



MEC
Consulting Group

ACOUSTIC AIR



Barrow Hill Quarry, Mill Lane, Earl Shilton
Acoustics Assessment
July 2025

Report Ref: 26726-ENV-0401

Barrow Hill Quarry, Mill Lane, Earl Shilton

Acoustics Assessment

July 2025

REPORT REF: 26726-ENV-0401

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REGISTRATION OF AMENDMENTS

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1.0 INTRODUCTION

1.1 MEC Consulting Group Ltd (MEC) has been commissioned by AT Contracting & Plant Hire Ltd (hereafter referred to as ‘the Client’) to prepare an Acoustics Assessment for a proposed Holiday Lodge Site at Barrow Hill Quarry, Mill Lane, Earl Shilton (hereafter referred to as ‘the Site’).

1.2 As part of the planning consent, Hinckley & Bosworth Borough Council (hereafter referred to as ‘the Local Authority’) has outlined various conditions to be discharged, of which condition 6 and 13 relate to noise.

1.3 Condition 6 states:

“Development shall not begin until a scheme for protecting the proposed mobile homes/lodges from noise from the M69 has been submitted to and approved in writing by the Local Planning Authority. All works which form part of the scheme shall be completed before any of the permitted holiday lodges are first occupied.”

1.4 Condition 13 states:

“Prior to first occupation of the holiday lodges hereby, permitted details of the acoustic fence for the development site in relation to height, length, location and proposed materials shall be submitted to and approved in writing by the Local Planning Authority. The acoustic fence shall be erected and in place on site before the holiday lodges are first brought into use.”

Assessment Scope

1.5 An environmental sound survey was conducted between 16th and 19th May 2025 to monitor noise levels at the Earl Shilton Trials Club (ESTC) during a trials event. However, upon retrieval of the equipment, it was discovered that the cable for the sound level meter had been severed, rendering the survey data unusable. Consequently, this report relies on sound survey data obtained during MEC’s survey conducted in September 2021.

1.6 The following scope of works has been undertaken:

- Environmental Sound Survey data from MEC’s environmental sound survey undertaken in September 2021 has been used to determine the prevailing acoustic conditions;
- An acoustic model has been created in order to predict sound levels across the Site based upon the measured sound level data;
- Embedded façade mitigation measures in the form of glazing and whole-dwelling ventilation specifications have been provided to demonstrate compliance with the guidance contained within ProPG¹, BS 8233² and BS 3632³.

¹ Professional Practice Guidance on Planning and Noise, May 2017.

² BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’

³ BS 3632:2023 ‘Specification for Residential Park Homes and Residential Lodges.’

- 1.7 The conclusions of this report aim to demonstrate to the Local Authority that external and internal acoustic conditions will be compliant with the relevant British Standards and Acoustics Guidance, and to satisfy conditions 6 and 13 raised by the Local Authority.

Existing Site

- 1.8 The Site is located at Barrow Hill Quarry, Mill Lane, Earl Shilton. The Site is bound on all sides by open green field and agricultural land, with Mill Lane adjacent to the north eastern site boundary, and a pond located to the south, with the ESTC and the M69 motorway located beyond.
- 1.9 The principal source of noise affecting the Site will be from the M69 Motorway, coupled with any contributions from the ESTC.

Figure 1.1: Approximate Redline Boundary



Development Proposals

- 1.10 The development proposals comprise a full planning application (ref: 21/01390/FUL) for 21 no. holiday lodges and a management building with associated access and infrastructure via Mill Lane.
- 1.11 A proposed site plan is provided in **Appendix A**, and an indicative example of a proposed Holiday Lodge is provided in **Appendix B**.

Earl Shilton Trials Club (ESTC)

1.12 The ESTC have been contacted regarding their typical operations and have responded as follows:

- There are no specific courses, and trials involve a few short sets of obstacles called sections.
- Operations occur considerably within 07:00 to 23:00 hours.
- Members are able to practice at any time, as all are provided with an access key.
- Wednesday is the busiest practice day, with potentially up to 30 bikes in attendance.
- Generally, there are not many people practicing at any one time, with 3 to 4 people considered typical.
- The majority of operations occur on the southern side of the motorway.
- Events occur less than 15 times a year.
- During an event there are no more than 100 bikes on site.
- Event times would run between 09:00 to 15:30 hours.
- Bikes are unloaded and started up within the site boundary.

1.13 The ESTC site boundary is identified in **Appendix C**.

Disclaimer

1.14 MEC has completed this report for the benefit of the individuals referred to in Paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from MEC.

1.15 MEC accepts no responsibility or liability for:

- The consequence of this documentation being used for any purpose or project other than that for which it was commissioned; and
- The issue of this document to any third party with whom approval for use has not been agreed.

2.0 STANDARDS AND GUIDANCE

2.1 An acoustic glossary is provided in **Appendix D** to assist the reader.

Summary of Guidance and Standards

2.2 The following guidance and standards relevant to the assessment are outlined below:

- National Planning Policy Framework (NPPF) 2024;
- Noise Policy Statement for England (NPSE) 2010;
- Professional Practice Guidance on Planning and Noise (ProPG) 2017;
- BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings*'; and
- BS 3632:2023 '*Specification for Residential Park Homes and Residential Lodges*'.

2.3 For conciseness, the guidance and standards most appropriate to this assessment are summarised in this section.

Professional Practice Guidance on Planning and Noise (ProPG) 2017

2.4 ProPG seeks to secure good acoustic design for new residential developments. The guidance includes a framework to enable situations where noise is not an issue but to help identify the extent of risk at noisier sites. The guidance does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

2.5 The guidance is restricted to sites that are exposed predominantly to noise from transportation sources. Where industrial or commercial noise is present on the site but is "not dominant", its contribution may be included in the noise level used to establish the degree of risk. However, if the industrial/commercial source is dominant, an assessment in accordance with BS 4142 should be conducted.

2.6 A two-stage approach is considered whereby:

- Stage 1 – an initial noise risk assessment of the proposed development site is undertaken;
- Stage 2 – a systematic consideration of internal and external noise levels is considered ensuring good acoustic design and consideration of other relevant issues is recognised.

2.7 ProPG also references the World Health Organisation (WHO) guidance on maximum noise levels at night. Guidance from the WHO states that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night. ProPG indicates that individual noise events do not exceed 45 dB L_{AFmax} more than 10 times a night and therefore this is considered as criteria in addition to that outlined in Table 2.1.

BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings*'

2.8 BS 8233 provides recommendations for the control of noise in and around buildings.

- 2.9 The guidance provided includes appropriate internal and external noise level criteria which are applicable to residential buildings exposed to steady external noise sources. It is stated in the British Standard that it is desirable for internal ambient noise levels to not exceed the criteria set out in Table 2.1.

Table 2.1: BS 8233: 2014 Table 4 – Indoor Ambient Noise Levels for Dwellings

Activity	Location	07:00 – 23:00 L _{Aeq,16hr} dB	23:00 – 07:00 L _{Aeq,8hr} dB
Resting	Living Room	35	-
Dining	Dining Room/Area	40	-
Sleeping (daytime resting)	Bedroom	35	30

- 2.10 Additional guidance in BS 8233 indicates that appropriate ventilation should be provided, if relying on closed windows to meet the guide values, and that such ventilation should not compromise the façade insulation and resulting noise levels.
- 2.11 BS 8233 additionally includes guidance on external amenity areas whereby it states that external noise levels should not exceed 50 dB L_{Aeq,T} with an upper guideline of 55 dB L_{Aeq,T} which would be acceptable in noisier environments.
- 2.12 Furthermore, due to the nationwide difficulty in satisfying the external criteria outlined above, the standard provides an over-arching consideration of how to treat external amenity areas as follows:

“... it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”

BS 3632:2023 ‘Specification for Residential Park Homes and Residential Lodges’

- 2.13 Residential Park Homes are traditionally thin-walled, single-glazed units with poor insulation where the cost to maintain a comfortable level of heating can be very high. Therefore, BS 3632:2023 aims to improve this in new homes and lodges. It gives the minimum specification for residential park homes in terms of ventilation, thermal insulation, stability once sited and room sizes etc.
- 2.14 With regard to noise, the build standard specified by BS 3632 is that caravan walls should achieve a sound reduction rating (R_w) no less than 35 dB.

3.0 ENVIRONMENTAL SOUND SURVEY

3.1 As previously noted, an environmental sound survey was attempted during a trials event between 16th and 19th May 2025. However, the survey equipment was found to have been deliberately damaged, rendering the data unusable. Therefore, this report relies on data from MEC's previous survey conducted in September 2021.

3.2 A Sound Level Meter (SLM) was installed at two locations within the Site boundary, as follows:

- Continuous Measurement 1 (CM1): along the southern boundary for 24hrs, approximately 380m from the carriageway edge of the M69;
- Sample Measurement 1 (SM1): along the southern boundary, whilst a 1hr trials practice session was underway.

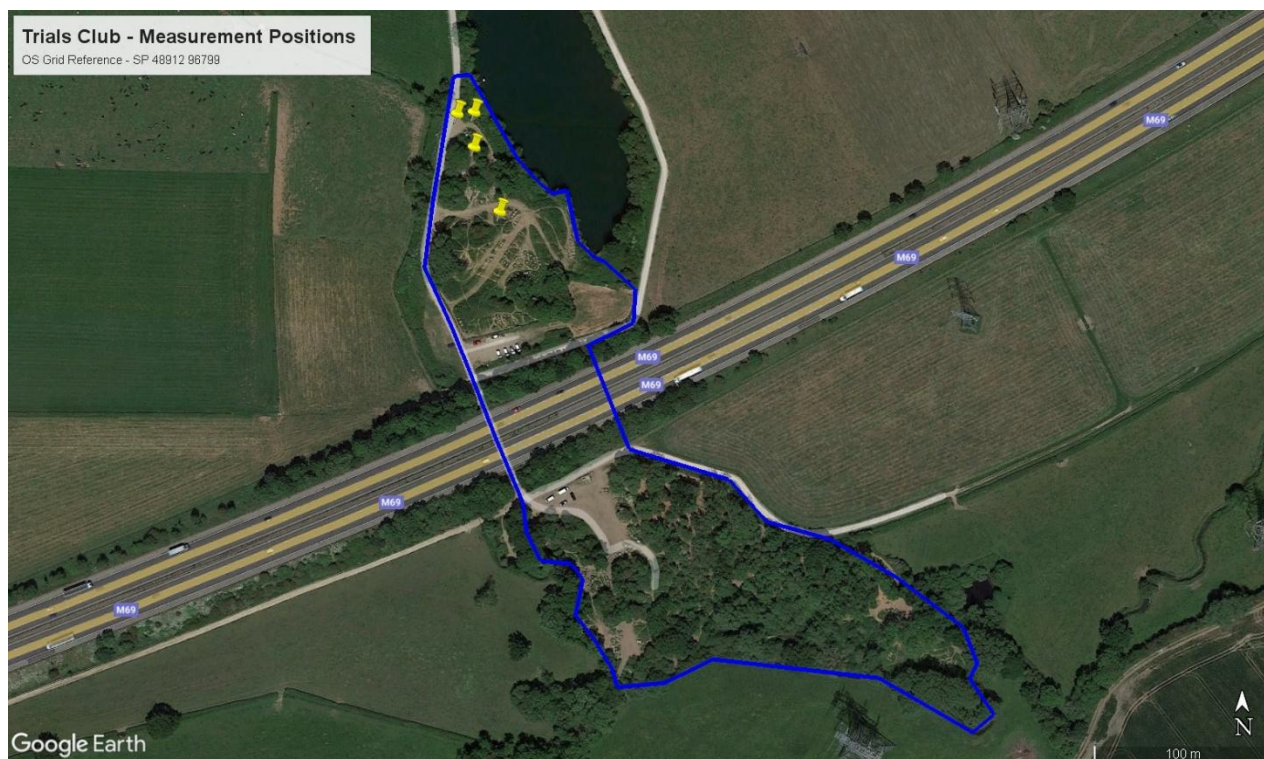
3.3 The measurement positions within the Site are identified in Figure 3.1.

Figure 3.1: Measurement Positions



3.4 While accessing the Trials Club on Wednesday, 15th September, several sample measurements of bikes using the Trials course were recorded. The locations where these measurements were taken are shown in Figure 3.2.

Figure 3.2: Trials Club Measurements



Equipment

- 3.5 Measurements were taken using a Class 1 integrating/averaging SLM housed in an environmental protection apparatus. The SLM was installed in a free field position at a height of 1.5m above local ground level, and field calibrated before and after the survey using a Class 1 calibrator, with no significant drift in calibration noted.
- 3.6 The SLM was set up to capture the following parameters at a minimum: L_{Aeq} , L_{A90} and L_{AFmax} values, and full details of the equipment used to undertake the survey are presented in Table 3.1.

Table 3.1: Equipment and Calibration Details

Measurement Position	Description	Manufacturer & Type No.	Serial No.	Calibration Due Date
CM1, SM1 & Trials Measurements	Sound Level Meter	Type NOR140	1407599	24/08/2022
	Pre-Amplifier	Type 1209	22646	
	Microphone	Type 1225	384571	
	Calibrator	Norsonic 1255	125525494	24/08/2022

Meteorological Conditions

- 3.7 During the survey period, the weather conditions were sunny and warm, with north westerly winds of up to 1.5 m/s during the Wednesday, and sunny and warm, with south westerly winds of 0.5 m/s during Thursday.
- 3.8 It can therefore be concluded that there were no significant adverse meteorological conditions that could influence the survey outcomes.

Observations

- 3.9 During the survey periods, the predominant noise source affecting the Site was at all times road traffic using the M69 Motorway. The attended site survey notes indicate that whilst bikes using the ESTC were faintly audible during the practice session, the assessor found it difficult to distinguish the bikes from road traffic using the M69 Motorway.

Results

- 3.10 A time history graph and the raw measured sound levels are presented in **Appendix E**.
- 3.11 Table 3.2 provides a summary of the measured sound levels at CM1.

Table 3.2: Summary of Measured Sound Levels at CM1, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	$L_{Aeq,T}$	$L_{Aeq,8hr}$	Typical Maximum Event Level ^(a) $L_{AFmax,5min}$
Wed 15 th	56 ^(b)	56	63
Thu 16 th	57 ^(c)	-	-
^(a) Maximum noise level not exceeded more than 10 times per night. ^(b) T = 9hr ^(c) T = 7hr			

- 3.12 The derived daytime $L_{Aeq,16hr}$ and night-time $L_{Aeq,8hr}$, measured along the southern site boundary was 56 dB during both the day and night (rounding to the nearest whole number for assessment purposes).
- 3.13 Analysis of the night-time $L_{AFmax,5min}$ noise levels shows that the individual noise events did not exceed 63 dB more than 10 times during the measured night-time period. Therefore, for night-time maximum assessment purposes it has been assumed that L_{Amax} noise events due to passing vehicles will typically be 63 dB $L_{AFmax,5min}$ or less along the southern site boundary.

Table 3.3: Summary of Measured Sound Levels at SM1, dB

Situation	Time	L_{Aeq}	L_{Amax}	L_{A01}	L_{A10}	L_{A90}
Position 2	11:40 - 12:40	48	69	52	49	46

- 3.14 The daytime $L_{Aeq,1hr}$ undertaken along the southern boundary during the Wednesday practice session was 48 dB.

Table 3.4: ESTC Sample Measurements, dB

Situation	L _{Aeq,T}	L _{Amax}	L _{A10}	L _{A90}
Multiple bikes congregated around obstacle @ Approx 5m	77.5	92.1	80.5	68.2
Bike rev/pass-by @ Approx 0.5m	85.1	104.2	84.2	70.6
Bikes consecutively going up vertical obstacle @ Approx 1.5m	80.1	101.8	80.9	69.4
One bike going over rock obstacle @ Approx 2m	77.8	95	81.2	69.5
One bike going up pipe obstacle @ Approx 2m	76.0	88.1	79.3	64.7
3x Startup of bike @ Approx 1m	81.2	90.7	86.2	58.1

3.15 Table 3.4 shows the noise levels from various scenarios at the ESTC practice session. The data shows an L_{Aeq,T} ranging from 76 dB to 85 dB, with L_{Amax} levels of up to 104 dB.

4.0 ASSESSMENT METHODOLOGY

Acoustic Modelling

- 4.1 An acoustic model of the Site and environs has been generated in Datakustik CadnaA® modelling software. Noise source emissions have been informed by the environmental sound survey presented in Section 3.0.
- 4.2 Based on the measured sound levels at CM1, the following levels will be used to calibrate the 3D acoustic model.

Table 4.1: Sound Levels Used to Calibrated 3D Acoustic Model, dB

Parameter	CM1
Daytime Ambient $L_{Aeq,16hr}$	56
Night-time Ambient $L_{Aeq,8hr}$	56
Night-time Maximum $L_{AFmax,5min}$	63

- 4.3 CadnaA® considers various inputs, including topography, buildings and noise sources, and calculates sound levels in accordance with national and international standards; in this case, the relevant UK standards are the procedures set out within ISO 9613-2⁴.
- 4.4 The modelling assumptions and input information for the acoustic model are as follows:
- Digital Terrain Model – Lidar 1m (Environment Agency, downloaded on 22nd May 2023);
 - Open Street Map data (publicly available);
 - Ground absorption for the Site = 1.0 (absorbent ground);
 - Building heights estimated following site observations or based upon masterplan;
 - Buildings set to be reflective only with no absorption coefficient;
 - First order reflections included in the modelling;
 - Temperature set to 10°C; and
 - Relative humidity set to 70%.

Trials Club Acoustic Modelling

- 4.5 The ESTC has confirmed that up to 100 bikes may be present during an event weekend. However, only a limited number would be operating on the course at any given time. For a conservative (worst-case) assessment, the acoustic model simulates up to 40 bikes operating simultaneously, represented by line sources that follow the track routes of the Trials Club. The sample measurement of multiple bikes congregated around an obstacle, recorded at 77.5 dB at 5m, has been used to calibrate the line sources. This source level has then been scaled to account for 40 bikes in total, providing a robust scenario for assessing potential noise impacts, despite the actual number of simultaneously operating bikes being significantly lower.

⁴ ISO 9613-2 'Acoustics – Attenuation of sound during propagation outdoors, Part 2: General method of calculation.

- 4.6 With reference to the noise criteria outlined in Section 2.0, the acoustic model has been used to predict sound levels at indicative dwellings across the Site based on the illustrative layout, for the following scenarios:
- Daytime $L_{Aeq,16hr}$ external sound levels at ground floor (1.5m) height;
 - Night-time $L_{Aeq,8hr}$ external sound levels at ground floor (1.5m) height; and
 - Night-time $L_{AFmax,5min}$ external sound levels at ground floor (1.5m) height.
- 4.7 For conciseness, this report tabulates the most exposed receptors to give context to the most stringent mitigation measures. All other receptors are assessed through the various sound level contour and mitigation reference drawings presented in the various appendices to this report.
- 4.8 The most exposed proposed receptor to the M69 and ESTC is identified as Plot 12. This is illustrated in the drawings found in **Appendix F** and **Appendix G**.

5.0 ACOUSTICS ASSESSMENT

ProPG Initial Noise Risk Assessment

- 5.1 As required by the ProPG, an Initial Noise Risk Assessment (INRA) is presented in Table 5.1, based on the modelled sound levels.

Table 5.1: Initial Site Noise Risk Assessment

Risk	Negligible		Low		Medium		High	
Period	Day	Night	Day	Night	Day	Night	Day	Night
Pro PG Threshold ^(a)	< 50	< 40	50 – 60	40 – 50	60 – 70	50 – 60	> 70	> 60
Plot 12			57			56		
Risk Assessment			Low			Medium		
^(a) L _{Aeq,16hr} dB for daytime assessment purposes and L _{Aeq,8hr} dB for night-time assessment purposes.								

- 5.2 Based on the daytime modelled sound levels, the most exposed receptors overlooking the M69 and ESTC fall within the ProPG risk category of ‘Low’, for which the guidance indicates that *“At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS (Acoustic Design Statement) which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development”*.
- 5.3 The noise exposure increases to a ‘Medium’ risk during the night-time, for which the guidance states *“The site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrates that a significant adverse noise impact will be avoided in the finished development”*.

BS 8233 External Amenity Criteria

- 5.4 The noise criterion often the most difficult to meet adjacent to busy transportation routes is the BS 8233 outdoor criterion of 55 dB L_{Aeq,16hr} applicable to private amenity spaces such as gardens. The daytime L_{Aeq,16hr} site noise contours shown on drawing 26726_04_120_04 in **Appendix G**, indicate unscreened external noise levels of up to 57 dB will be experienced across the southern section of the Site, which would exceed the outdoor criterion of 55 dB, although, only marginally.
- 5.5 Drawing 26726_04_120_07 in **Appendix G** indicates that even with the use of screening in the form of a bund, acoustic fence, or combination bund/fence along the southern boundary, due to the topography of the Site and surrounding area, 4-5m high screening would only provide an attenuation of approximately 1 dB, and the outdoor noise level would still be in excess of the criterion.
- 5.6 Therefore, the installation of 4-5m high screening is not considered to be practicable, when considered against the marginal 1 dB attenuation it will provide, and the exceedance should firstly be considered against

the caveats expressed in paragraphs 2.14, namely that *“it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable.”*

- 5.7 Furthermore, it should be noted that the BS 8233 criterion is aimed at private amenity spaces such as private residential gardens, and is not intended for short-term holiday lets, where visitors will not be present for extended periods of time, or for public amenity areas that may be present on the Site. In addition, when considering the noise levels against the BS 8233 criterion, only marginal exceedances of between 1 dB and 2 dB are experienced across the southern half of the Site, with the northern section satisfying the criterion.
- 5.8 To more accurately assess the potential impact of noise from the Trials Club on the Site, noise generated by the Club has been evaluated independently of the M69. As illustrated in drawing 26727_04_120_10, sound levels at the site boundary are expected to remain well below 50 dB. Consequently, noise from the Trials Club alone is not considered to present a significant issue.
- 5.9 However, the access road used by the Trials Club, which runs along the southern boundary of the Site, may contribute to increased noise levels, particularly during peak times or events. Following further assessment and consultation with the Local Authority, it is recommended that a 1.8m high acoustic fence be installed along the southern boundary to mitigate this potential impact.

Internal Acoustic Criteria

- 5.10 Table 5.2 presents the required external to internal reduction requirements for the most exposed receptors to the M69 and ESTC, with no screening in place.

Table 5.2: Unscreened Required Façade Performance, dB

Plot	Parameter	External Level	Internal Criteria	Required Reduction
12	Daytime Ambient $L_{Aeq,16hr}$	57	35	22
	Night-time Ambient $L_{Aeq,8hr}$	56	30	26
	Night-time Maximum $L_{AFmax,5min}$	63	45	18

- 5.11 For the most exposed receptors to the M69 and ESTC, the results in Table 5.2 show that a sound reduction of up to 22 dB will be required to achieve the internal $L_{Aeq,16hr}$ criterion during the daytime, with a sound reduction of up to 26 dB required to achieve the $L_{Aeq,8hr}$ criterion for receptors during the night-time.

6.0 MITIGATION

6.1 The following sections deal with the mitigation measures required by an ADS, namely the acoustic design needed to achieve internal noise level guidelines and the consideration of any other relevant matters.

6.2 However, there is no set guidance relating to noise on Holiday Lodge sites. The closest relevant guidance is that contained within BS 8233, which provides recommended guideline values for sound levels within living rooms, bedrooms and private amenity spaces such as gardens, for residential dwellings. A summary of the BS 8233 is shown in Section 2.0.

External Sound Levels

6.3 The effectiveness of boundary fencing has been assessed, with a boundary fence of 4m and 5m offering only minimal acoustic benefit to the Site.

6.4 However, it has been recommended that a 1.8m acoustic fence be installed along the southern boundary to help mitigate noise impacts from the Trials Club access road. This acoustic screening should adhere to the following recommended minimum specification:

- Good quality timber with no warping, knots etc;
- At least 25mm thick in all places;
- Close-boarder and continued across the front of posts to minimise gaps;
- Boards should overlap 25mm as a minimum;
- No gaps should be present between gravel board and the ground; and
- Minimum mass of 10 to 15kg/m².

Internal Sound Levels

6.5 Acoustic modelling has demonstrated potential façade sound levels and, in accordance with ProPG and BS 8233, sound reduction performance requirements of the façade have been determined.

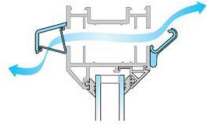
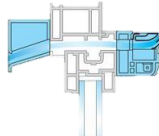
6.6 In terms of acoustics, windows and ventilation strategies are the 'weakest' acoustic points in any façade and subsequently, the composite sound reduction performance is typically dominated by these elements. Therefore, minimum performance requirements to be provided by the glazing and ventilation elements at all holiday lodges are presented herein.

6.7 Drawing on the above, and the acoustic modelling undertaken, Table 6.1 provides the reduction requirements and indicative glazing and ventilation solutions across the Site in order to demonstrate compliance with the internal sound level criteria outlined in ProPG and BS 8233.

6.8 This table should be read in conjunction with the drawings in **Appendix F** whereby drawing 26726_04_120_08 demonstrates the required reduction for bedrooms and drawing 26726_04_120_09 demonstrates the required reduction for all other habitable rooms.

- 6.9 For each reference in Table 6.1, the sound reduction performance requirements, in octave band and weighted reduction format, are presented in **Appendix G**.

Table 6.1: Suggested Internal Mitigation Measures

Mitigation Ref.	Glazing Solution	Whole-Dwelling Ventilation Solution
Ref. A	<u>Indicative Solution</u> 4mm glass panel 12mm air gap 4mm glass panel Req. 27 dB $R_w + C_{tr}$	<u>Standard Trickle Vent</u> Direct airpath trickle vent located in the top of the window frame  Req. $D_{n,e,w} + C_{tr} = 32$ dB
Ref. B		<u>Acoustically Rated Trickle Vent</u> Trickle vent with torturous airpath located in the top of the window frame  Req. $D_{n,e,w} + C_{tr} = 36$ dB

BS 3632 Context

- 6.10 Residential Park Homes are traditionally thin-walled, single-glazed units with poor insulation. However, with the introduction of BS 3632, residential park homes are now required to have external walls achieving a sound reduction rating (R_w) of no less than 35 dB.
- 6.11 The proposed Holiday Lodges at Barrow Hill Quarry are stated to be timber built and fully insulated and will therefore, likely exceed the minimum specification introduced by BS 3632. In any event, external walls achieving the minimum sound reduction rating of 35 dB R_w , will likely be more than sufficient to enable all internal criteria to be met in combination with the outlined glazing and ventilation specifications in this report.
- 6.12 In any case, there is no set guidance relating to noise on Holiday Lodge Sites, with the closest relevant guidance being BS 8233, which provides recommended guideline values for sound levels within living rooms, bedrooms and private amenity spaces such as gardens, for residential dwellings.

7.0 CONCLUSIONS

7.1 MEC Consulting Group Ltd has been commissioned by AT Contracting & Plant Hire Ltd to prepare an Acoustics Assessment for a proposed Holiday Lodge Site at Barrow Hill Quarry, Mill Lane, Earl Shilton.

7.2 Detailed assessment of the Site, during typical conditions, has been undertaken in accordance with ProPG, BS 8233 and BS 3632 criteria.

External Sound Levels

7.3 The acoustic modelling indicates that the upper-level criterion of 55 dB, as set out in BS 8233, is likely to be achieved across the majority of the Site without the need for additional mitigation. However, in the southern areas of the Site that are most exposed to the M69, this criterion is expected to be exceeded by approximately 1–2 dB.

7.4 The Site's topography (being a disused quarry) presents significant challenges for mitigating noise from the M69. While the implementation of acoustic fencing has been considered, it was found that achieving compliance with BS 8233 would require boundary fencing of 4 to 5 metres in height. This would only result in a marginal reduction in sound levels at the southern portion of the Site, and the BS 8233 criterion would continue to be exceeded. Therefore, the limited acoustic benefit does not justify the scale and visual impact of such a structure.

7.5 Instead, a 1.8m acoustic fence is recommended along the southern boundary, as it may offer effective noise screening for the Trials access road, which is located much closer to the Site and generates lower noise levels, making it more practical to mitigate.

Internal Sound Levels

7.6 There is no set guidance relating to noise on Holiday Lodge Sites, with the closest relevant guidance being BS 8233, which provides recommended guideline values for sound levels within living rooms, bedrooms and private amenity spaces such as gardens, for residential dwellings.

7.7 The proposed Holiday Lodges at Barrow Hill Quarry will likely be timber built and fully insulated and will therefore, exceed the minimum specification introduced by BS 3632. In any event, external walls achieving the minimum sound reduction rating of 35 dB R_w , would be more than sufficient to enable all internal criteria to be met.

7.8 Embedded façade mitigation measures have been suggested in order to achieve internal criteria in line with ProPG and BS 8233. Mitigation measures include standard thermal double glazing with standard direct airpath window mounted trickle vents across the majority of the Site, with acoustically rated trickle vents for the most exposed Holiday Lodges to the M69.

7.9 It is therefore considered that with the implementation of the recommended mitigation strategy, the Site is suitable for the proposed holiday lodges.

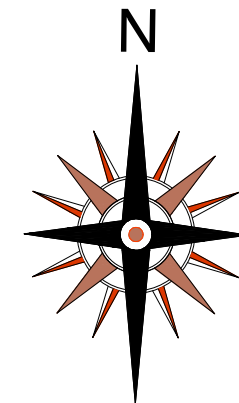


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APPENDICES



APPENDIX A



D Balancing ponds indicated. 22/11/21

Barrow Hill Quarry Earl Shilton

Plans

Scale: 1:500@ A1 Date: Oct 2021

Dwg No. 1001 Revision: D

Brook House Consulting

BHC

72 Boston Road
Leicester
LE4 1HB

Tel: 0116 2166415 E-mail: mail@brookhouseconsulting.com

Landscape indicative only

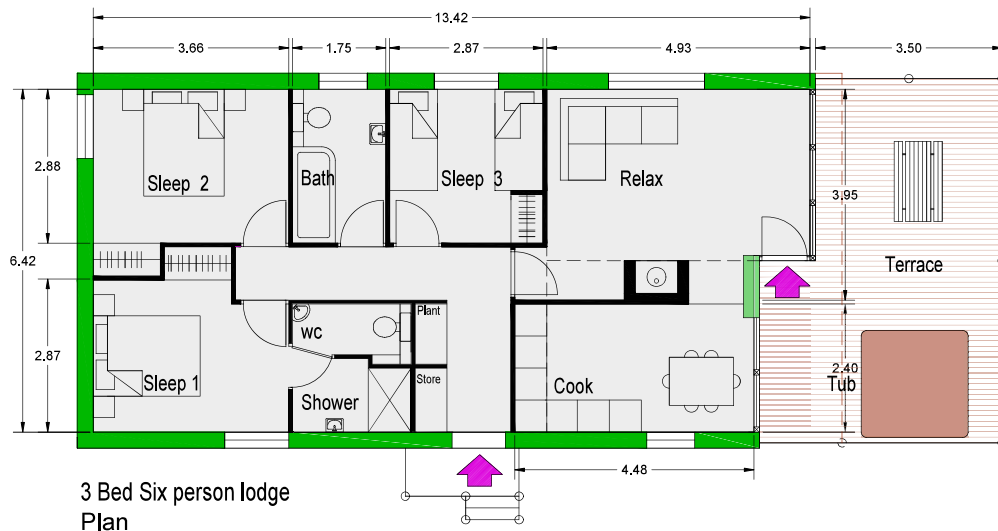
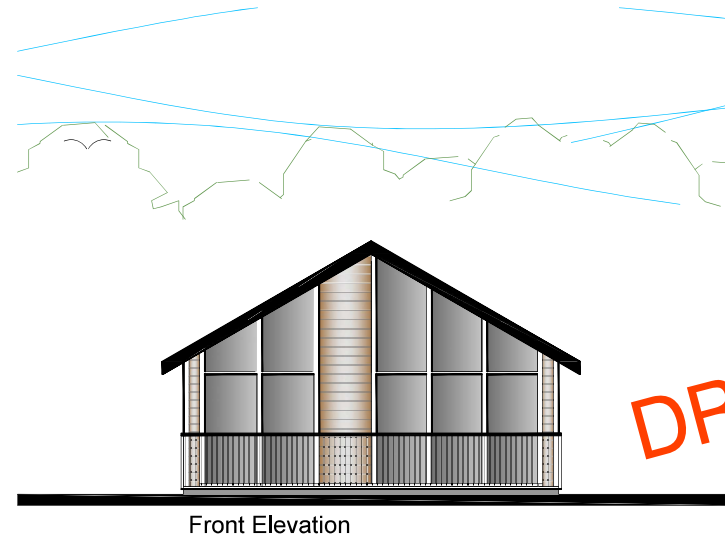
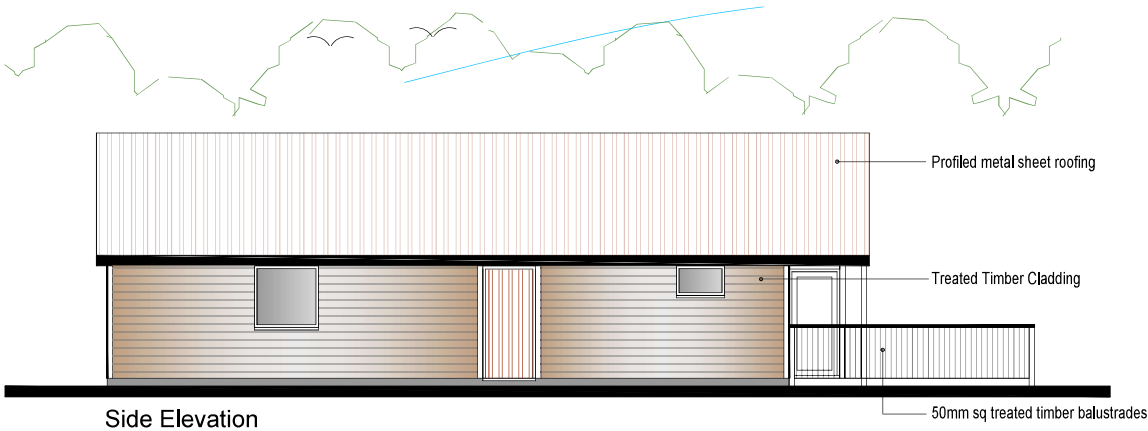
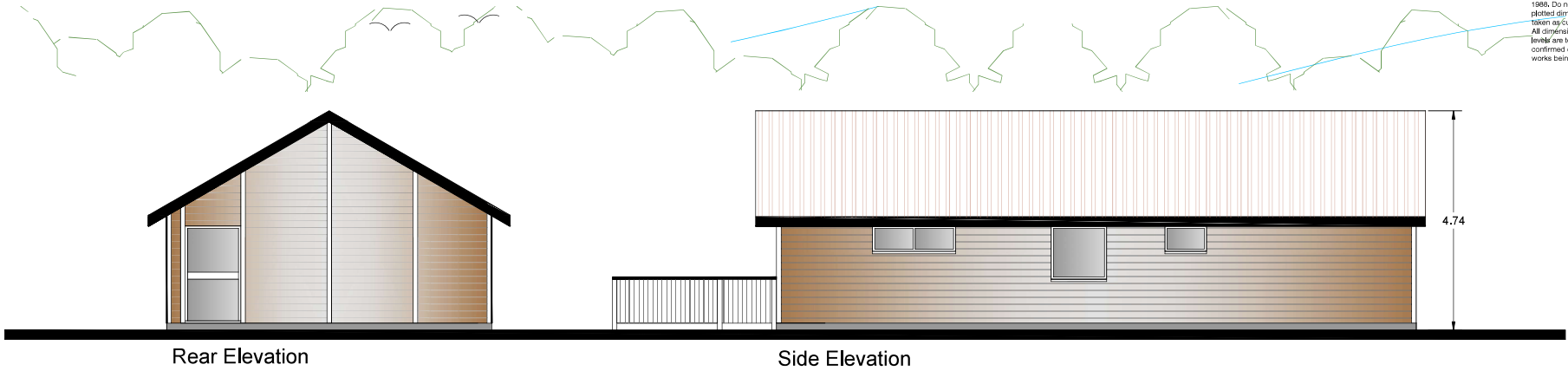


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APPENDICES



APPENDIX B



3 bed 6 person cabin lodge.

Plans

Scale. 1:50@ A1 Date. Oct 2021

Dwg No. 101 Revision. -

Brook House Consulting

BHC

72 Boston Road
Leicester
LE4 1HB

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APPENDICES



APPENDIX C

GROUND ADDRESS

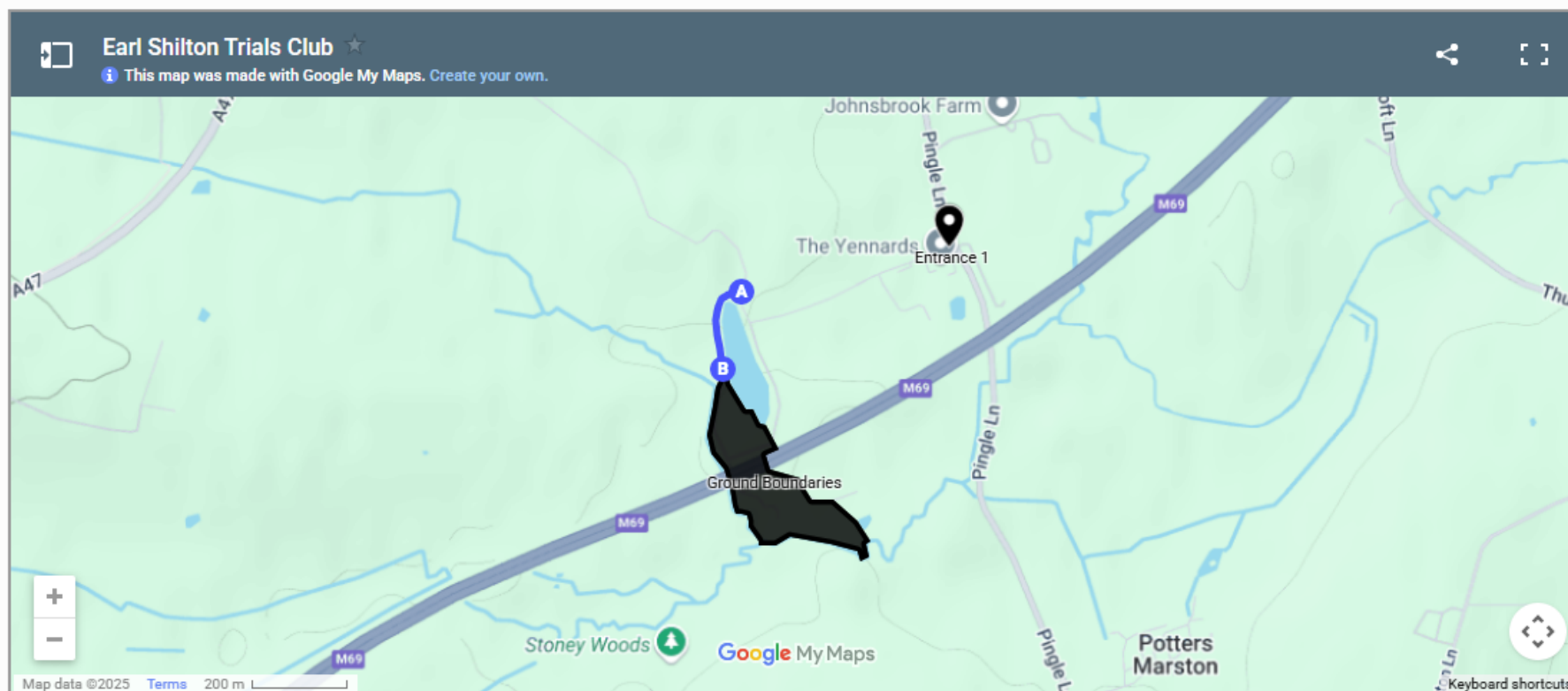
Earl Shilton Trials Club

LE9 7TR

Entrance 1 = Potters Marston lane (Pingle Lane) **52°34'12.7"N 1°16'24.3"W**

Go through the farmyard ensuring that you shut all gates that you pass through and then take a left hand turn and enter the ground.

A-B = Lane to Gate





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APPENDICES



APPENDIX D

GLOSSARY OF TECHNICAL 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 measurements, 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.

Typical sound levels found in the environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside a factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft taking off
140 dB(A)	Threshold of pain

Descriptor	Terminology
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of $20\mu\text{Pa}$ (20×10^{-6} Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1 / s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$.
A-weighting (dB(A))	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq, T}$	A noise level index called the equivalent continuous noise level over the time period, T . This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{AFmax, T}$	A noise level index defined as the maximum noise level during the measurement period. L_{Max} is sometimes used for the assessment of discrete loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. It is typically measured using the 'fast' sound level meter response.
$L_{90, T}$	A noise level index. The noise level exceeded for 90% of the time over the period, T . L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10, T}$	A noise level index. The noise level exceeded for 10% of the time over the period, T . L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m.
Façade	At a distance of 1m in front of a large sound reflecting object such as a building facade.
Fast/Slow Time Weighting	Averaging times used in sound level meters.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit
One-third Octave Band	A frequency band in which the upper limit is $2^{1/3}$ times the frequency of the lower limit.
Rating Level	The specific sound level, plus any adjustment for characteristic feature of sound in BS 4142.
Specific Sound Level	The A-weighted L_{eq} sound level produced by a sound source during a specified period of time. Commonly known as the sound source under investigation as defined in BS 4142.
Typical Maximum Level	The 90 th percentile maximum event level (L_{AFmax}) measured during a period. Used for assessing night-time maximum levels under typical and overheating conditions.



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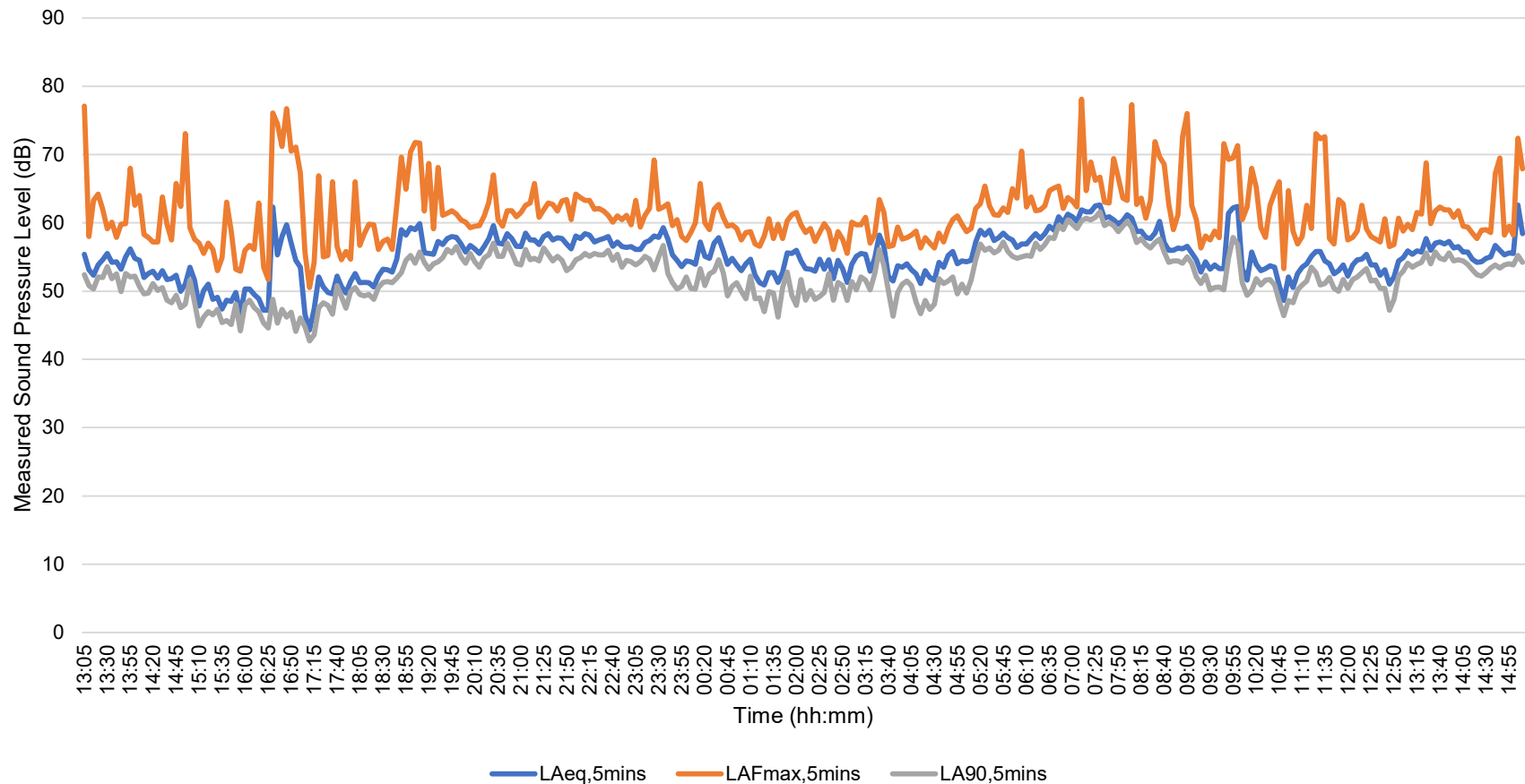
APPENDICES



APPENDIX E

Barrow Hill Quarry, Mill Lane, Earl Shilton - CM1
Environmental Sound Monitoring Survey Results

$L_{Aeq,5mins}$, $L_{AFmax,5mins}$ & $L_{A90,5mins}$ Measured Sound Levels 15th - 16th September 2021



Environmental Sound Survey Data

24-hr on-site measurement					
Date	L _{Aeq}	L _{Amax}	L _{A01}	L _{A10}	L _{A90}
Daytime					
(2021/09/15 12:59:51.00)	55.1	58.8	-	56.3	53.9
(2021/09/15 13:00:01.00)	55.4	77.1	58.7	56.9	52.4
(2021/09/15 13:05:02.00)	53.1	58	56.8	54.7	50.8
(2021/09/15 13:10:02.00)	52.3	63.3	55.1	53.7	50.3
(2021/09/15 13:15:02.00)	53.8	64.2	56.2	55.1	52.1
(2021/09/15 13:20:02.00)	54.6	62	57.7	56.3	52
(2021/09/15 13:25:02.00)	55.5	59.1	58	57	53.6
(2021/09/15 13:30:02.00)	54.2	60.1	57.1	55.9	51.8
(2021/09/15 13:35:02.00)	54.3	57.9	56.9	55.8	52.5
(2021/09/15 13:40:02.00)	53.2	59.8	56.3	55.1	49.9
(2021/09/15 13:45:02.00)	55	59.9	58.5	57	52.6
(2021/09/15 13:50:02.00)	56.2	68	62	58.1	52.1
(2021/09/15 13:55:02.00)	54.8	62.6	57.6	56.5	52.2
(2021/09/15 14:00:01.00)	54.5	64	58.2	57	50.7
(2021/09/15 14:05:02.00)	52	58.3	56.5	54.1	49.6
(2021/09/15 14:10:01.00)	52.6	57.9	56.8	54.9	49.7
(2021/09/15 14:15:02.00)	52.9	57.2	55.8	54.5	51.1
(2021/09/15 14:20:02.00)	51.9	57.2	55.7	53.3	50.1
(2021/09/15 14:25:02.00)	53	63.8	56.9	55.5	50.5
(2021/09/15 14:30:02.00)	51.7	59.8	55.1	53.7	48.7
(2021/09/15 14:35:02.00)	51.8	57.5	55.8	54.2	48.3
(2021/09/15 14:40:02.00)	52.3	65.8	56.6	54.3	49.4
(2021/09/15 14:45:02.00)	50	62.4	53.4	51.7	47.6
(2021/09/15 14:50:02.00)	51	73.1	55.1	52.7	48.1
(2021/09/15 14:55:02.00)	53.5	59.3	56.3	55.1	51.6
(2021/09/15 15:00:02.00)	51.6	57.6	55.4	54	48.4
(2021/09/15 15:05:02.00)	47.8	57	52.3	50.3	44.9
(2021/09/15 15:10:01.00)	50.1	55.5	54.5	52.6	46.2
(2021/09/15 15:15:02.00)	51	57	55.8	53.5	47
(2021/09/15 15:20:02.00)	48.8	56.1	52.5	50.8	46.5
(2021/09/15 15:25:02.00)	49.1	53	51.9	50.7	47.3
(2021/09/15 15:30:02.00)	47.4	54.9	50.8	48.7	45.4
(2021/09/15 15:35:02.00)	48.7	63	52.7	50.9	45.7
(2021/09/15 15:40:03.00)	48.5	58.8	52.2	50.1	45.1
(2021/09/15 15:45:02.00)	49.8	53.2	52.4	51.2	48.1
(2021/09/15 15:50:02.00)	46.6	52.9	49.7	48.1	44.2
(2021/09/15 15:55:02.00)	50.3	56	54.6	52.4	48
(2021/09/15 16:00:02.00)	50.3	56.7	53.4	51.6	48.7
(2021/09/15 16:05:02.00)	49.5	56.1	52.9	50.9	47.6
(2021/09/15 16:10:02.00)	48.9	62.9	53.6	50.4	47
(2021/09/15 16:15:02.00)	47.2	53.5	50.1	48.8	45.3
(2021/09/15 16:20:02.00)	47.2	51.7	50.6	49.1	44.6
(2021/09/15 16:25:02.00)	62.3	76.1	73.5	66.6	48.8
(2021/09/15 16:30:01.00)	55.3	74.5	68.4	53.3	45.3
(2021/09/15 16:35:02.00)	58	71.2	68.2	62.1	47.3
(2021/09/15 16:40:02.00)	59.7	76.7	72.8	61.4	46.2
(2021/09/15 16:45:02.00)	57	70.5	68.1	61	46.9
(2021/09/15 16:50:02.00)	54.5	71.1	65.9	58.4	44.1
(2021/09/15 16:55:02.00)	53.5	67.3	64.2	57	46.1
(2021/09/15 17:00:02.00)	46.6	55.7	51.8	47.9	44.8

(2021/09/15 17:05:02.00)	44.3	50.5	47.3	45.8	42.7
(2021/09/15 17:10:02.00)	47.4	54.2	51.4	49.9	43.6
(2021/09/15 17:15:02.00)	52.1	66.9	59.9	54.3	47.6
(2021/09/15 17:20:02.00)	50.6	55	54	52.3	48.3
(2021/09/15 17:25:02.00)	49.8	55.2	53.1	51.6	47.9
(2021/09/15 17:30:02.00)	49.6	66	52.7	51.3	46.6
(2021/09/15 17:35:02.00)	52.2	56.5	55.2	53.6	50.8
(2021/09/15 17:40:02.00)	50.7	54.6	53.5	52	49.2
(2021/09/15 17:45:02.00)	49.7	55.8	53.1	51.4	47.5
(2021/09/15 17:50:02.00)	51.4	54.7	53.7	52.7	49.9
(2021/09/15 17:55:02.00)	52.6	66	57.5	53.7	50.5
(2021/09/15 18:00:02.00)	51.2	56.7	53.7	52.6	49.5
(2021/09/15 18:05:02.00)	51.3	58.4	54.2	52.9	49.3
(2021/09/15 18:10:02.00)	51.2	59.8	54.9	52.5	49.5
(2021/09/15 18:15:02.00)	50.6	59.7	54.8	51.8	48.8
(2021/09/15 18:20:02.00)	52.2	56.1	54.6	53.6	50.5
(2021/09/15 18:25:02.00)	53.2	57.3	55.6	54.5	51.3
(2021/09/15 18:30:02.00)	53.1	57.6	56	54.3	51.4
(2021/09/15 18:35:02.00)	52.8	56.1	55	54.1	51.2
(2021/09/15 18:40:02.00)	54.7	62.6	59.8	57.2	51.9
(2021/09/15 18:45:02.00)	59	69.6	66.8	62.2	52.7
(2021/09/15 18:50:02.00)	58.2	64.9	63.9	60.9	54.5
(2021/09/15 18:55:02.00)	59.3	70.4	67	61.7	55.2
(2021/09/15 19:00:03.00)	59	71.8	66.3	61.7	54.1
(2021/09/15 19:05:02.00)	59.9	71.7	67.6	62	55.7
(2021/09/15 19:10:02.00)	55.6	61.7	58.3	56.7	54.2
(2021/09/15 19:15:02.00)	55.5	68.7	61.8	56.5	53.2
(2021/09/15 19:20:02.00)	55.4	59.1	57.4	56.5	54
(2021/09/15 19:25:02.00)	57.3	68.1	66.7	58.2	54.3
(2021/09/15 19:30:02.00)	56.8	61.1	59.1	58.1	54.9
(2021/09/15 19:35:02.00)	57.7	61.4	60.3	59	56.1
(2021/09/15 19:40:02.00)	58	61.8	60.8	59.7	55.6
(2021/09/15 19:45:02.00)	57.9	61.3	60.4	59.3	56.5
(2021/09/15 19:50:02.00)	56.9	60.4	59.3	58.4	55
(2021/09/15 19:55:02.00)	55.7	60.1	57.9	57.1	54.1
(2021/09/15 20:00:02.00)	56.7	59.3	58.5	57.7	55.5
(2021/09/15 20:05:02.00)	56.2	59.5	58.7	57.6	54.3
(2021/09/15 20:10:02.00)	55.5	59.6	58.2	57	53.5
(2021/09/15 20:15:02.00)	56.6	61	59.9	57.8	54.9
(2021/09/15 20:20:02.00)	57.7	63	61.1	59.4	55.3
(2021/09/15 20:25:02.00)	59.6	67	64	61.2	57
(2021/09/15 20:30:02.00)	57	60.5	59.3	58.2	55.1
(2021/09/15 20:35:02.00)	56.9	59.5	59	58.1	55.1
(2021/09/15 20:40:02.00)	58.4	61.8	60.8	59.6	57
(2021/09/15 20:45:02.00)	57.7	61.8	60.2	59.2	55.6
(2021/09/15 20:50:02.00)	56.6	60.9	60.2	58.6	54
(2021/09/15 20:55:02.00)	56.5	61.5	60.2	58.5	53.8
(2021/09/15 21:00:02.00)	58.5	62.6	61.6	60.3	56.1
(2021/09/15 21:05:02.00)	57.5	62.9	61.1	59.5	54.6
(2021/09/15 21:10:03.00)	57.5	65.8	63.1	59.7	54.8
(2021/09/15 21:15:02.00)	56.8	60.8	59.8	58.5	54.4
(2021/09/15 21:20:02.00)	58	61.9	60.1	59.3	56.3
(2021/09/15 21:25:02.00)	58.4	62.9	62	60.3	55.4
(2021/09/15 21:30:02.00)	57.5	62.7	61.7	60.1	54.4
(2021/09/15 21:35:02.00)	57.8	61.7	60.8	59.9	55.1

(2021/09/15 21:40:02.00)	57.7	63.2	61.3	59.9	54.5
(2021/09/15 21:45:02.00)	56.9	63.4	61.3	59.4	53
(2021/09/15 21:50:02.00)	56.2	60.5	59.7	58.2	53.5
(2021/09/15 21:55:02.00)	58.1	64.2	62.6	60.6	54.6
(2021/09/15 22:00:02.00)	57.7	63.7	61.5	59.8	54.9
(2021/09/15 22:05:02.00)	58.4	63.3	61.7	60.4	55.5
(2021/09/15 22:10:02.00)	58.2	63.3	61.8	60.2	55.1
(2021/09/15 22:15:02.00)	57.2	62	60.6	58.6	55.5
(2021/09/15 22:20:02.00)	57.5	62.1	60.6	59	55.3
(2021/09/15 22:25:01.00)	57.7	61.7	60.4	59.3	55.3
(2021/09/15 22:30:02.00)	58	61.1	60.4	59.4	56
(2021/09/15 22:35:02.00)	56.6	60.1	59	58.1	54.5
(2021/09/15 22:40:02.00)	57.2	61	60	58.7	55.4
(2021/09/15 22:45:02.00)	56.5	60.5	59.4	58.3	53.5
(2021/09/15 22:50:02.00)	56.4	61.1	59.9	58.2	54.5
(2021/09/15 22:55:02.00)	56.5	59.7	58.9	57.9	54.3
Average	55.6	61.4	58.3	56	51.3
Maximum	62.3	77.1	73.5	66.6	57
Night-time					
(2021/09/15 23:00:02.00)	56.1	63.3	59.3	57.7	53.8
(2021/09/15 23:05:02.00)	56.1	59.4	58.3	57.4	54.3
(2021/09/15 23:10:02.00)	57.1	61.1	59.7	58.4	55.1
(2021/09/15 23:15:02.00)	57.4	62.1	60.9	59.1	54.7
(2021/09/15 23:20:02.00)	58.1	69.2	66.9	59.8	53.1
(2021/09/15 23:25:03.00)	57.9	62	61.4	60.4	55
(2021/09/15 23:30:02.00)	59.3	62.3	61.6	60.8	56.7
(2021/09/15 23:35:02.00)	57.6	62.8	62	60.5	52.6
(2021/09/15 23:40:02.00)	55.3	59.6	58.7	57.6	51.2
(2021/09/15 23:45:02.00)	54.5	60.5	58.7	57.1	50.3
(2021/09/15 23:50:02.00)	53.6	58	57	55.8	50.7
(2021/09/15 23:55:02.00)	54.4	57.4	56.7	55.8	52.1
(2021/09/16 00:00:02.00)	54.3	58.6	57.9	56.6	50.4
(2021/09/16 00:05:02.00)	53.9	60	58.5	56.2	50.3
(2021/09/16 00:10:02.00)	57.2	65.8	63.7	59	53.3
(2021/09/16 00:15:02.00)	55.1	60	59.1	57.4	50.8
(2021/09/16 00:20:01.00)	54.8	59	57.6	56.5	52.5
(2021/09/16 00:25:02.00)	57	62	60.6	59.3	52.9
(2021/09/16 00:30:01.00)	57.8	62.7	61.7	59.8	54.6
(2021/09/16 00:35:02.00)	55.9	60.8	59.7	58.2	52.7
(2021/09/16 00:40:02.00)	53.9	59.5	57.8	56.3	49.3
(2021/09/16 00:45:02.00)	54.8	59.7	58.7	57.5	50.7
(2021/09/16 00:50:01.00)	53.8	59.2	57.3	55.9	51.2
(2021/09/16 00:55:02.00)	53	57.5	56.1	54.6	50
(2021/09/16 01:00:02.00)	54	58.6	57.9	57	48.9
(2021/09/16 01:05:02.00)	54.7	58.7	57.9	56.6	52.2
(2021/09/16 01:10:02.00)	52.3	56.9	55.9	54.5	48.9
(2021/09/16 01:15:02.00)	51.2	56.6	54.4	52.7	49
(2021/09/16 01:20:02.00)	50.9	58.1	55.2	53	47
(2021/09/16 01:25:02.00)	52.7	60.6	56.7	54.7	49.9
(2021/09/16 01:30:02.00)	52.7	57.7	56.5	54.9	49.7
(2021/09/16 01:35:02.00)	51.3	59.8	58.2	54	46.2
(2021/09/16 01:40:02.00)	52.8	57.7	56.6	54.7	50.5
(2021/09/16 01:45:02.00)	55.6	60.3	59.2	57.5	52.8
(2021/09/16 01:50:02.00)	55.5	61.2	60.1	58.6	49.4
(2021/09/16 01:55:02.00)	56	61.5	60.7	59.2	47.9

(2021/09/16 02:00:02.00)	54.4	59.7	58.4	56.1	51.7
(2021/09/16 02:05:02.00)	53.3	58.6	57.9	55.9	48.7
(2021/09/16 02:10:02.00)	53.2	59.2	57.3	55.1	50.1
(2021/09/16 02:15:02.00)	52.9	57.3	56.7	55.5	48.8
(2021/09/16 02:20:02.00)	54.7	58.6	57.9	56.7	49.2
(2021/09/16 02:25:02.00)	53.2	59.9	58	55.4	49.8
(2021/09/16 02:30:02.00)	54.6	58.9	57.7	56.1	52.5
(2021/09/16 02:35:02.00)	51.8	56.1	55.2	53.9	48.7
(2021/09/16 02:40:03.00)	54.5	58.7	57.1	56.3	51.3
(2021/09/16 02:45:02.00)	53.3	57.6	56.2	55	50.8
(2021/09/16 02:50:02.00)	51.3	55.5	54.8	53.6	48.6
(2021/09/16 02:55:02.00)	53.9	60.1	58.4	56.1	51.4
(2021/09/16 03:00:02.00)	55.1	59.7	58.9	57.6	50.2
(2021/09/16 03:05:02.00)	55.5	59.7	59	58.1	52.1
(2021/09/16 03:10:02.00)	55.4	60.8	59.4	57.6	51.6
(2021/09/16 03:15:02.00)	52.9	57	56	54.8	50.2
(2021/09/16 03:20:02.00)	54.8	58.3	57.5	56.5	52.5
(2021/09/16 03:25:02.00)	58.2	63.4	61.5	59.8	56.1
(2021/09/16 03:30:02.00)	56.6	61.5	60.3	58.6	53.7
(2021/09/16 03:35:02.00)	52.1	56.5	55	53.5	50
(2021/09/16 03:40:02.00)	51.5	56.7	55.7	54.4	46.3
(2021/09/16 03:45:02.00)	53.7	59.4	58.2	56.5	49.8
(2021/09/16 03:50:02.00)	53.5	57.6	56.3	55.2	51
(2021/09/16 03:55:01.00)	54	57.8	56.8	55.7	51.5
(2021/09/16 04:00:02.00)	53.1	58.2	56.4	54.9	50.8
(2021/09/16 04:05:02.00)	52.5	58.8	56.8	55.2	48.4
(2021/09/16 04:10:02.00)	51.1	56.3	55	53.7	46.7
(2021/09/16 04:15:02.00)	53	57.8	56.8	55.4	48.6
(2021/09/16 04:20:02.00)	52	57	55.8	54.6	47.3
(2021/09/16 04:25:02.00)	51.6	56.3	55	53.7	48.1
(2021/09/16 04:30:02.00)	54.2	58.5	57.6	56	51.8
(2021/09/16 04:35:02.00)	53.5	57.2	56.3	55.3	51.1
(2021/09/16 04:40:02.00)	55.2	59.2	58.3	57.1	51.5
(2021/09/16 04:45:02.00)	55.8	60.5	59.5	57.9	52.1
(2021/09/16 04:50:02.00)	54	61	58.8	56.8	49.6
(2021/09/16 04:55:02.00)	54.4	59.8	58.4	56.4	51
(2021/09/16 05:00:02.00)	54.3	58.7	57.3	56.2	49.7
(2021/09/16 05:05:02.00)	54.5	59.2	58.3	56.7	51.6
(2021/09/16 05:10:02.00)	57.2	62.1	60.7	59.5	54.6
(2021/09/16 05:15:01.00)	58.9	62.8	61.5	60.5	56.9
(2021/09/16 05:20:02.00)	58.2	65.4	62.4	59.8	56
(2021/09/16 05:25:02.00)	58.9	62.5	61.6	60.8	56.3
(2021/09/16 05:30:02.00)	57.4	61.2	59.8	58.8	55.6
(2021/09/16 05:35:02.00)	57.8	61.1	60.3	59.4	56
(2021/09/16 05:40:02.00)	58.5	62.2	60.5	59.7	57.2
(2021/09/16 05:45:02.00)	57.8	61.5	60.8	59.3	55.8
(2021/09/16 05:50:02.00)	57.5	65	62.2	58.8	55.1
(2021/09/16 05:55:02.00)	56.4	63.6	59.6	57.8	54.8
(2021/09/16 06:00:02.00)	56.9	70.5	59.8	58.1	55
(2021/09/16 06:05:02.00)	56.9	62.3	60.2	58.1	55.2
(2021/09/16 06:10:02.00)	57.7	63.8	60.8	59.7	55.1
(2021/09/16 06:15:02.00)	58.4	61.8	60.8	59.8	57
(2021/09/16 06:20:02.00)	57.7	61.9	60.5	59.2	56.1
(2021/09/16 06:25:02.00)	58.4	62.5	61.1	59.8	56.8
(2021/09/16 06:30:02.00)	59.5	64.7	61.8	60.8	57.9

(2021/09/16 06:35:02.00)	58.9	65.1	61.9	60	57.7
(2021/09/16 06:40:02.00)	60.9	65.4	64	62	59.6
(2021/09/16 06:45:02.00)	60	62.1	61.5	60.9	59
(2021/09/16 06:50:02.00)	61.3	63.7	62.9	62.1	60.4
(2021/09/16 06:55:02.00)	60.9	63.2	62.4	61.8	59.8
Average	56.0	60.3	58.8	57.2	52.2
Maximum	61.3	70.5	66.9	62.1	60.4
Daytime					
(2021/09/16 07:00:02.00)	60.2	62.3	61.7	61	59.2
(2021/09/16 07:05:03.00)	61.9	78.1	66.4	62.5	60.3
(2021/09/16 07:10:02.00)	61.6	64.7	63.2	62.4	60.7
(2021/09/16 07:15:02.00)	61.6	68.9	63.3	62.6	60.4
(2021/09/16 07:20:02.00)	62.5	66.2	65.2	63.7	60.8
(2021/09/16 07:25:02.00)	62.6	66.7	64.5	63.5	61.6
(2021/09/16 07:30:02.00)	60.7	63	62.3	61.7	59.6
(2021/09/16 07:35:02.00)	60.9	62.9	62.2	61.7	60
(2021/09/16 07:40:02.00)	60.4	69.4	61.8	61	59.6
(2021/09/16 07:45:02.00)	59.8	66.6	62.1	60.7	58.7
(2021/09/16 07:50:02.00)	60.3	63.6	62.3	61.1	59.5
(2021/09/16 07:55:02.00)	61.2	63.3	62.7	62.1	60.2
(2021/09/16 08:00:02.00)	60.7	77.3	64	61.7	59.3
(2021/09/16 08:05:02.00)	58.7	62.7	60.8	60	57.1
(2021/09/16 08:10:02.00)	58.8	63.6	60.7	59.7	57.7
(2021/09/16 08:15:02.00)	57.9	60.7	59.7	58.9	56.8
(2021/09/16 08:20:02.00)	57.7	63.3	59.5	58.8	56.3
(2021/09/16 08:25:02.00)	58.5	71.9	61.6	59.3	57.1
(2021/09/16 08:30:02.00)	60.2	69.7	68.3	60.9	57.6
(2021/09/16 08:35:02.00)	57.1	68.6	59.8	58.2	55.7
(2021/09/16 08:40:02.00)	56	62.7	58.3	57.3	54.2
(2021/09/16 08:45:01.00)	56	59	58.2	57.2	54.4
(2021/09/16 08:50:02.00)	56.3	61.2	58.6	57.5	54.4
(2021/09/16 08:55:01.00)	56.2	72.6	59.8	57.3	54.1
(2021/09/16 09:00:02.00)	56.6	76	58.5	57.3	55
(2021/09/16 09:05:02.00)	55.6	62.6	58.8	56.7	54.1
(2021/09/16 09:10:02.00)	54.6	60.5	58.1	56.3	52.1
(2021/09/16 09:15:02.00)	52.8	56.3	55.3	54.2	51.1
(2021/09/16 09:20:02.00)	54.3	58.1	56.9	55.7	52.3
(2021/09/16 09:25:02.00)	53.2	57.5	56.3	55.1	50.2
(2021/09/16 09:30:02.00)	53.8	58.8	57.7	56.3	50.5
(2021/09/16 09:35:02.00)	53.3	57.8	56.6	55.3	50.6
(2021/09/16 09:40:02.00)	53.3	71.6	59.8	54.6	50.2
(2021/09/16 09:45:02.00)	61.4	69.3	67.8	64.4	54.8
(2021/09/16 09:50:02.00)	62.2	69.5	67.5	65.1	57.9
(2021/09/16 09:55:02.00)	62.4	71.3	69.6	66	56.8
(2021/09/16 10:00:02.00)	53.3	60.5	56.8	54.9	51.2
(2021/09/16 10:05:02.00)	51.6	62.3	55.8	53.5	49.4
(2021/09/16 10:10:01.00)	55.7	68	65.4	59.5	50.1
(2021/09/16 10:15:02.00)	53.9	65.2	57.6	55.3	51.8
(2021/09/16 10:20:02.00)	53	59.3	56.9	54.5	50.9
(2021/09/16 10:25:02.00)	53.3	57.9	56.5	54.8	51.6
(2021/09/16 10:30:02.00)	53.7	62.6	56.6	55.1	51.7
(2021/09/16 10:35:02.00)	53.5	64.4	57.6	55.2	50.9
(2021/09/16 10:40:02.00)	50.8	66	56.7	51.9	48.5
(2021/09/16 10:45:02.00)	48.6	53.3	51.5	50.1	46.4
(2021/09/16 10:50:02.00)	52.1	64.7	59.8	54	48.6

(2021/09/16 10:55:02.00)	50.5	58.8	54.4	52.5	48.3
(2021/09/16 11:00:02.00)	52.6	56.9	55.6	54.5	50.2
(2021/09/16 11:05:02.00)	53.5	58	57	55.7	50.9
(2021/09/16 11:10:02.00)	54	62.6	59.5	55.8	51.5
(2021/09/16 11:15:02.00)	55.1	59.2	57.9	56.6	53.5
(2021/09/16 11:20:02.00)	55.8	73.1	58.3	56.2	52.7
(2021/09/16 11:25:03.00)	55.8	72.3	69.7	54.7	50.9
(2021/09/16 11:30:02.00)	54.4	72.6	59.4	55.8	51.1
(2021/09/16 11:35:02.00)	54	57.7	56.6	55.4	52
(2021/09/16 11:40:02.00)	52.5	56.9	55.5	54.3	50.4
(2021/09/16 11:45:02.00)	53	63.4	56.9	55.3	50
(2021/09/16 11:50:02.00)	53.8	62.8	57	55.4	51.7
(2021/09/16 11:55:02.00)	52.2	57.5	55.4	53.7	50.4
(2021/09/16 12:00:02.00)	53.8	57.9	56.5	55.4	51.7
(2021/09/16 12:05:02.00)	54.6	58.8	57.9	56.4	52.1
(2021/09/16 12:10:02.00)	54.7	62.6	57.6	56.3	52.7
(2021/09/16 12:15:02.00)	55.4	59.1	58.1	57.1	53.3
(2021/09/16 12:20:02.00)	53.8	58	56.8	55.6	51.5
(2021/09/16 12:25:02.00)	53.8	57.6	56.4	55.5	51.6
(2021/09/16 12:30:02.00)	52.3	57.2	55.3	54	50.4
(2021/09/16 12:35:02.00)	53.1	60.6	56.2	54.8	50.4
(2021/09/16 12:40:02.00)	51	56.5	55.1	53.4	47.2
(2021/09/16 12:45:02.00)	52.1	56.8	55.4	54.2	48.8
(2021/09/16 12:50:02.00)	54.4	60.7	57.3	56.2	52.2
(2021/09/16 12:55:02.00)	54.9	58.8	57.3	56.3	52.9
(2021/09/16 13:00:02.00)	55.9	59.8	58.9	57.7	54.1
(2021/09/16 13:05:02.00)	55.4	59	58.1	57.1	53.5
(2021/09/16 13:10:02.00)	55.9	61.5	59.4	57.6	53.9
(2021/09/16 13:15:02.00)	55.7	61.3	58.1	57	54.2
(2021/09/16 13:20:02.00)	57.7	68.8	63.4	58.9	55.6
(2021/09/16 13:25:02.00)	56	59.9	58.8	57.7	54
(2021/09/16 13:30:02.00)	57	61.7	59.3	58.1	55.7
(2021/09/16 13:35:02.00)	57.2	62.3	59.6	58.6	54.8
(2021/09/16 13:40:02.00)	56.9	61.9	60.4	59.2	54.6
(2021/09/16 13:45:02.00)	57.3	61.9	60.7	58.9	55.6
(2021/09/16 13:50:02.00)	56.3	60.8	59.4	58.1	54.4
(2021/09/16 13:55:02.00)	56.5	61.8	59.2	58	54.6
(2021/09/16 14:00:02.00)	55.7	59.5	58.4	57	54.4
(2021/09/16 14:05:02.00)	55.7	59.4	58.6	57.2	53.9
(2021/09/16 14:10:02.00)	54.7	58.5	57.4	56.2	53.1
(2021/09/16 14:15:02.00)	54.2	57.7	56.6	55.6	52.4
(2021/09/16 14:20:02.00)	54.3	58.9	57.6	55.8	52.2
(2021/09/16 14:25:02.00)	54.8	59	58.1	56.5	52.7
(2021/09/16 14:30:02.00)	55	58.6	57.3	56.2	53.4
(2021/09/16 14:35:02.00)	56.7	67.2	65.6	57.4	53.8
(2021/09/16 14:40:02.00)	56	69.5	65.1	56.7	53.4
(2021/09/16 14:45:03.00)	55.3	58.2	57.2	56.4	53.8
(2021/09/16 14:50:02.00)	55.6	59.5	58.3	56.8	54
(2021/09/16 14:55:02.00)	55.5	58.2	57.5	56.7	53.8
(2021/09/16 15:00:02.00)	62.6	72.4	69.9	67.7	55.2
(2021/09/16 15:05:02.00)	58.4	67.9	66	60.7	54.2
Average	57.2	62.9	59.5	57.5	53.7
Maximum	62.6	78.1	69.9	67.7	61.6

Date	L _{Aeq}	L _{Amax}	L _{A01}	L _{A10}	L _{A90}
Multiple bikes congregated around obstacle @ Approx 5m					
(2021/09/15 10:56:53.00)	78.7	92.1	88.4	81.7	69.5
(2021/09/15 11:00:02.00)	75.8	87.2	86	79.3	66.8
Average	77.5	89.7	87.2	80.5	68.2
Maximum	78.7	92.1	88.4	81.7	69.5
Bike rev/pass by @ Approx 0.5m					
(2021/09/15 11:02:14.00)	85.1	104.2	99.7	84.2	70.6
Bikes consecutively going up verticle obstacle @ Approx 1.5m					
(2021/09/15 11:05:01.00)	84.3	101.8	100.4	82.8	71.8
(2021/09/15 11:05:52.00)	78.5	87.3	86.4	82	71.5
(2021/09/15 11:06:13.00)	80.1	89.1	87.5	83.3	73.4
(2021/09/15 11:06:59.00)	75.2	86.5	85.2	77.7	67.1
(2021/09/15 11:09:10.00)	75.6	89.7	86.7	78.8	63.4
Average	80.1	90.9	89.2	80.9	69.4
Maximum	84.3	101.8	100.4	83.3	73.4
One bike going over rock obstacle @ Approx 2m					
(2021/09/15 11:13:44.00)	76.7	86.5	85.6	80.5	68.8
(2021/09/15 11:14:42.00)	77.4	86.2	85.7	80.9	68.2
(2021/09/15 11:15:02.00)	78.1	87.6	85.5	81.3	72.4
(2021/09/15 11:17:59.00)	78.6	95	87.5	82	68.6
Average	77.8	88.8	86.1	81.2	69.5
Maximum	78.6	95	87.5	82	72.4
One bike going up pipe obstacle @ Approx 2m					
(2021/09/15 11:22:42.00)	73.7	86.7	85.8	74	62.6
(2021/09/15 11:23:31.00)	76.9	88.1	87.1	81.8	63.3
(2021/09/15 11:24:44.00)	76.8	86.3	85.1	82	68.1
Average	76.0	87	86	79.3	64.7
Maximum	76.9	88.1	87.1	82	68.1
3x Startup of bike @ Approx 1m					
(2021/09/15 11:28:10.00)	82.1	89.9	-	86.8	60.4
(2021/09/15 11:28:44.00)	80.7	90.7	-	85.8	54.8
(2021/09/15 11:29:20.00)	80.5	88.5	-	86	59
Average	81.2	89.7	-	86.2	58.1
Maximum	82.1	90.7	-	86.8	60.4
1-hr sample on site					
(2021/09/15 11:39:42.00)	45.6	48.6	48.2	47.1	44
(2021/09/15 11:40:02.00)	47.9	59.1	50.7	49.4	45.6
(2021/09/15 11:45:02.00)	47	55.3	50.5	48.3	45.2
(2021/09/15 11:50:02.00)	46.3	55.5	49.5	47.6	44.6
(2021/09/15 11:55:02.00)	48.8	56.5	53.2	50.9	46.2
(2021/09/15 12:00:01.00)	49	52.1	51.1	50.2	47.4
(2021/09/15 12:05:02.00)	47.8	51.5	50	49	46.2
(2021/09/15 12:10:02.00)	48.6	63.5	52.2	49.6	46.6
(2021/09/15 12:15:02.00)	47.9	69.4	51.8	48.8	45.6
(2021/09/15 12:20:03.00)	47.4	61.9	52.1	48.7	45.5
(2021/09/15 12:25:02.00)	48.9	54.6	51.7	50.4	47.3
(2021/09/15 12:30:02.00)	48.8	57.8	55.3	50.2	46.7
(2021/09/15 12:35:02.00)	52.4	66.2	64	53	47.1
(2021/09/15 12:40:02.00)	46.3	52.6	49	47.3	45.1
Average	48.4	57.5	52.1	49.3	45.9
Maximum	52.4	69.4	64	53	47.4



MEC
Consulting Group

APPENDICES



APPENDIX F



NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

	0-50dB(A)
	50-55dB(A)
	55-56dB(A)
	56-57dB(A)
	57-58dB(A)
	58-59dB(A)
	59-60dB(A)
	60-65dB(A)
	65-70dB(A)
	>70dB(A)

B	Updated Site Layout	EW	NF	AS	28.05.25
A	Updated Site Layout	EW	NF	AS	02.06.24
REV	AMENDMENTS:	DRN	CHK	APP	DATE

PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON

DRAWING TITLE: EXTERNAL DAYTIME LAeq, 16hour SOUND LEVELS WITH LAYOUT

CLIENT: AT CONTRACTING & PLANT HIRE LTD

DRAWING NUMBER: 26726_04_120_04

REVISION: B	SHEET SIZE: A3	SCALE: NTS
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STATUS: FOR INFORMATION

M-EC
ACOUSTIC AIR

Telephone: 01530 264 753
Email: group@mm-ec.co.uk
Website: www.mm-ec.co.uk

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100055865.



NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

	0-50dB(A)
	50-55dB(A)
	55-60dB(A)
	60-65dB(A)
	65-70dB(A)
	70-75dB(A)
	75-80dB(A)
	>80dB(A)

B	Updated Site Layout	EW	NF	AB	28.05.25
A	Updated Site Layout	EW	NF	AB	02.06.24
REV.	AMENDMENTS:	DRN	CHK	APP	DATE:
PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON					
DRAWING TITLE: EXTERNAL NIGHT-TIME LAeq,8hour SOUND LEVELS WITH LAYOUT					
CLIENT: AT CONTRACTING & PLANT HIRE LTD					
DRAWING NUMBER: 26726_04_120_05					
REVISION: B		SHEET SIZE: A3		SCALE: NTS	
STATUS: FOR INFORMATION					
		Telephone: 01530 264 753 Email: group@m-ec.co.uk Website: www.m-ec.co.uk ORDNANCE SURVEY © CROWN COPYRIGHT 2015. ALL RIGHTS RESERVED. LICENCE NUMBER 100055865.			

File Location: R:\26726\Drawings\04_120_05_Night-time with layout_B.dwg

Printed: 23.05.2025



NOTES:

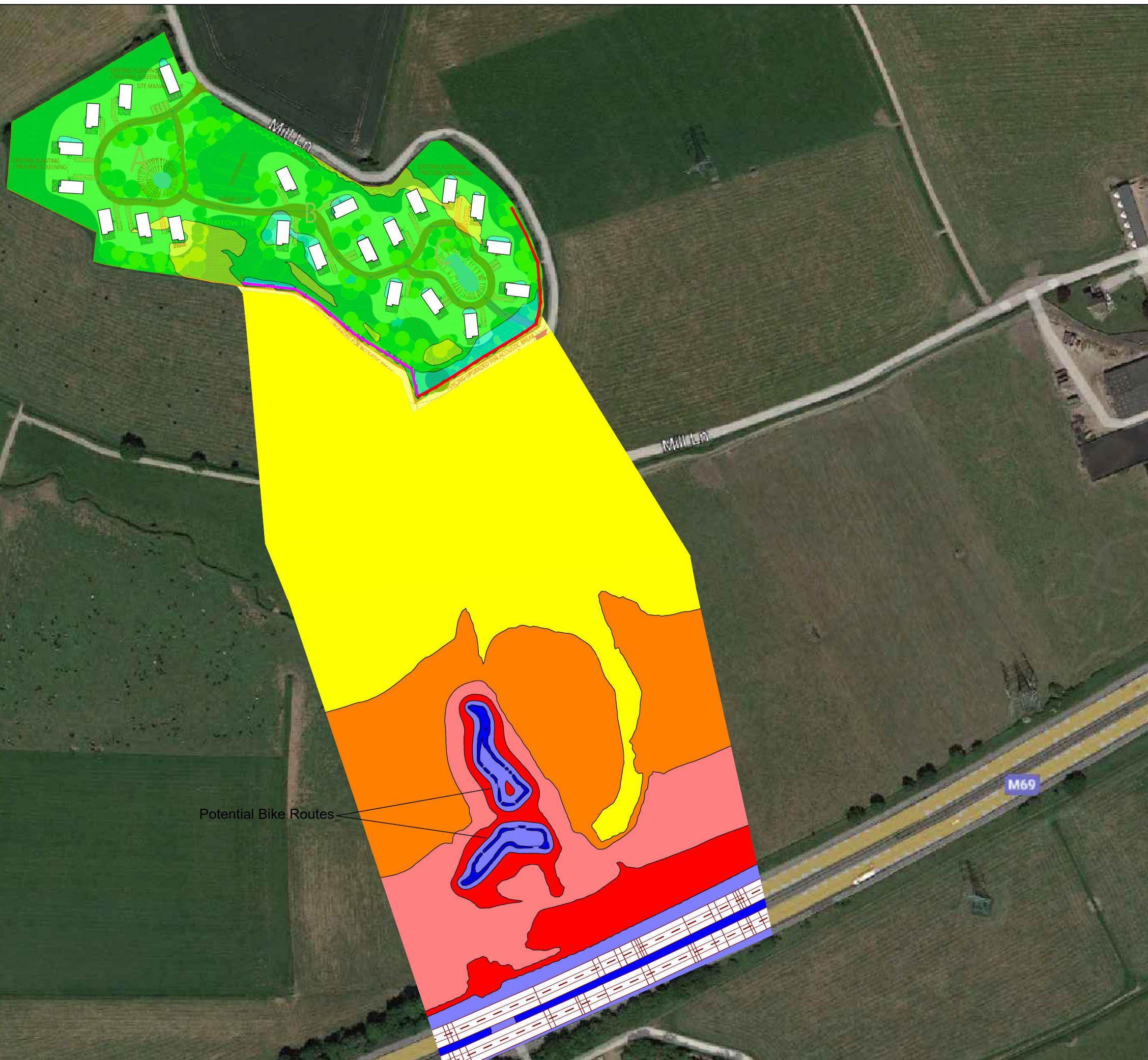
1. DO NOT SCALE THIS DRAWING.

KEY

	0-50dB(A)
	50-55dB(A)
	55-60dB(A)
	60-65dB(A)
	65-70dB(A)
	70-75dB(A)
	75-80dB(A)
	>80dB(A)

A	Updated Site Layout	EW	NF	AB	02.06.23
REV	AMENDMENTS	DRN	CHK	APP	DATE
PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON					
DRAWING TITLE: EXTERNAL NIGHT-TIME L _{Amax} SOUND LEVELS WITH LAYOUT					
CLIENT: AT CONTRACTING & PLANT HIRE LTD					
DRAWING NUMBER: 26726_04_120_06					
REVISION: B		SHEET SIZE: A3		SCALE: NTS	
STATUS: FOR INFORMATION					
		Telephone: 01530 264 753 Email: group@m-ec.co.uk Website: www.m-ec.co.uk ORDNANCE SURVEY © CROWN COPYRIGHT 2015. ALL RIGHTS RESERVED. LICENCE NUMBER 100055865.			

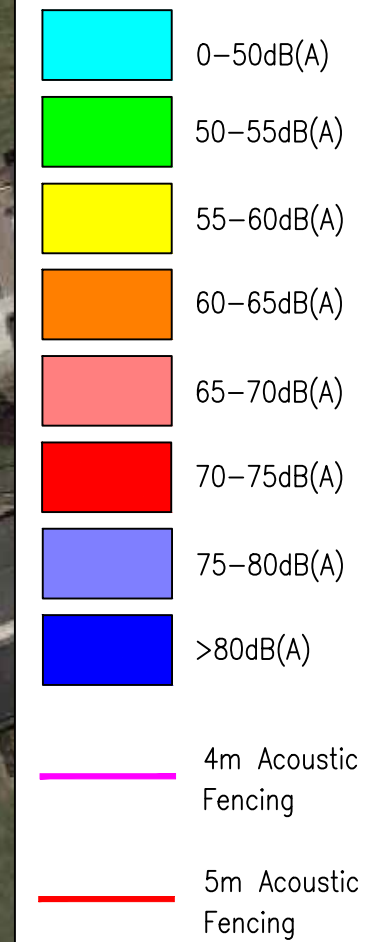
File Location: R:\26726\BarrowHill\26726_04_120_06\NightTime LAmax with layout B.dwg
Printed: 30.05.2025



NOTES:

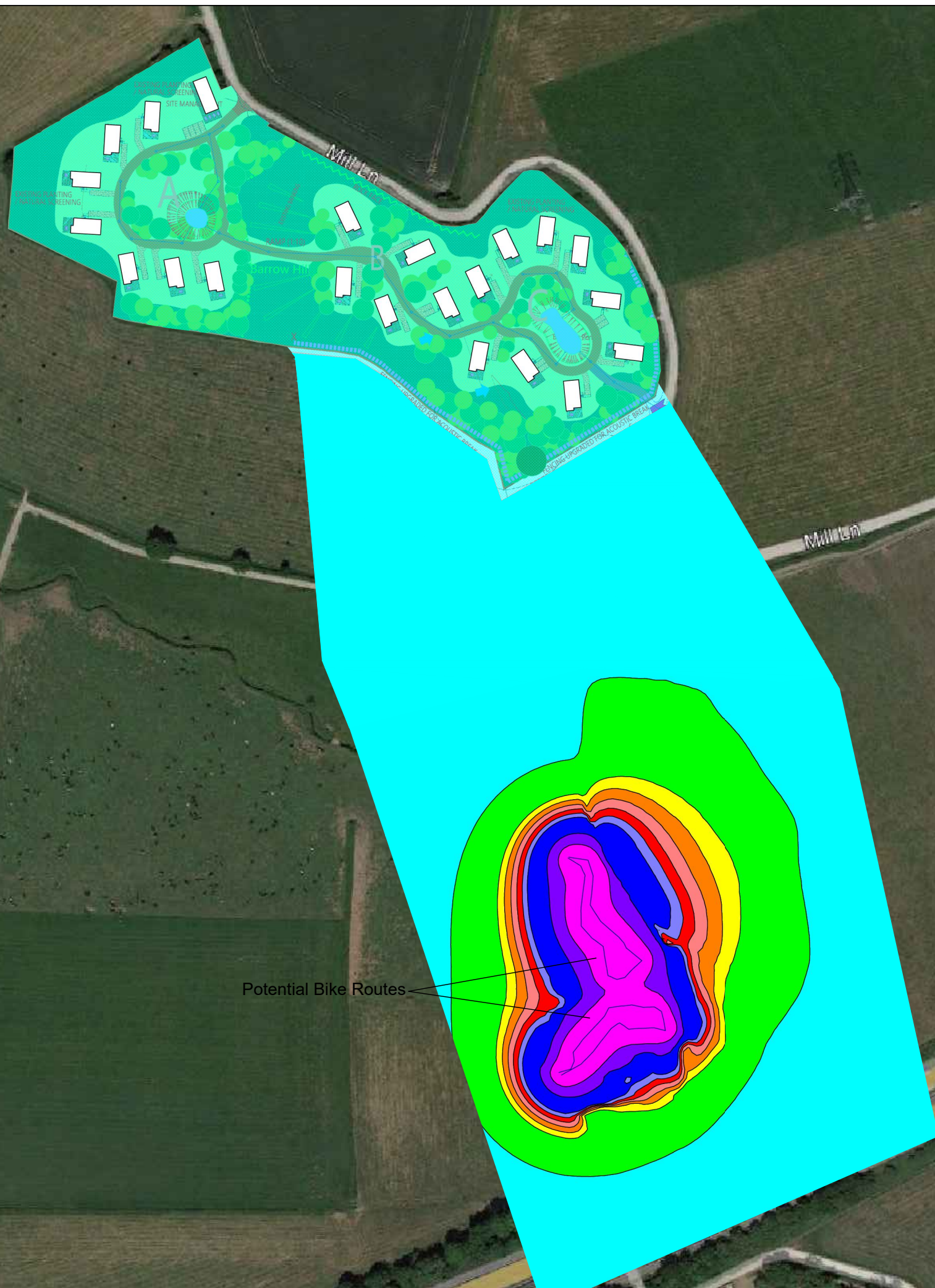
1. DO NOT SCALE THIS DRAWING.

KEY



Potential Bike Routes

B	Updated Site Layout	EW	NF	AS	28.05.25
A	Updated Site Layout	EW	NF	AS	02.06.24
REV.	AMENDMENTS:	DRN	CHK	APP	DATE:
PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON					
DRAWING TITLE: EXTERNAL DAYTIME LAeq,16hour SOUND LEVELS WITH LAYOUT AND MITIGATION					
CLIENT: AT CONTRACTING & PLANT HIRE LTD					
DRAWING NUMBER: 26726_04_120_07					
REVISION:	SHEET SIZE:		SCALE:		
A	A3		NTS		
STATUS: FOR INFORMATION					
M-EC ACOUSTIC AIR		Telephone: 01530 264 753 Email: group@mm-ec.co.uk Website: www.mm-ec.co.uk ORDNANCE SURVEY © CROWN COPYRIGHT 2015. ALL RIGHTS RESERVED. LICENCE NUMBER 100055865.			



NOTES:

- DO NOT SCALE THIS DRAWING.

KEY

	0-50dB(A)
	50-55dB(A)
	55-56dB(A)
	56-57dB(A)
	57-58dB(A)
	58-59dB(A)
	59-60dB(A)
	60-65dB(A)
	65-70dB(A)
	>70dB(A)

REV:	AMENDMENTS:	EW	NF	AB	11.06.25
		DRN	CHK	APP	DATE:

PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON

DRAWING TITLE:
EXTERNAL DAYTIME LAeq,16hour
SOUND LEVELS OF THE
TRIALS CLUB

CLIENT:
AT CONTRACTING & PLANT HIRE LTD

DRAWING NUMBER:
26726_04_120_10

REVISION:	SHEET SIZE:	SCALE:
-	A3	NTS

STATUS: FOR INFORMATION

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File Location: R:\26726\Drawings\26726_04_120_10 Only Trials Club.dwg
Printed: 11.06.2025



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APPENDICES



APPENDIX G



NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 26726-ENV-0401 for the details on the proposed glazing and ventilation references.

KEY



Ref. A



Ref. B

REV:	AMENDMENTS:	EW	NF	AB	30.06.25
------	-------------	----	----	----	----------

REV:	AMENDMENTS:	DRN	CHK	APP	DATE:
------	-------------	-----	-----	-----	-------

PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON

DRAWING TITLE: MITIGATION REFERENCE FOR HABITABLE BEDROOMS

CLIENT: AT CONTRACTING & PLANT HIRE LTD

DRAWING NUMBER: 26726_04_120_08

REVISION:	SHEET SIZE:	SCALE:
-	A3	NTS

STATUS: FOR INFORMATION

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File Location: R:\26726\Drawings\A1\2026726_04_120_08 M-EC\acoustic.dwg
Printed: 30.06.2025



NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 26726-ENV-0401 for the details on the proposed glazing and ventilation references.

KEY



Ref. A

REV:	AMENDMENTS:	EW	NF	AB	30.06.25
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REV:	AMENDMENTS:	DRN	CHK	APP	DATE:
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PROJECT: BARROW HILL QUARRY, MILL LANE, EARL SHILTON

DRAWING TITLE:
MITIGATION REFERENCE FOR ALL
OTHER HABITABLE ROOMS
(NON-BEDROOMS)

CLIENT:
AT CONTRACTING & PLANT HIRE LTD

DRAWING NUMBER:
26726_04_120_09

REVISION:	SHEET SIZE:	SCALE:
-	A3	NTS

STATUS:
FOR INFORMATION

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File Location: R:\26726\Drawings\04_120_09_Mitigation.dwg
Printed: 30.06.2025



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APPENDICES



APPENDIX H

Reference A Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						$R_w / D_{n,e,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	32	32	31	33	31	31	32	0
The glazing reduction requirements can typically be found in a configuration of 4/12/4, where the information is presented in terms of the thickness of one pane of glass in mm, followed by the size of the air gap in mm, followed by the thickness of the second pane of glass in mm. The background ventilation requirements can be found in standard window mounted non-acoustic trickle ventilators.								

Reference B Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						$R_w / D_{n,e,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	29	27	35	37	36	45	36	-3
Ventilation (Trickle)	39	38	30	46	42	40	39	-3
The reduction requirements can typically be found in 8/12/10 thermal double glazing and acoustically rated window mounted trickle ventilators for typical conditions.								

It is appreciated that it is impractical to achieve every octave band minimum performance requirement, therefore, during procurement of solutions, the $R_w + C_{tr}$ or $D_{n,e,w} + C_{tr}$ should be adhered to at a minimum.



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