LPA Ref: LCC/2023/0030

Appeal Ref:6002168

Lancashire County Council

Section 78 of the Town and Country Planning Act 1990

Appeal by Baxtors Construction Ltd:

Against decision of Lancashire County Council to refuse to grant planning permission for the extraction and processing of sand and gravel including the construction of new site access roads, landscaping and screening bunds, minerals washing plant and other associated infrastructure with restoration of leisure end uses, agricultural land and biodiversity enhancement using imported fill

at Land off Bourbles Lane, Preesall, Lancashire

PROOF OF EVIDENCE of

David Gray

of AtkinsRéalis Ltd.

In respect of noise

On behalf of Lancashire County Council as the minerals planning authority

Date: 20 March 2026

1. INTRODUCTION

Qualifications and Experience

1.1.1 My name is David Gray. I am a Principal Acoustician at AtkinsRéalis. I hold a Bachelor's degree (with Honours) in Acoustics from the University of Salford. I am a member of the Institute of Acoustics.

1.1.2 I have over 18 years' experience in acoustic consultancy since 2007, specialising in environmental noise assessment. I started my career as a placement student at Philip Dunbavin Acoustics Ltd, before joining Red Acoustics Ltd as a graduate. I later joined Bureau Veritas which included secondments with the noise team at National Grid, before joining AtkinsRéalis in 2018. I have been and am currently the noise and vibration lead responsible for several Nationally Significant Infrastructure Projects (NSIPs), principally with regards to electrical transmission for National Grid, as well as for the Transport Works Acts Order (TWAO) for the TransPennine Rail Upgrade (TRU) for Network Rail. I have presented evidence at public inquiries.

1.1.3 My technical expertise lies in environmental noise, including the measurement of baseline sound levels, the prediction and modelling of sound propagation, the assessment of noise from industrial and railway sources, and the specification of mitigation.

1.1.4 I confirm that the evidence in this proof of evidence is true and that the opinions expressed are my true and professional opinions.

1.1.5 I have used Artificial Intelligence (AI) to help draft this Proof of Evidence. Specifically, I used Microsoft CoPilot to assist with clarity.

Scope of Evidence

1.1.6 I am acting on behalf of The Minerals Planning Authority Lancashire County Council (the Council) for the purposes of this appeal, which follows the Council's decision to refuse planning permission for application LCC/2023/0030.

1.1.7 I was instructed in February 2026 following refusal of the application in October 2025. I undertook a review of relevant application documents to determine whether I could support the reason for refusal. I concluded that I could and as such I am now providing expert evidence on noise impacts per the second reason for refusal.

1.1.8 The scope of my evidence covers the potential noise effects during the operational and restoration phases of the proposed development as encapsulated in the second reason for refusal:

"2) The development by reason of proximity to residential properties would have unacceptable noise and dust impacts that could not be satisfactorily mitigated contrary to paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan."

1.1.9 An agreed topic specific Statement of Common Ground (SoCG) for noise has been agreed between Dr Robert Storey (for the Appellant)

and David Gray (for the Council) which defines the matters relating to noise impacts.

1.1.10 In preparing this evidence I have reviewed the following:

- Relevant planning application documents; notably the revised Noise Assessment (Vibrock, August 2024) [CS3.05];
- LCC planning officer's report to committee (as amended), Decision Notice, and representations;
- Appellant Statement of Case, and documents submitted with the Appeal, including:
  - Topic specific SoCG, as agreed between Dr Robert Storey (for the Appellant) and David Gray (for the Council);
  - LCC Statement of Case (SoC).
- Relevant industry guidance including:
  - The National Planning Policy Framework, (December 2024) (NPPF) [CD12.01];
  - Noise Policy Statement for England (March 2010) (NPSE) [CD12.02];
  - Planning Practice Guidance: Noise (July 2019) (PPG Noise) [CD12.03];

- Planning Practice Guidance: Minerals (October 2019) (PPG Minerals) [CD12.04];
- Joint Lancashire Minerals and Waste Local Plan [CD7.01];
- Wyre Local Plan [CD7.04];
- BS 5228 1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise. (BS 5228-1) [CD12.06]; and
- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (BS 8233).

1.1.11 The evidence I will present relates to the content of the Appellant's Noise Assessment undertaken by Vibrock for the proposed development as reported in their Noise Assessment dated August 2024 [CS3.05].

1.1.12 I have visited the Appeal Site, viewing the development site and nearby properties from publicly accessible land, and conducting a subjective appraisal of the baseline noise environment.

1.1.13 My evidence demonstrates that noise emissions from mineral excavation and restoration activities will have the greatest impact at the closest receptors to the site; principally the properties known as 'Woodlands', 'Red Lea', 'Bourbles Farm', and 'Ourome'. These are shown on the layout provided in Appendix 1.

1.1.14 My evidence will further present that mitigation measures proposed by the Appellant cannot adequately reduce noise emissions so that no significant effect is experienced beyond the site boundary.

1.1.15 While the Noise Assessment for the proposed development has adopted relevant standards and guidance, appropriate consideration has not been given to the magnitude of noise mitigation measures to sufficiently mitigate the potential impacts on amenity of nearby residents.

2. LEGISLATION AND POLICY FRAMEWORK

2.1.1 Policies of relevance to the Council's decision to refuse planning permission on noise grounds are paragraph 198 of the National Planning Policy Framework, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan and Policy CDMP1 of the Wyre Local Plan.

National Planning Policy Framework [CD12.01]

2.1.2 Paragraph 187 of the National Planning Policy Framework (NPPF) states that

"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 […]"

2.1.3 Paragraph 198 of the NPPF states that

"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 impacts 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"*

2.1.4 Paragraph 135 of the NPPF reinforces this position stating that

"135. Planning policies and decisions should ensure that developments:

[…]

f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users"

2.1.5 The terms 'adverse impacts' and 'significant adverse impacts' are defined within the explanatory note of the Noise Policy Statement for England (NPSE)

Noise Policy Statement for England [CD12.02]

2.1.6 The NPSE sets out the long-term vision of Government noise policy in England:

"to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."

2.1.7 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

2.1.8 In its aims, the NPSE uses the key phrases 'significant adverse' and 'adverse'. The NPSE states in its explanatory note that there are two

established concepts that are currently being applied to noise impacts, which are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected; and
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected

2.1.9 The NPSE then extends this concept to include:

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

2.1.10 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times.

Planning Practice Guidance for Noise [CD12.03]

2.1.11 PPG Noise provides a framework for assessing and managing noise impacts in the planning system in England. It emphasizes that noise should be considered when development may generate additional noise or be sensitive to the existing acoustic environment. The guidance encourages early consideration of good acoustic design to identify cost-effective solutions and improve the acoustic environment where possible.

2.1.12 The guidance outlines various factors influencing noise impact, such as time of day, frequency, character of the noise, and local context (e.g., building layout and green infrastructure). It also introduces the Agent of Change principle, which places the responsibility for mitigating noise impacts on the incoming development rather than existing operations.

2.1.13 The guidance also highlights the importance of maintaining access to quiet external or internal spaces for residents.

2.1.14 A key concept in PPG Noise is the Noise Exposure Hierarchy, which categorizes noise impacts into four levels:

- No Observed Effect Level (NOEL);
- No Observed Adverse Effect Level (NOAEL);
- Lowest Observed Adverse Effect Level (LOAEL); and
- Significant Observed Adverse Effect Level (SOAEL).

2.1.15 While NPSE refers to NOEL, PPG Noise uses both NOEL and NOAEL. Both describe levels at which no adverse effects are observed

2.1.16 The noise exposure hierarchy from PPG Noise, which provides example outcomes and actions of the above levels, is reproduced in Table 1 below.

Table 1 – Noise Exposure Hierarchy (PGG Noise)

Response	Example of outcomes	Increasing effect level	Action
No Observed Effect Level (NOEL)			
Not present	No effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to	Significant Observed Adverse Effect	Avoid

	change in acoustic character of the area.		
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Planning Practice Guidance for Minerals [CD12.04]

2.1.17 PPG Minerals sets out the responsibilities of the local authority and obligations to assess environmental effects including noise:

"Those making mineral development proposals, including those for related similar processes such as aggregates recycling and disposal of construction waste, should carry out a noise impact assessment, which should identify all sources of noise and, for each source, take account of the noise emission, its characteristics, the proposed operating locations, procedures, schedules and duration of work for the life of the operation, and its likely impact on the surrounding neighbourhood.

Proposals for the control or mitigation of noise emissions should:

- *consider the main characteristics of the production process and its environs, including the location of noise-sensitive properties and sensitive environmental sites;*

- *assess the existing acoustic environment around the site of the proposed operations, including background noise levels at nearby noise-sensitive properties;*

- *estimate the likely future noise from the development and its impact on the neighbourhood of the proposed operations;*

- *identify proposals to minimise, mitigate or remove noise emissions at source;*

- *monitor the resulting noise to check compliance with any proposed or imposed conditions"*

2.1.18 The guidance sets out the following standards for noise from mineral extraction activities during normal operations:

"Mineral planning authorities should aim to establish a noise limit, through a planning condition, at the noise-sensitive property that does not exceed the background noise level ($L_{A90,1h}$) by more than 10dB(A) during normal working hours (0700-1900). Where it will be difficult not to exceed the background level by more than 10dB(A) without imposing unreasonable burdens on the mineral operator, the limit set should be as near that level as practicable. In any event, the total noise from the operations should not exceed 55dB(A) $L_{Aeq,1h}$ (free field).

[…]

Care should be taken, however, to avoid any of these suggested values being implemented as fixed thresholds as specific circumstances may justify some small variation being allowed"

2.1.19 The above paragraphs include for following technical terms that are used through this Proof of Evidence:

- '$L_{A90,1h}$' is known as the A-weighted background sound level. It is the sound level that is exceeded for 90% of the measurement period (in this case 1-hour as denoted by '1h'). The background sound level can be thought of as a typical minimum sound level during a period. For example, the quiet period between passing cars.

- '$L_{Aeq,1h}$' is known as the equivalent average A-weighted sound level. It is the logarithmic average sound level over the measurement period.

- The 'A' in both terms refers to A-weighting. Sound occurs at range of frequencies, many of which are not audible to humans. Humans are normally most sensitive to sounds at frequencies in the range of 500 to 2,000 cycles per second (Hertz (Hz)), with the sensitivity reducing down to approximately 20 Hz at the lower end, and 20,000 Hz at the upper end. A-weighting is a standard filter that is applied to sound level measurements to mimic the sensitivity of normal human hearing.

2.1.20 The guidance sets out the following standards for particularly noisy short-term activities, such as those required for site preparation:

"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.

Increased temporary daytime noise limits of up to 70dB(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.

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."

Joint Lancashire Minerals and Waste Local Plan [CD7.01]

2.1.21 Policy DM2 (Development Management) of the Joint Lancashire Minerals and Waste Local Plan states that

"Development for minerals or waste management operations will be supported where it can be demonstrated to the satisfaction of the

mineral and waste planning authority, by the provision of appropriate information, that all material, social, economic or environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels. In assessing proposals account will be taken of the proposal's setting, baseline environmental conditions and neighbouring land uses, together with the extent to which its impacts can be controlled in accordance with current best practice and recognised standards."

2.1.22 Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan sets out that minerals and waste development will be supported where impacts that will cause demonstrable harm can be eliminated or reduced to acceptable levels having regard to the proposal's setting, baseline environmental conditions and neighbouring land uses together with the extent to which impacts can be controlled. Similarly, policy CDMP1 of the Wyre Local Plan require that development must not have adverse effects on amenity.

Wyre Local Plan [CD7.04]

2.1.23 Policy CDMP1 (Environmental Protection) of the Wyre Local Plan states that

"Development will be permitted where in isolation or in conjunction with other planned or committed developments it can be demonstrated that the development:

a) Will be compatible with adjacent existing uses or uses proposed in this plan and it would not lead to significant adverse effects on

health, amenity, safety and the operation of surrounding uses and for occupants or users of the development itself with reference to noise, vibration, odour, light, other pollution or nuisance. Applications will be required to be accompanied where appropriate by relevant impact assessments and mitigation proposals."

3. PLANNING HISTORY

3.1.1 The planning application was submitted to the County Council on 17th August 2023 (ref LCC/2023/0030). The application was accompanied by an Environmental Statement (dated July 2023), the need for which was established through an EIA screening process. Subsequent to the screening decision, an EIA scoping opinion was issued by the County Council setting out the topic areas that an ES should consider. Noise was addressed in ES Chapter 12 and accompanying Appendix 9 which contained a Noise Assessment (produced by Vibrock, dated March 2023).

3.1.2 Further environmental information under Regulation 25 of the EIA Regulations, which included comments on noise was provided by AtkinsRéalis (then Atkins Ltd). Amended planning application details were submitted by the appellant on 3rd December 2024 including a revised Noise Assessment (produced by Vibrock, dated August 2024) [CS3.05].

4. THE CASE FOR THE COUNCIL

The Proposals

4.1.1 The proposal is for the extraction of approximately 500,000 tonnes of sand and gravel with restoration of the site using imported inert backfill materials. A description of the site is set out in paragraphs 7 – 13 of the County Council's Committee report [CD6.02].

4.1.2 As included in the topic specific statement of common ground for noise, made between the Appellant and the Council, it is agreed that an acceptable and commonly applied assessment methodology was adopted within the submitted Noise Assessment (produced by Vibrock, dated August 2024).

4.1.3 The noise generating elements of the proposed development would include sand and gravel extraction with an excavator, loading of material into dump trucks, transport of materials with dump trucks to stock pile and processing areas, movement of marerial with dozers, processing of material (crushers, screens, conveyors), and transport of material from site with lorries. The noise sources would be readily distinctive against the existing quiet noise climate and would be clearly audible and perceptible at properties surrounding the site, especially the closest properties ‘Woodlands’, ‘Red Lea’, ‘Bourbles Farm’, and ‘Ourome’.

4.1.4 The noise generated by sand and gravel quarrying typically includes both continuous and intermittent sounds. Continuous noise may arise from fixed plant such as conveyors, crushers, or screens, while

intermittent noise often results from vehicle movements, loading and unloading, and the operation of mobile plant. Activities such as excavation, earth moving and material handling can produce impulsive noises, including sudden bangs or clatters, the impact of which is not adequately captured using average noise levels. Reversing alarms, which are required for health and safety, can add to the noise environment, and are often perceived as particularly intrusive. Site operations may also generate low-frequency noise, which can travel further and can be difficult to attenuate, potentially causing discomfort for nearby residents.

4.1.5 Most of the concern regarding noise is due to the proximity of receptors, with little standoff distance between the proposed development and nearby properties. A summary of the nearest receptors and the distance from site boundary to the nearest façade is provided in Table 2 below.

Table 2 – Receptor Locations

Receptor	Relevant working area	Distance (m) and direction from site boundary
Bourbles Farm	Phase 4	17 m NE
Crossing Cottage	Phase 3	133 m E
Greenacres	Phase 3	220 m S
Lyndale Farm	Phase 3	205m S
Hillfield House / Pointer Farm	Phase A	170 m E

Receptor	Relevant working area	Distance (m) and direction from site boundary
The Beeches	Phase A	205m W
Ourome	Phase A	8 m W
Red Lea	Phase 1	20 m E
Woodlands	Phase 1	15 m N
Whinmore Fold	Phase 1	75 m W
Mytax / New England Cottage	Phase 3	18 m W

Item One: Baseline Conditions

4.1.6 Baseline noise surveys were undertaken by the Appellant in October 2021 and June 2024, including additional Saturday morning measurements.

4.1.7 While the survey methodology broadly follows recognised good practice, my review identifies uncertainty in the baseline dataset (Section 3.4 of the Vibrock report [CS3.05]), including:

- Instances where the time between consecutive measurements was less than the intended 15-minute sampling period. Specifically, on two occasions at Ourome (13/10/2021 11:33, and 22/06/2024 09:47), the gap between the start times of measurements taken at different locations was just 12-minutes and 14-minutes, respectively. This time frame included not only the measurement itself, but also the travel between locations,

covering several hundred metres, and the time needed for equipment set-up and calibration before commencing the next measurement. As a result, the actual duration of these measurements would have been even shorter than the 12- and 14- minutes indicated by the start times. Additionally, several other measurement periods were only slightly longer than 15-minutes, yet still required time for moving and setting up the equipment. The baseline data and associated times are tabulated in Appendix 2. Results are colour coded with red indicating the time between measurement start times less than 15-minutes, and amber/yellow showing those less than 20-minutes.

- Representative background noise levels derived by arithmetical averaging of short-term L_{A90} values[1], without consideration of how background sound levels may vary over time, and therefore whether the values are representative. For example, at Ourome, the measured background sound levels range from 35.7 to 38.8 dB $L_{A90,15m}$ with a selected representative background sound level of 37 dB L_{A90}. The measurements were conducted during the middle of the day (between 07:54 and 17:30), but did not take account of the early evening period or morning period of the working hours (noted as 07:00 to 19:00 in Section 6.1.1 of the

[1] For example, the individual weekday 15-minute background ($L_{A90,15min}$) measurements at Crossing Cottage are: 37.8, 37.6, 37.6, 38.7, and 39.8 dB. The arithmetic average of these is 38.3 dB, which is rounded to 38 dB.

Vibrock report [CS3.05]) when background sound levels would be expected to be lower.

4.1.8 While I agree, as recorded in the Statement of Common Ground, that the baseline noise levels are broadly representative of the area, a small number of timing inconsistencies and limited consideration of the early morning and early evening working hours introduce uncertainty at the margin. This uncertainty becomes relevant when the data is used to determine applicable site noise limits as the representative background sound level over the working period, and associated noise limit, may be lower.

Item Two: Plant Noise data

4.1.9 The Appellant's assessment uses prediction methods based on BS 5228-1 [CD12.06], which is appropriate in principle. BS 5228-1 contains a method for predicting average noise from construction and open site activities based on plant noise source data, the distance between the activity and receptors, how long the equipment operates during the assessment period, ground conditions, and screening (amongst other considerations). However, several key assumptions materially affect the reliability of the predictions, including:

- Source sound power levels that are generally lower than BS 5228-1 [CD12.06] reference values, in some cases by up to 8 dB. A comparison of data is provided in Appendix 3. Values are colour coded red where BS 5228-1 values are higher than those stated in Table 5 of the Vibrock report [CS3.05]. The use of unjustified

lower plant noise level values would serve to underestimate the impacts from site activities – particularly dump truck movements and minerals processing;

- Lack of supporting information or references for the claimed site-specific plant measurements;

- Reliance on generic assumptions for plant ‘on-times’ and screening effectiveness, with limited site-specific justification. In particular, the ‘on-times’ serve to reduce average sound levels over the measurement period. For example, the assumed 75% on-time for ‘Excavator loading truck’ in Table 5 of the Vibrock report [CS3.05] would reduce average noise levels by slightly more than 1 dB. However, this would require the equipment to not operate for 15-minutes (25%) out of every hour. If there is no shut down period in every hour, average noise levels would be higher, leading to potential exceedance of limits (please see Items 3 and 4 below).

4.1.10 In my professional opinion, the use of lower, insufficiently justified source sound power levels, and the inclusion of on-time corrections without these being enforced creates a risk of under-prediction of operational noise from mineral extraction at all nearby dwellings.

Item Three: Assessment of Noise Impacts During Normal Conditions

4.1.11 During normal operational activities at Phase 1, 15m to the south of Woodlands, the Appellant’s predicted noise levels are shown to

exceed the background noise threshold by a considerable margin, reaching up to 52–53 dB $L_{Aeq,1h}$. This not only surpasses the preferred planning limit of 50 dB $L_{Aeq,1h}$ (background +10dB) at the applicable locations (Woodlands, and Red Lea) but also highlights a large increase in sound levels when compared with the existing ambient noise environment at this receptor. Such levels, while technically below the absolute cap, nonetheless represent a substantial increase over baseline conditions and reinforce concerns regarding the adequacy of the noise assessment methodology.

4.1.12 Although these levels are below the absolute upper cap of 55 dB $L_{Aeq,1h}$, PPG Minerals is clear that the 55 dB $L_{Aeq,1h}$ criterion is not a target to be aimed for, but an absolute upper limit where lower limits would impose an unreasonable burden on operators. At Woodlands, Red Lea and Bourbles Farm, background noise levels are approximately 40 dB L_{A90}. The correct starting point for a planning condition is therefore 50 dB $L_{Aeq,1h}$. Despite predicted levels of 52–53 dB $L_{Aeq,1h}$, the Appellant's assessment states that the 55 dB $L_{Aeq,1h}$ limit is applicable at these locations. Additionally, it has not been fully demonstrated that all reasonable measures have been considered to reduce noise levels to below 50 dB $L_{Aeq,1h}$. Both these factors therefore serve to artificially and unreasonably inflate the permissible noise limit.

4.1.13 I have undertaken calculations (provided in Appendix 4) for the worst-case receptors based on the information provided in Appellants

noise assessment. The results show that the predicted noise levels at Woodlands and Red Lea during normal operations are likely to be underestimated, with results indicating small (1dB) potential exceedance of the 52 and 53 dB $L_{Aeq,1h}$ level predicted by the Appellant's assessment (Section 5.3 of the Vibrock report [CS3.05]. I believe this discrepancy arises principally from the use of receptor distances that appear inconsistent with the site layout with a greater distance being used in the Appellant's assessment. This would therefore serve to underestimate the noise levels at Woodlands. Calculations have not been provided in the Vibrock report to be able to verify the distances they have used.

4.1.14 As well as a substantial exceedance of the background sound level, the ambient sound level would also increase. The increase in ambient noise level would be between 6 and 7 dB during weekday periods, and between 8 and 9 dB during weekend periods at Woodlands, Red Lea, Bourbles Farm and Ourome. This represents a major magnitude short-term change in the acoustic environment. Such increases represent a substantial and clearly perceptible change in the acoustic environment and are widely recognised as materially altering residential amenity, even where absolute noise levels remain below upper guideline values. By way of comparison, established assessment frameworks, such as Design Manual for Roads and Bridges LA 111 classify short-term noise increases of 5 dB or greater as a Major magnitude of impact, and such changes are widely

recognised in environmental acoustics as clearly perceptible and materially altering residential amenity.

4.1.15 As noted in Item 2 above, the Appellant's assessment includes on-times for certain plant items. Of note is the assumed 75% on-time for 'Excavator loading truck' in Table 5 of the Vibrock report [CS3.05]. This would reduce average noise levels by slightly more than 1 dB. However, this would require the equipment to not operate for 15-minutes (25%) out of every hour. If there is no shut down period in every hour, average noise levels would be higher, leading to potential exceedance of limits. However, the required shut-down periods are not noted in Section 6 'Recommendations' of the Vibrock report.

4.1.16 However, the implementation of the required shut-down periods would lead to works being intermittent. Intermittent noise is more disturbing than steady state noise. This would therefore be disturbing to nearby properties and adversely affect their amenity.

4.1.17 This is additional to potential impulsive nature of works. Impulsive noise is more disturbing than steady state noise. Impulsive sounds would occur from activities such as the 'clanking' of plant during excavation and loading. This would therefore be disturbing to nearby properties and adversely affect their amenity.

4.1.18 In my opinion, the Appellant's assessment does not adequately demonstrate either that noise would be reduced to the minimum practicable level, or explain how such reduction would be achieved, especially given the potential for under-prediction identified above.

4.1.19 Additionally, the Appellant's assessment artificially inflates the noise limit by not considering all reasonable noise mitigation measures to reduce noise levels as far as reasonably practicable, and then unjustifiably increasing the limit further to the upper 55 dB $L_{Aeq,1h}$ limit.

4.1.20 PPG Minerals requires mineral planning authorities to seek a noise limit of background plus 10 dB during normal operations, with recourse to the 55 dB $L_{Aeq,1h}$ upper limit only where it would be unreasonable to achieve lower levels. In this case, the Appellant's Noise Assessment does not demonstrate that all reasonable mitigation measures have been considered or that compliance with a 50 dB $L_{Aeq,1h}$ limit is unreasonable.

4.1.21 Taken together, the predicted exceedances of background sound levels, the scale of increase in ambient noise, the absence of demonstrably effective mitigation, and the intermittency and impulsivity of noise from works activities, indicate that the proposals would give rise to adverse, and in places significant adverse, effects on residential amenity, contrary to the requirements of the NPPF, NPSE, PPG Noise, PPG Minerals, and Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan.

Item Four: Assessment of Noise Impacts During Short-Term and Temporal Works

4.1.22 The Appellant proposes reliance on the 70 dB $L_{Aeq,1h}$ short-term limit during certain phases.

4.1.23 Figure 3 of the Vibrock Report shows mineral extraction activities proposed beneath the footprint of the screening bund adjacent to Woodlands. Planning Practice Guidance limits the use of the 70 dB $L_{Aeq,1h}$ short-term criterion to essential site preparation, restoration and construction of baffle mounds. It does not extend to routine mineral extraction. On this basis alone, application of the 70 dB $L_{Aeq,1h}$ criterion to these activities is inappropriate.

4.1.24 Notwithstanding the point above, the 70 dB $L_{Aeq,1h}$ as a short-term limit, should not be regarded as the limit for such works, with PPG Minerals stating that short-term limits 'up to 70 dB $L_{Aeq,1h}$' should be 'considered'. A lower limit may therefore be more appropriate.

4.1.25 Even if it were accepted that certain activities fell within the scope of the short-term criterion, the Appellant's Noise Assessment does not demonstrate that noise has been reduced to the minimum practicable level, nor that a lower short-term limit has been considered, as required by PPG Minerals.

4.1.26 I have undertaken calculations (provided in Appendix 4) for the worst-case receptors based on the information provided in Appellants noise assessment. The results show that the predicted noise levels at Woodlands and Bourbles Farm during short-term works are likely to be underestimated, with results indicating a 2 dB increase at Woodlands compared to the Appellants results. This would lead to a potential exceedance of the 70 dB $L_{Aeq,1h}$ limit at Woodlands. This discrepancy arises principally from the use of receptor distances that

appear inconsistent with the site layout. It is noted that the predicted noise levels at Woodlands and Red Lea are the same for the short term works in the Vibrock report [CS3.05], at 69 dB $L_{Aeq,1h}$. However, Woodlands is located approximately 5m closer to the works than Red Lea (15m compared to 20m, respectively), based on the site location provided in the Vibrock report. Noise levels at Woodlands are therefore likely to be higher than at Red Lea. Given that I have predicted the same value at Red Lea as noted in the Vibrock report, it is assumed that the same distance (20m assumed) has been used for calculations at both Woodlands and Red Lea.

4.1.27 As above (Item 4), such works would also be intermittent due to required on-times, and impulsive, which would be disturbing to nearby properties and adversely affect their amenity.

4.1.28 Taken together, the high activity sound levels, the absence of demonstrably effective mitigation, and the intermittency and impulsivity of noise from works activities, indicate that the proposals would give rise to adverse, and in places significant adverse, effects on residential amenity, contrary to the requirements of the NPPF, NPSE, PPG Noise, PPG Minerals, and Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan.

Item Five: Sensitivity of Receptors

4.1.29 The Appellant's assessment does not fully consider additional factors that affect the sensitivity of nearby properties to noise. In particular, the orientation of the external amenity space at Woodlands (as shown

in the plan in Appendix 1) siding onto the site with direct line of sight at a short distance. These factors materially increase the sensitivity of the receptor and exacerbate the effect of noise, such that impacts would be greater than predicted by the Appellant's assessment.

4.1.30 Additionally, the proposed mitigation measures do not take account of the full extent of the external amenity space at Woodlands, stopping short approximately half the length of the garden. This would lead to unreasonable noise levels in this external amenity area and would exceed both the lower threshold for desirable levels (50 dB $L_{Aeq,T}$), and the upper threshold (55 dB $L_{Aeq,T}$) stated in BS 8233 for such spaces. This would constitute a significant impact when considered with the potential increase in noise level (see 4.1.14).

4.1.31 This would also not mitigate noise from the east of the bund at the property itself as there would be a direct line of sight to the works from the house, leading to loss of amenity.

4.1.32 It is my opinion that these factors would lead to a loss of amenity at Woodlands. This may include having to keep windows closed, not being able to use rooms as intended (e.g. daytime resting or activities requiring quiet, such as reading), not wanting to spend time in the garden, having to turn up the volume on televisions and radios, or using headphones.

Item Six: Mitigation and Noise Management

4.1.33 While mitigation measures are outlined, these are largely high-level and do not fully reflect the range of good-practice measures set out in BS 5228-1.

4.1.34 In particular:

- Screening relies almost exclusively on permanent earth bunds, with limited consideration given to interim or alternative screening measures during early phases of works, including short-term activities undertaken prior to bund construction. This is of particular relevance at Woodlands, where works are proposed close to the site boundary before effective screening is in place;
- There is limited consideration of plant selection, orientation, and on-time control as mitigation measures. For example, the assessment does not demonstrate:
  - how concurrent plant operation would be managed or restricted to reduce cumulative noise emissions at sensitive receptors; or
  - how ‘on-times’ would be required to reduce average noise levels;
- Although source sound power levels lower than BS 5228-1 reference data are used in the predictions, no contingency mitigation is identified should actual plant noise emissions be higher than assumed, increasing the risk of non-compliance;

- No detailed noise compliance monitoring methodology is provided; and

- The Noise Management Plan is not defined with sufficient precision to ensure enforceability.

4.1.35 As noted above, the proposed mitigation measures do not take account of the full extent of the external amenity space at Woodlands, stopping short approximately half the length of the garden. This would lead to unreasonable noise levels in this external amenity area and would exceed both the lower threshold for desirable levels (50 dB $L_{Aeq,T}$), and the upper threshold (55 dB $L_{Aeq,T}$) stated in BS 8233 for such spaces. This would constitute a significant impact.

4.1.36 This would also not mitigate noise from the east of the bund at the property itself as there would be a direct line of sight to the works from the house.

4.1.37 There are also gaps in the proposed bunds northeast of Mytax and New England Cottage that would allow line of sight to the works and provide no mitigation.

4.1.38 There is also no bunding or screening proposed:

- To the south of Phase 1, which may affect properties on Little Tongues Lane, Nicksons Lane, and Gauters Lane to the south and southwest;

- To the southwest of the Phase A processing area, which may affect properties on Lancaster Road (e.g. the Beeches);
- To the west of Phase 2, which may affect Red Lea;
- To the north of Phase 3a, which may affect Bourbles Farm; and
- To the south of Phase 3b, which may affect Lindale Farm.

4.1.39 No consideration has been given to standoff distances, with works proposed up to the site boundaries.

4.1.40 In my opinion, the mitigation strategy as presented does not demonstrate that all reasonably practicable measures have been considered or adopted to minimise noise impacts, particularly at receptors where predicted noise levels exceed background levels by more than 10 dB.

4.1.41 Given this, as noted above in Items Three and Four, this serves to artificially and unjustifiably inflate the proposed noise limit at several nearby properties.

5. CONCLUSION

5.1.1 It is my opinion that the proposals introduce an activity that will likely cause a loss of amenity at nearby properties, particularly Woodlands, Red Lea, Bourbles Farm and Ourome, due to noise.

5.1.2 I have noted:

- Several inconsistencies in the baseline monitoring data. While I agree, as recorded in the Statement of Common Ground, that the baseline noise levels are broadly representative of the area, a small number of timing inconsistencies introduce uncertainty at the margin. This uncertainty becomes relevant when predicted site noise levels exceed background by more than 10 dB and are used to justify application of the 55 dB upper cap.

- Instances where source data in the Appellant's calculations are lower than BS 5228-1 reference data with no supporting information or references, thus potentially underestimating impacts.

- Potential underestimations of noise levels via sample calculations for works during normal operations.

- Potential impacts to amenity due to the intermittency and impulsivity of works.

- Proposed noise limits have been artificially and unjustifiably inflated by not accounting for a full range of reasonable mitigation options, and by jumping to the upper threshold when (having not considered mitigation) the recommended threshold is exceeded.

- That increases in ambient noise level would materially alter amenity.

- That the short-term limit was being proposed for mineral extraction works outside of its scope, and with no regard for mitigation.

- Potential underestimations of noise levels via sample calculations for short-term temporal works.

- That the sensitivity of nearby receptors to noise has not been fully considered, leading to further loss of amenity.

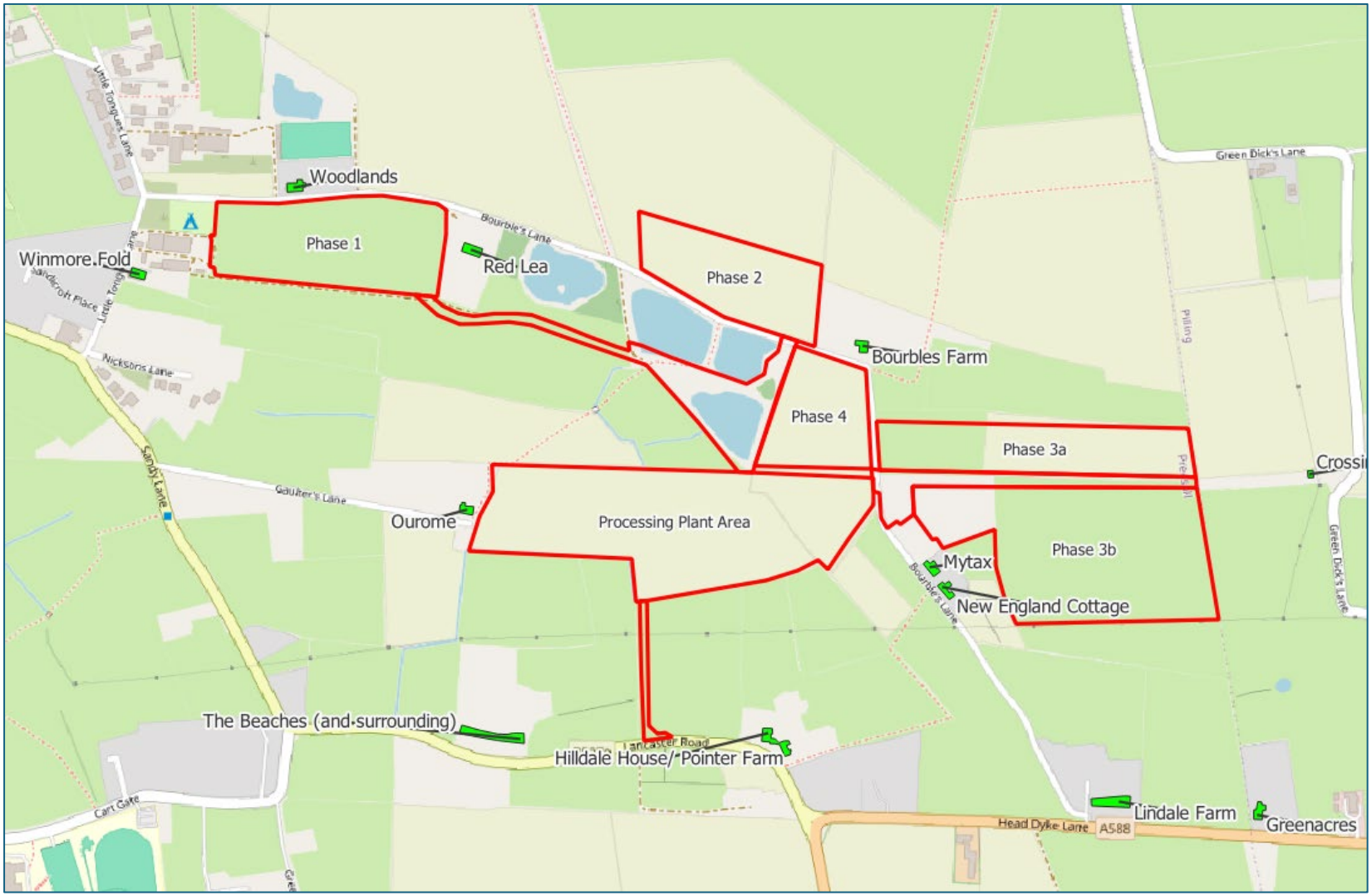
- That a full range of reasonable mitigation measures has not been considered, and that there are significant gaps in the mitigation measures proposed.

5.1.3 Accordingly, the proposed development would lead to adverse impacts on the amenity of nearby properties (notably Woodlands, Red Lea, Bourbles Farm and Ourome) and fails to demonstrate that noise impacts can be reduced to acceptable levels or to the minimum practicable extent. The proposed development therefore conflicts with the requirements of the NPPF, the NPSE, PPG Noise, PPG Minerals, and Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan.

6. STATEMENT OF TRUTH

6.1.1 The evidence which I have prepared and provide in this Proof of Evidence is true and is given in accordance with the guidance of my professional institution. I confirm that the opinions expressed are my true and professional opinions.

Appendix 1 – Site Layout and Receptor Locations


Woodlands
Phase 1
Winmore Fold
Red Lea
Bourble's Lane
Phase 2
Bourbles Farm
Phase 4
Phase 3a
Nicksons Lane
Sandy Lane
Gaulter's Lane
Ourome
Processing Plant Area
Phase 3b
Mytax
New England Cottage
Green Dick's Lane
The Beaches (and surrounding)
Lancaster Road
Hilldale House/Pointer Farm
Cart Gate
Head Dyke Lane
A588
Lindale Farm
Greenacres

Appendix 2 – Baseline Data and Associated Timings

Location	Date and time	$L_{Aeq,T}$	$L_{A90,T}$	Time between measurements, (minutes)
Crossing Cottage	13/10/2021 10:46	57.2	37.8	23
Bourbles Farm	13/10/2021 11:09	45.3	39.2	24
Ourome	13/10/2021 11:33	39.4	36.4	12
Woodlands / Red Lea / Little Tongues Lane	13/10/2021 11:45	44.0	40.0	23
The Beeches	13/10/2021 12:08	54.0	41.8	24
Lyndale Farm	13/10/2021 12:32	55.7	48.1	19
Mytax / New England Cottage	13/10/2021 12:51	46.5	42.5	28
Crossing Cottage	13/10/2021 13:19	55.4	37.6	24
Bourbles Farm	13/10/2021 13:43	47.1	41.3	23
Ourome	13/10/2021 14:06	40.2	36.8	23
Woodlands / Red Lea / Little Tongues Lane	13/10/2021 14:29	43.6	39.5	22
The Beeches	13/10/2021 14:51	55.0	42.6	20
Lyndale Farm	13/10/2021 15:11	56.7	46.8	18
Mytax / New England Cottage	13/10/2021 15:29	46.8	42.7	Not applicable
Crossing Cottage	21/06/2024 07:54	54.3	37.6	23
Lyndale Farm	21/06/2024 08:17	56.7	47.3	19
Mytax / New England Cottage	21/06/2024 08:36	48.3	44.1	19
Bourbles Farm	21/06/2024 08:55	45.6	38.7	34
Ourome	21/06/2024 09:29	42.9	38.8	30

Woodlands / Red Lea	21/06/2024 09:59	47.8	40.5	36
Little Tongues Lane	21/06/2024 10:35	50.3	41.9	27
The Beeches	21/06/2024 11:02	54.2	43.4	38
Crossing Cottage	21/06/2024 11:40	59.6	38.7	24
Lyndale Farm	21/06/2024 12:04	57.4	47.8	23
Mytax / New England Cottage	21/06/2024 12:27	46.3	42.3	21
Bourbles Farm	21/06/2024 12:48	46.9	40.1	42
Ourome	21/06/2024 13:30	42.4	38.5	28
Woodlands / Red Lea	21/06/2024 13:58	48.2	40.5	19
Little Tongues Lane	21/06/2024 14:17	48.4	41.4	20
The Beeches	21/06/2024 14:37	53.2	42.8	24
Crossing Cottage	21/06/2024 15:01	55.5	39.8	21
Lyndale Farm	21/06/2024 15:22	55.8	46.7	19
Mytax / New England Cottage	21/06/2024 15:41	49.8	44.4	19
Bourbles Farm	21/06/2024 16:00	47.5	42.0	28
Ourome	21/06/2024 16:28	39.2	35.7	24
Woodlands / Red Lea	21/06/2024 16:52	45.1	41.8	23
The Beeches	21/06/2024 17:15	56.0	44.9	Not applicable
Crossing Cottage	22/06/2024 07:59	54.0	36.6	23
Lyndale Farm	22/06/2024 08:22	58.3	46.2	20
Mytax / New England Cottage	22/06/2024 08:42	48.2	42.1	24
Bourbles Farm	22/06/2024 09:06	46.6	39.5	41
Ourome	22/06/2024 09:47	43.4	37.7	14
Woodlands / Red Lea	22/06/2024 10:01	43.5	38.4	20

Little Tongues Lane	22/06/2024 10:21	49.8	43.6	20
The Beeches	22/06/2024 10:41	55.2	43.1	21
Crossing Cottage	22/06/2024 11:02	56.8	38.0	21
Lyndale Farm	22/06/2024 11:23	56.3	45.2	17
Mytax / New England Cottage	22/06/2024 11:40	49.2	42.4	19
Bourbles Farm	22/06/2024 11:59	43.5	37.5	29
Ourome	22/06/2024 12:28	40.5	36.9	31
Woodlands / Red Lea	22/06/2024 12:59	45.5	39.9	18
Little Tongues Lane	22/06/2024 13:17	48.1	42.0	19
The Beeches	22/06/2024 13:36	54.0	42.7	Not applicable

Appendix 3 – Comparison of Plant Data

Plant Item	Vibrock Report Source Level, Sound Power Level, dBA	BS 5228-1, Sound Power Level, dBA	BS 5228-1 Reference	Difference, dB
Excavator loading Dump Truck	104	104	C.10.2	0
Dump Truck Movements	103	111	C.10.18	+8
Water Bowser	109	111	C.6.38	+2
Dump Truck unloading at processing area	107	107	C.2.30	0
Dozer (as raised stockpile management)	106	106	C.2.13	0
Processing Plant + Loading	105	109	C.10.14	+4
Mobile Crusher	108	110	C.1.14	+2
Wheeled Loading Shovels	105	108	C.10.5	+3
Dewatering Pumps	92	97	C.11.3	+5
Diesel Generator	91	93	C.4.65	+2
Weighbridge	89	N/A	N/A	N/A
Wheel wash	92	91	C.3.13	-1
Road Lorry	101	108	C.2.34	+7
Excavator (recycling)	102	102	C.8.12	0

Plant Item	Vibrock Report Source Level, Sound Power Level, dBA	BS 5228-1, Sound Power Level, dBA	BS 5228-1 Reference	Difference, dB
Shovel (recycling)	105	108	C.10.5	+3
Tipping in Waste Transfer Area	107	107	C.2.30	0
Loading Dump Truck in Waste Transfer Area	104	104	C.10.2	0
Dozer	106	106	C.2.13	0
Tipping Fill	107	107	C.2.30	0

Appendix 4 – Sample Calculations

Short Term Operations

Receptor								
Woodland	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	15	0	3.5	71
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	40	130	0	50
	Water Bowser	109	2	32	40	130	0	47
							Total	**71**
Red Lea	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	20	0	6.0	69
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	50	180	0	50
	Water Bowser	109	2	32	50	180	0	47
							Total	**69**
Bourbles Farm	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	17	0	4.6	70
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	50	120	0	48
	Water Bowser	109	2	32	50	120	0	45
							Total	**70**
Mytax	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	21	0	6.4	68
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	40	90	0	48
	Water Bowser	109	2	32	40	90	0	45
							Total	**68**

Normal Operations

Receptor								
Woodland	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	35	10	10.9	54
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	40	130	10	40
	Water Bowser	109	2	32	40	130	10	37
							Total	**54**
Red Lea	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	40	10	12.0	53
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	50	180	10	40
	Water Bowser	109	2	32	50	180	10	37
							Total	**53**
Bourbles Farm	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	40	10	12.0	53
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	50	120	10	38
	Water Bowser	109	2	32	50	120	10	35
							Total	**53**
Mytax	**Static Plant**	**Vibrock SWL, dB**	**Percentage on time**	**Resultant Level at 10m**	**Distance, m**	**Screening, dB**	**Distance attenuation, dB**	**Resultant Level, dBA**
	Excavator loading Dump Truck	104	75	75	50	10	14.0	51
	Moving Plant	**Vibrock SWL, dB**	**Movements per hour**	**Average speed, km/h**	**Distance, m**	**Angle of view**	**Screening, dB**	
	Dump Truck Movements	103	16	32	60	90	10	36
	Water Bowser	109	2	32	60	90	10	33
							Total	**51**