weighted levels, with barrier / dB			30.5	43.0	54.8	58.4	63.6	66.1	61.6	56.6	44.0	20.8	69.7

Appendix D13 Aggregate wash plant – Bleach Croft Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	63.5	76.1	70.1	64.5	68	68.1	65.3	65.3	60	50.2	
Source - Receiver	171	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	62	Attenuation / dB	9.6	11.9	14.4	17.2	20.1	23.0	26.0	29.0	32.0	35.0	
Receiver - Barrier / m	109	Resultant level / dB	53.9	64.2	55.7	47.3	47.9	45.1	39.3	36.3	28.0	15.2	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			24.1	49.9	54.0	55.9	64.8	68.1	66.5	66.3	58.9	43.6	73.0
A-Weighted levels, with barrier / dB			14.5	38.0	39.6	38.7	44.7	45.1	40.5	37.3	26.9	8.6	50.1

Appendix D14 Aggregate wash plant – Birch Tree Farm

Barrier height / m	15		Frequency / Hz									
Source height / m	1.5		31.5	63	125	250	500	1000	2000	4000	8000	16000	
Receiver height / m	1.5	Level / dB	63.5	76.1	70.1	64.5	68	68.1	65.3	65.3	60	50.2	
Source - Receiver	255	Wavelength / m	10.5	5.2	2.6	1.3	0.7	0.3	0.2	0.1	0.0	0.0	
Source - Barrier / m	62	Attenuation / dB	9.4	11.6	14.1	16.8	19.7	22.6	25.6	28.6	31.6	34.6	
Receiver - Barrier / m	193	Resultant level / dB	54.1	64.5	56.0	47.7	48.3	45.5	39.7	36.7	28.4	15.6	
A-Weighting correction / dB			-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	-6.6	LAeq / dB
A-Weighted levels, without barrier / dB			24.1	49.9	54.0	55.9	64.8	68.1	66.5	66.3	58.9	43.6	73.0
A-Weighted levels, with barrier / dB			14.7	38.3	39.9	39.1	45.1	45.5	40.9	37.7	27.3	9.0	50.5

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