

**NOISE ASSESSMENT**

**STONEHILL QUARRY  
PROCESSING TO PRODUCE RECYCLED AGGREGATES**

**MICK GEORGE LTD**

**MARCH 2020**

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| Status | Prepared By                | Date    |
|--------|----------------------------|---------|
| 1.0    | L Jephson BEng (Hons) MIOA | 24/3/20 |

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.

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## **1. Introduction**

- 1.1. LF Acoustics Limited have been appointed by Mick George Ltd (MGL) to undertake a noise assessment associated with the processing of imported materials to produce recycled aggregates at Stonehill Quarry.
- 1.2. Planning permission for the importation of inert materials for the revised restoration of Stonehill Quarry was granted in September 2016, subject to Conditions (Application Ref. 15/00092/WASFUL). A noise assessment accompanied the planning application, which considered noise associated with importation and restoration, with appropriate noise limits imposed in accordance with current minerals Planning Practice Guidance.
- 1.3. MGL are seeking to vary conditions 9 and 19 of the planning permission to enable a proportion of the inert material delivered to site, which can be processed to produced recycled material. The material suitable for recycling would be separately stockpiled, with a mobile crusher brought onto site periodically to process the material.
- 1.4. This report presents an update to the previous noise assessment undertaken to assess noise from the infilling and restoration operations, to include consideration of the aggregate recycling operations.

## 2. Applicable Standards and Guidance

A description of the noise units referred to within this report is provided in Appendix A.

### 2.1. National Planning Policy Guidance

- 2.1.1. The principal planning guidance considered when assessing noise from the proposed operations is contained within the National Planning Policy Framework [1]. At the heart of the NPPF is a presumption in favour of sustainable development, although environmental criteria should be set out to ensure that the permitted operations do not have unacceptable adverse impacts, with appropriate noise limits adopted to control noise.
- 2.1.2. The current minerals planning practice guidance attached to the NPPF relating to noise was published in March 2014 [2] and covers mineral extraction and related processes, including aggregate recycling, restoration and the disposal of construction waste.
- 2.1.3. The guidance seeks to ensure that the operations carried out within the quarry do not result in significant adverse effects. For normal daytime operations the guidance advises that the following limits should not exceed:
- 10 dB above the background ( $L_{A90}$ ) noise level; subject to
  - a maximum value of 55 dB  $L_{Aeq, 1 \text{ hour}}$  (free field).
- 2.1.4. Where background noise levels are low, the guidance accepts that it may be very difficult to achieve a limit based upon background + 10 dB(A) without imposing unreasonable burdens on the mineral operator. In such cases, the limit set should be as near that level as practicable during normal working hours and should not exceed 55 dB  $L_{Aeq, 1 \text{ hour}}$  (free field).
- 2.1.5. The guidance suggests that in the evening (19:00 – 22:00)  $L_{Aeq, 1 \text{ hour}}$  noise levels should not exceed the background ( $L_{A90}$ ) noise level by more than 10 dB and during the night-time a limit of 42 dB  $L_{Aeq, 1 \text{ hour}}$  should be adopted.
- 2.1.6. In addition to the general daytime works, the guidance advises that all mineral extraction and associated operations will have some particularly noisy short-term activities that cannot meet the limits set for normal operations. These include the removal of bunding or spoil heaps and construction of new permanent landforms. A level of 70 dB  $L_{Aeq, 1 \text{ hour}}$  is suggested as a limit for these activities for periods of up to eight weeks in any one year. Where the duration of temporary works may exceed eight weeks it can be appropriate to apply a lower limit for a longer period. The guidance also recognises that, in wholly exceptional cases, where there is no viable alternative, a limit of more than 70 dB  $L_{Aeq, 1 \text{ hour}}$  may be appropriate in order to obtain other environmental benefits.

### 3. Planning Conditions

- 3.1. Planning permission for the importation of inert materials for the revised restoration of Stonehill Quarry was granted in September 2016, subject to Conditions (Application Ref. 15/00092/WASFUL)
- 3.2. MGL are seeking to vary conditions 9 and 19 to enable recycling operations to be carried out on site.
- 3.3. Condition 9 restricts operations on site to those associated with infilling and restoration. It is proposed to amend the condition to allow waste recycling to be carried out within the defined area within the site as shown on Drg No. S22/05/20/VOC1, which has accompanied this VOC application.
- 3.4. Condition 19 specifies the operating hours of the site, as follows:
  - 07:00 – 18:00 Mondays to Fridays;
  - 07:00 – 13:00 Saturdays; and
  - No working on Sundays and Bank Holidays.
- 3.5. It is proposed to vary this condition to allow crushing to produce recycled aggregate. These operations would be restricted to between:
  - 08:00 – 18:00 Mondays to Fridays;
  - 08:00 – 13:00 Saturdays.
- 3.6. No variation is being sought to the conditions relating to noise within the present planning permission, which, in particular, limit noise levels from site operations at surrounding residential properties, in accordance with the requirements of the MPPG.
- 3.7. The noise limits are specified in Condition 23 and reproduced below for reference.

*The equivalent sound level (LAeq) measured over a 1 hour time period, attributable to the normal operation on the permission site, as measured free field, shall not exceed the background noise levels (LA90, 1 h) by more than 10 dB(A), or the following levels (whichever is lesser), at the following premises:*

- Linley House            52 dB LAeq, 1 hr;
- Hill House              55 dB LAeq, 1 hr;
- Sulehay Cottage        46 dB LAeq, 1 hr;
- Nightingale Farm      49 dB LAeq, 1 hr;
- Old Pump House        49 dB LAeq, 1 hr;
- Wansford Village      55 dB LAeq, 1 hr;

- 3.8. The above limits have been adopted as the basis for the assessment of the cumulative noise levels, including the proposed crushing operations, to ensure noise levels remain acceptable at the surrounding properties.

#### **4. Proposed Operations**

- 4.1. The infilling and restoration operations are to continue as at present.
- 4.2. It is proposed that a proportion of the material delivered to site, which is suitable for recycling, would be diverted into a separate area indicated on Drg No. S22/05/20/VOC1, where it would be stockpiled. The area has been selected as it is central within the site and at some distance from the neighbouring properties (a minimum of 620 metres).
- 4.3. A mobile crusher would be brought onto site periodically throughout the year to process the material, when sufficient material was available. The crusher would be located within the area defined above. A loading shovel would also be required to operate in this area, to service the plant and load vehicles with recycled aggregate.

## 5. Calculations and Assessment

### 5.1. Criteria to be Adopted for the Assessment

- 5.1.1. As advised previously, the noise limits specified in Condition 23 of the planning permission have been considered appropriate upon which to base the present assessment.
- 5.1.2. By adopting this approach, the noise levels attributable to the operation of the plant within the site would remain below a level of +10 dB(A) above the background noise levels, where there would be a potential for significant adverse impacts and thus ensure compliance with the requirements of the NPPF.

### 5.2. Source Term Information for Permitted Operations

- 5.2.1. The noise source terms for the plant assumed for this assessment are provided in Table 5.1.

| Source                               | SEL at 10m | L <sub>Aeq</sub> at 10m | Number     | % On-Time |
|--------------------------------------|------------|-------------------------|------------|-----------|
| <b>Infilling and Restoration</b>     |            |                         |            |           |
| Dozer                                | 79.3       | -                       | -          | 33        |
| Excavator Working and Loading<br>HGV | -          | 75.7                    | 1          | 50        |
| Slow HGV Passby (Laden)              | 80.0       | -                       | 5 per hour | -         |
| HGV tipping                          | 82.7       | -                       | 5 per hour | -         |
| Slow HGV Passby (Unladen)            | 78.1       | -                       | 5 per hour | -         |
| <b>Recycling Operations</b>          |            |                         |            |           |
| Crusher                              | -          | 80.9                    | 1          | 100       |
| Loading Shovel                       | -          | 72.0                    | 1          | 100       |

**Table 5.1 Source Term Noise Levels**

### 5.3. Calculation Methodology

- 5.3.1. The calculations of the noise levels from the restoration and limited extraction operations at the closest properties have been made using the methodology contained within BS 5228-1 [3]. Where barrier corrections have been calculated, the algorithm used within a Calculation of Road Traffic Noise [4] has been used.
- 5.3.2. Calculations have been made at positions representative of the likely closest operations to the properties. For the purposes of the calculations, it has been generally assumed that all plant would be working at the same distance from the properties.
- 5.3.3. The calculations have assumed the recycling operations would be carried out at a point within the proposed recycling area closest to the neighbouring properties.
- 5.3.4. The calculations associated with the infilling and restoration have assumed that the plant would be operational close to the final restoration level. This assumption does not account for any attenuation afforded by the sides of the quarry during the initial stages of the restoration when the plant would be working at the base of the quarry and thus effectively screened. The calculations are therefore a worst case at each position.
- 5.3.5. The results of the calculations are provided in Appendix B.

#### 5.4. Assessment of Noise Levels at Linley Cottage

- 5.4.1. Restoration operations commenced at the western end of the quarry, with the dozer operating around 1km from the property. Noise levels during this period would be assessed to be very low and not likely to be generally audible at the property.
- 5.4.2. Noise levels will gradually increase, as the restoration moves closer to the property, with noise levels increasing to the order of 42 dB  $L_{Aeq, 1 \text{ hour}}$  as work is undertaken around the area of the lakes.
- 5.4.3. Noise levels would be at a maximum during the final stages of the restoration as the area to the south of the lakes is restored. Noise levels during this period, whilst the dozer was working close to the surface and approximately 150 metres from the property would be 47 dB  $L_{Aeq, 1 \text{ hour}}$ .
- 5.4.4. Noise levels would increase marginally during the periods when the crusher was operational on site. The calculations indicate that the recycling operations would generate noise levels of 38 dB  $L_{Aeq, 1 \text{ hr}}$  at the property.
- 5.4.5. Taking account of the cumulative noise levels attributable to the infilling and recycling operations, noise levels at the property are anticipated to be between 39 – 48 dB  $L_{Aeq, 1 \text{ hr}}$ , during the various phases of the restoration. Cumulative noise levels would therefore remain substantially below the 52 dB  $L_{Aeq, 1 \text{ hour}}$  normal working limit.

#### 5.5. Assessment of Noise Levels at Hill House

- 5.5.1. Hill House is located to the east of the site. The property is located at least 400 metres from the operational areas within the quarry, with the majority of the works being undertaken beyond 600 metres of the dwelling. The proposed aggregate recycling operations would be at least 880 metres from the property.
- 5.5.2. Noise levels attributable to the presently permitted infilling and restoration operations. Noise levels attributable to these operations have been calculated to be between 27 – 36 dB  $L_{Aeq, 1 \text{ hour}}$ , depending upon the area of the site being worked. Noise levels attributable to these operations will remain substantially below the 55 dB  $L_{Aeq, 1 \text{ hour}}$  limit specified in Condition 23.
- 5.5.3. Noise levels attributable to the proposed aggregate recycling operations would remain low, given the large distance between the operational area and the property, with a level of 34 dB  $L_{Aeq, 1 \text{ hour}}$  calculated attributable to the operation of the crusher.
- 5.5.4. Taking account of the cumulative noise associated with the infilling and recycling operations, site noise levels are not anticipated to exceed 39 dB  $L_{Aeq, 1 \text{ hour}}$  at the dwelling, thus remaining substantially below the planning condition limit.

#### 5.6. Assessment of Noise Levels at Sulehay Cottage

- 5.6.1. Noise levels at this property would be at a maximum whilst the restoration within the western part of the quarry nears completion and the plant was operating close to the surface.
- 5.6.2. The calculations for this stage of the restoration, with the plant working close to the surface and at a distance of 240 metres from the dwelling, indicate a level of 42 dB  $L_{Aeq, 1 \text{ hour}}$ , which is 4 dB(A) below the proposed normal working limit of 46 dB  $L_{Aeq, 1 \text{ hour}}$  at this dwelling.
- 5.6.3. Noise levels would increase marginally, during the periods when the crusher was operational on site, increasing to 44 dB  $L_{Aeq, 1 \text{ hr}}$ , whilst infilling operations were carried out close to the property. Noise levels would therefore continue to remain below the 46 dB  $L_{Aeq, 1 \text{ hour}}$  normal working limit, as specified in Condition 23.
- 5.6.4. As the work progresses away from the dwelling or during the majority of the time whilst the plant is working within the base of the quarry, noise levels would be lower and not expected to exceed 40 dB  $L_{Aeq, 1 \text{ hour}}$ .
- 5.6.5. The proposed extraction adjacent to the lakes would be over 1km from this dwelling and noise levels associated with this activity would be very low and not likely to be audible at the property.
- 5.6.6. Noise levels associated with the general daytime operation would remain below the normal working limit of 46 dB  $L_{Aeq, 1 \text{ hour}}$  and would thus be acceptable.

#### 5.7. Assessment of Noise Levels at Nightingale Farm

- 5.7.1. This property is located to the north west of Stonehill Quarry and to the south of Cooks Hole Quarry, which is operational at the present time, with both having the potential to generate potential disturbance to the occupants of this property. Consideration has therefore been given to the combined effects of noise from the operation within the two quarries.
- 5.7.2. The restoration operations within Stonehill Quarry would generally be carried out over 600 metres from this dwelling, with the closest site boundary approximately 580 metres from the property. The proposed recycling operations would also be a minimum of 655 metres from the property.
- 5.7.3. Noise levels associated with the restoration operations would therefore remain very low at this property, with maximum levels of 32 dB  $L_{Aeq, 1 \text{ hour}}$  calculated, which the plant was operating at the closest point to the property.
- 5.7.4. The calculations indicate a level of 38 dB  $L_{Aeq, 1 \text{ hour}}$  associated with the proposed recycling operations, which have been prepared on the basis of worst case conditions with a line of sight between the property and proposed operations.
- 5.7.5. Taking account of the cumulative noise associated with the infilling and recycling operations, the calculations indicate noise levels from the operation of the site of up to 39 dB  $L_{Aeq, 1 \text{ hour}}$ .
- 5.7.6. Noise levels would therefore remain substantially below the 49 dB  $L_{Aeq, 1 \text{ hour}}$  normal working limit and thus acceptable.

#### 5.8. Assessment of Noise Levels at The Old Pump House

- 5.8.1. This property is located to the north east of the quarry.
- 5.8.2. Noise levels at this property are anticipated to gradually increase as the restoration operations progress in an easterly direction, with maximum noise levels of 35 dB  $L_{Aeq, 1 \text{ hour}}$  calculated, as the plant operates close to the eastern site boundary. Noise levels associated with on-site operations would therefore remain substantially below the proposed 55 dB  $L_{Aeq, 1 \text{ hour}}$  normal working limit at this property.
- 5.8.3. The proposed aggregate recycling area will be located approximately 900 metres from this property. Noise levels attributable to the periodic use of the crusher would generate noise levels of 34 dB  $L_{Aeq, 1 \text{ hour}}$  at the property, below those associated with the presently permitted operations.
- 5.8.4. Taking account of the cumulative effects associated with the infilling and restoration operations, noise from on-site noise operations are not anticipated to exceed 38 dB  $L_{Aeq, 1 \text{ hour}}$ , and remaining below the 49 dB  $L_{Aeq, 1 \text{ hour}}$  limit at this property.
- 5.8.5. The waggons accessing the quarry would pass along the roads adjacent to this dwelling. Noise levels associated with the vehicle movements have been calculated to be 47 dB  $L_{Aeq, 1 \text{ hour}}$ . No changes in existing traffic movements are proposed as part of the aggregate recycling operations.
- 5.8.6. Noise levels attributable to the site traffic passing the property would remain below the level associated with other existing traffic of 55 dB  $L_{Aeq, 1 \text{ hour}}$  (calculated from the measurement results, taking account of the increased distance from the road). The noise attributable to the site traffic results in an overall increase in noise levels of less than 1 dB(A) at the property. This level of increase is very low and would not generate any potential additional adverse effects upon the occupants of the property.

#### 5.9. Assessment of Noise Levels at Properties in Wansford Village

- 5.9.1. The properties within Wansford village are located over 600m to the east of the eastern site boundary.
- 5.9.2. Noise levels associated with present site operations within the village would remain very low, with maximum noise levels of 31 dB  $L_{Aeq, 1 \text{ hour}}$  calculated, thus substantially below the normal working limit of 55 dB  $L_{Aeq, 1 \text{ hour}}$  within the village. On this basis, it is not anticipated that the operation would be generally audible.
- 5.9.3. Noise levels attributable to the proposed aggregate recycling operations would also remain low, given the large distance between the operational area and dwellings with the village, with noise levels of 34 dB  $L_{Aeq, 1 \text{ hour}}$  calculated.
- 5.9.4. Taking account of the cumulative noise associated with the presently permitted operations and proposed aggregate recycling, site noise levels within the village are not anticipated to exceed 39 dB  $L_{Aeq, 1 \text{ hour}}$ , thus remaining 16 dB below the limit specified in Condition 23.

## 6. Summary

- 6.1. Planning permission for the importation of inert materials for the revised restoration of Stonehill Quarry was granted in September 2016, subject to Conditions (Application Ref. 15/00092/WASFUL). A noise assessment accompanied the planning application, which considered noise associated with importation and restoration, with appropriate noise limits imposed in accordance with current minerals Planning Practice Guidance.
- 6.2. MGL are seeking to vary conditions 9 and 19 of the planning permission to enable a proportion of the inert material delivered to site, which can be processed to produce recycled material. The material suitable for recycling would be separately stockpiled, with a mobile crusher brought onto site periodically to process the material.
- 6.3. Calculations of the noise levels associated with the infilling and proposed aggregate recycling operations have been prepared and assessed against the existing site noise limits specified in Condition 23 of the planning permission.
- 6.4. The assessment concluded, that whilst noise levels at surrounding properties would increase marginally during periods when a crusher was operational on site to process the recycled aggregate, noise levels would remain below the limits specified in Condition 23 of the current planning permission and therefore remain acceptable.
- 6.5. In conclusion, the proposed aggregate recycling operation, would not result in any adverse noise impacts at the surrounding properties, with noise levels remaining below the presently permitted limits.

## References

1. Ministry of Housing, Communities and Local Government. National Planning Policy Framework. February 2019.
2. Department for Communities and Local Government. Planning Practice Guidance. Assessing Environmental Impacts from Minerals Extraction. 6 March 2014.
3. British Standards Institute. Code of Practice for Noise and Vibration Control on Construction and Open Sites. Part 1:Noise. BS 5228-1+A1. 2014.
4. Calculation of Road Traffic Noise (CRTN). Department of Transport. 1988.

## Appendix A Noise Units

### Decibels (dB)

Noise can be considered as 'unwanted sound'. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

### A-Weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

### Units Used to Describe Time-Varying Noise Sources ( $L_{Aeq}$ , $L_{Amax}$ , $L_{A10}$ , and $L_{A90}$ )

Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

For many types of noise, the Equivalent Continuous A-Weighted Sound Pressure Level ( $L_{Aeq,T}$ ) is used as the basis of determining community response. The  $L_{Aeq,T}$  is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The  $L_{Amax}$  is the maximum value that the A-weighted sound pressure level reaches during a measurement period.  $L_{Amax,F}$ , or Fast, is averaged over 0.125 of a second and  $L_{Amax,S}$ , or Slow, is averaged over 1 second. All  $L_{Amax}$  values referred to in this report are Fast.

The  $L_{A90}$  is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

**Appendix B**  
**Calculation Details**

**Mick George Ltd - Stonehill Quarry  
Calculated Noise Levels from Site Operations**

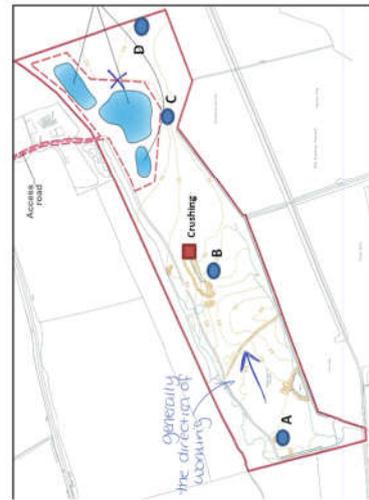
25-Mar-2020

Receptor: Hill House  
Height: 34 m

Uses BSS228

Predicted Freefield Noise Levels

|   | Ref @10m | Ref Dist (m) | No. (/hr) | % On Time | Source Ht | Dist S-R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|---|----------|--------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Excavator Loading HGV   | 75.7     | 10.0         | 1         | 50        | 35        | 500      | 42         | 100      | -34.0                     | -40.5                     | -11.9                    | -45.9           | 26.8               | 26.6                               | 475.46866                         |
| <b>Tipping and Restoration Commencement at Western End - Working Close to Surface - Position A</b><br>Works beyond 1km - no calculations prepared |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| <b>Tipping and Restoration - Central - Working Close to Surface - Position B</b>  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 45        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 26.5               | 26.6                               | 445.09043                         |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 34.3               | 2683.443                           |                                   |
| Loading Shovel (Rqd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 25.4               | 345.70726                          |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 8.6                | 7.2697157                          |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 45        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 6.1                | 4.0982818                          |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 6.8                | 4.8030535                          | 35.4                              |
| <b>Tipping and Restoration - South of Lakes - Working Close to Surface - Position C</b>   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 31.7               | 1470.1575                          |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 34.3               | 2683.443                           |                                   |
| Loading Shovel (Rqd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 25.4               | 345.70726                          |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 45        | 250      |            |          | -28.0                     | -33.0                     | 0.0                      | -33.0           | 18.5               | 70.269604                          |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 11.3               | 13.536844                          |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 45        | 250      |            |          | -28.0                     | -33.0                     | 0.0                      | -33.0           | 16.7               | 46.426667                          | 36.7                              |
| <b>Tipping and Restoration Close to Surface - Position D - Worst Case - No Screening</b>  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 42        | 420      |            |          | -32.5                     | -38.6                     | 0.0                      | -38.6           | 35.9               | 3892.1878                          |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 34.3               | 2683.443                           |                                   |
| Loading Shovel (Rqd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 880      |            |          | -38.9                     | -46.6                     | 0.0                      | -46.6           | 25.4               | 345.70726                          |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 42        | 420      |            |          | -32.5                     | -38.6                     | 0.0                      | -38.6           | 12.8               | 19.246305                          |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 42        | 420      |            |          | -32.5                     | -38.6                     | 0.0                      | -38.6           | 15.5               | 35.838296                          |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 42        | 420      |            |          | -32.5                     | -38.6                     | 0.0                      | -38.6           | 11.0               | 12.715907                          | 38.4                              |



Calculation Points

**Mick George Ltd - Stonehill Quarry**  
**Calculated Noise Levels from Site Operations**

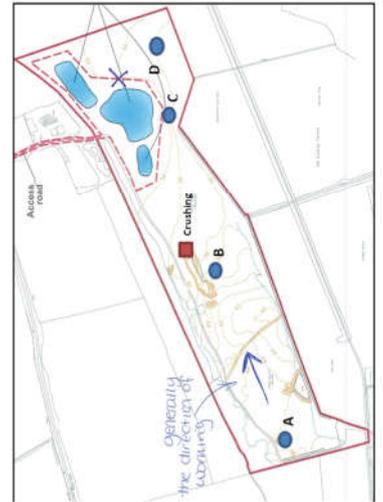
25-Mar-2020

Receptor:  
 Height  
 Lynley Cottage  
 42 m

Uses BS5228

Predicted Freefield Noise Levels

|  | Ref @10m | Ref Dist (m) | No. (/hr) | % On Time | Source Ht | Dist S-R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|--|----------|--------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>                                   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Excavator Loading HGV  | 75.7     | 10.0         | 1         | 50        | 35        | 300      | 42         | 150      | -29.5                     | -34.9                     | -9.0                     | -38.5           | 34.2               | 26.3                               | 38.9                              |
| <b>Tipping and Restoration Commencement at Western End - Working Close to Surface - Position A</b> |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 45        | 1050     |            |          | -40.4                     | -48.5                     | 0.0                      | -48.5           | 26.0               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 38.1               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 29.2               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 440      | 42         | 280      | -32.9                     | -39.1                     | -3.9                     | -39.1           | 12.3               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 45        | 1050     |            |          | -40.4                     | -48.5                     | 0.0                      | -48.5           | 5.6                |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 45        | 440      | 42         | 280      | -32.9                     | -39.1                     | -3.9                     | -39.1           | 10.5               | 26.3                               | 38.9                              |
| <b>Tipping and Restoration - Central - Working Close to Surface - Position B</b>                   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 31.2               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 38.1               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 29.2               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 440      | 42         | 280      | -32.9                     | -39.1                     | -3.9                     | -39.1           | 12.3               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 10.8               |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 45        | 440      | 42         | 280      | -32.9                     | -39.1                     | -3.9                     | -39.1           | 10.5               | 31.3                               | 39.4                              |
| <b>Tipping and Restoration - South of Lakes - Working Close to Surface - Position C</b>            |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 45        | 250      |            |          | -28.0                     | -32.9                     | 0.0                      | -32.9           | 41.5               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 38.1               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 29.2               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 250      |            |          | -28.0                     | -32.9                     | 0.0                      | -32.9           | 18.5               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 45        | 250      |            |          | -28.0                     | -32.9                     | 0.0                      | -32.9           | 21.2               |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 45        | 250      |            |          | -28.0                     | -32.9                     | 0.0                      | -32.9           | 16.7               | 41.6                               | 43.4                              |
| <b>Tipping and Restoration Close to Surface - Position D - Worst Case - No Screening</b>           |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 42        | 150      |            |          | -23.5                     | -27.4                     | 0.0                      | -27.4           | 47.1               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 38.1               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 620      |            |          | -35.8                     | -42.8                     | 0.0                      | -42.8           | 29.2               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 42        | 150      |            |          | -23.5                     | -27.4                     | 0.0                      | -27.4           | 24.0               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 42        | 150      |            |          | -23.5                     | -27.4                     | 0.0                      | -27.4           | 26.7               |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 42        | 150      |            |          | -23.5                     | -27.4                     | 0.0                      | -27.4           | 22.2               | 47.2                               | 47.7                              |



Calculation Points

**Mick George Ltd - Stonehill Quarry  
Calculated Noise Levels from Site Operations**

25-Mar-2020

Receptor: Sulehay Cottage  
Height: 48 m

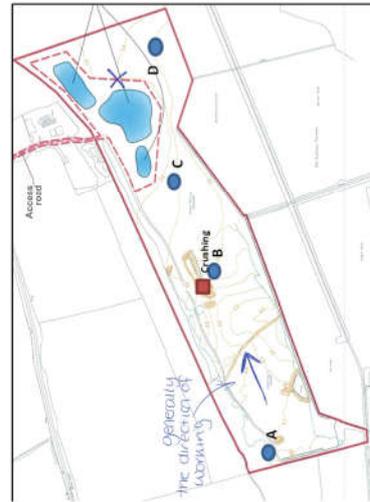
Uses B55228

**Predicted Freefield Noise Levels**

|   | Ref @10m | Ref Dist. (m) | No. (/hr) | % On Time | Source Ht | Dist S-R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|---|----------|---------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>  |          |               |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Excavator Loading HGV   | 75.7     | 10.0          | 1         | 50        | 35        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 24.7               |                                    |                                   |
| <b>Tipping and Restoration Commencement at Western End - Working Close to Surface - Position A - Worst Case</b> |          |               |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0          | 1         | 33        | 45        | 240      |            |          | -27.6                     | -32.5                     | 0.0                      | -32.5           | 42.0               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0          | 1         | 100       | 46        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 38.0               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0          | 1         | 100       | 45        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 29.1               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL           | 5         | -         | 45        | 240      |            |          | -27.6                     | -32.5                     | 0.0                      | -32.5           | 18.9               |                                    |                                   |
| HGV Tipping   | 82.7     | SEL           | 5         | -         | 45        | 240      |            |          | -27.6                     | -32.5                     | 0.0                      | -32.5           | 21.6               |                                    |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL           | 5         | -         | 45        | 240      |            |          | -27.6                     | -32.5                     | 0.0                      | -32.5           | 17.1               | 42.1                               | 43.7                              |
| <b>Tipping and Restoration - Central - Working Close to Surface - Position B</b>                                |          |               |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0          | 1         | 33        | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 31.2               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0          | 1         | 100       | 46        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 38.0               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0          | 1         | 100       | 45        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 29.1               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL           | 5         | -         | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 8.1                |                                    |                                   |
| HGV Tipping   | 82.7     | SEL           | 5         | -         | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 10.8               | 31.2                               | 39.3                              |
| HGV Movement (Unladen)  | 78.2     | SEL           | 5         | -         | 45        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 6.3                |                                    |                                   |
| <b>Tipping and Restoration - South of Lakes - Working Close to Surface - Position C</b>                         |          |               |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0          | 1         | 33        | 45        | 850      |            |          | -38.6                     | -46.2                     | 0.0                      | -46.2           | 28.2               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0          | 1         | 100       | 46        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 38.0               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0          | 1         | 100       | 45        | 623      |            |          | -35.9                     | -42.9                     | 0.0                      | -42.9           | 29.1               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL           | 5         | -         | 45        | 850      |            |          | -38.6                     | -46.2                     | 0.0                      | -46.2           | 5.2                |                                    |                                   |
| HGV Tipping   | 82.7     | SEL           | 5         | -         | 45        | 850      |            |          | -38.6                     | -46.2                     | 0.0                      | -46.2           | 7.9                | 28.3                               | 39.0                              |
| HGV Movement (Unladen)  | 78.2     | SEL           | 5         | -         | 45        | 850      |            |          | -38.6                     | -46.2                     | 0.0                      | -46.2           | 3.4                |                                    |                                   |

**Tipping and Restoration Close to Surface - Position D**

Beyond 1km - no calculations prepared



Calculation Points

**Mick George Ltd - Stonehill Quarry  
Calculated Noise Levels from Site Operations**

25-Mar-2020

Receptor: Nightingale Farm  
Height: 55 m

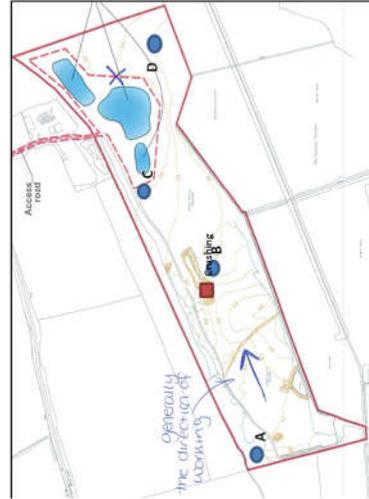
Uses B55228

Predicted Freefield Noise Levels

|   | Ref @10m | Ref Dist (m) | No. (/hr) | % On Time | Source Ht | Dist S-R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|---|----------|--------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Excavator Loading HGV   | 75.7     | 10.0         | 1         | 50        | 35        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 24.7               |                                    |                                   |
| <b>Tipping and Restoration Commencement at Western End - Working Close to Surface - Position A - Worst Case</b> |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 45        | 600      |            |          | -35.6                     | -42.5                     | 0.0                      | -42.5           | 32.0               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 37.5               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 28.6               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 45        | 600      |            |          | -35.6                     | -42.5                     | 0.0                      | -42.5           | 9.0                |                                    |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 45        | 600      |            |          | -35.6                     | -42.5                     | 0.0                      | -42.5           | 11.7               |                                    |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 45        | 600      |            |          | -35.6                     | -42.5                     | 0.0                      | -42.5           | 7.2                | 32.1                               | 39.0                              |
| <b>Tipping and Restoration - Central - Working Close to Surface - Position B</b>                                |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 45        | 800      |            |          | -38.1                     | -45.6                     | 0.0                      | -45.6           | 28.9               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 37.5               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 28.6               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 45        | 750      |            |          | -37.5                     | -44.9                     | 0.0                      | -44.9           | 6.5                |                                    |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 45        | 800      |            |          | -38.1                     | -45.6                     | 0.0                      | -45.6           | 8.5                |                                    |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 45        | 750      |            |          | -37.5                     | -44.9                     | 0.0                      | -44.9           | 4.7                | 29.0                               | 38.5                              |
| <b>Tipping and Restoration - South of Lakes - Working Close to Surface - Position C</b>                         |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer   | 79.3     | 10.0         | 1         | 33        | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 27.6               |                                    |                                   |
| Crusher (Periodic Use)  | 80.9     | 10.0         | 1         | 100       | 46        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 37.5               |                                    |                                   |
| Loading Shovel (Rpd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 655      |            |          | -36.3                     | -43.4                     | 0.0                      | -43.4           | 28.6               |                                    |                                   |
| HGV Movement (Laden)  | 80.0     | SEL          | 5         | -         | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 4.6                |                                    |                                   |
| HGV Tipping   | 82.7     | SEL          | 5         | -         | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 7.3                |                                    |                                   |
| HGV Movement (Unladen)  | 78.2     | SEL          | 5         | -         | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 2.8                | 27.7                               | 38.4                              |

**Tipping and Restoration Close to Surface - Position D**

Beyond 1km - no calculations prepared



Calculation Points

**Mick George Ltd - Stonehill Quarry**  
**Calculated Noise Levels from Site Operations**

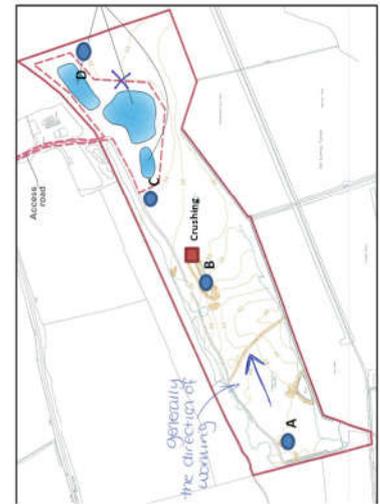
25-Mar-2020

Receptor: The Old Pump House  
 Height: 34 m

Use: BS5228

Predicted Freefield Noise Levels

|  | Ref @10m | Ref Dist (m) | No. (/hr) | % On Time | Source Ht | Dist S-R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|--|----------|--------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>                                   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Excavator Loading HGV  | 75.7     | 10.0         | 1         | 50        | 35        | 600      |            |          | -35.6                     | -42.5                     | 0.0                      | -42.5           | 30.2               |                                    |                                   |
| <b>Tipping and Restoration Commencement at Western End - Working Close to Surface - Position A</b> |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Works beyond 1km - no calculations prepared  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| <b>Tipping and Restoration - Central - Working Close to Surface - Position B</b>                   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 45        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 26.5               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 34.0               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 25.1               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 540      |            |          | -34.6                     | -41.3                     | 0.0                      | -41.3           | 10.1               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 45        | 1000     |            |          | -40.0                     | -48.0                     | 0.0                      | -48.0           | 6.1                |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 45        | 540      |            |          | -34.6                     | -41.3                     | 0.0                      | -41.3           | 8.3                | 26.7                               | 35.2                              |
| <b>Tipping and Restoration - South of Lakes - Working Close to Surface - Position C</b>            |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 45        | 750      |            |          | -37.5                     | -44.9                     | 0.0                      | -44.9           | 29.6               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 34.0               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 25.1               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 540      |            |          | -34.6                     | -41.3                     | 0.0                      | -41.3           | 10.1               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 45        | 750      |            |          | -37.5                     | -44.9                     | 0.0                      | -44.9           | 9.2                |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 45        | 540      |            |          | -34.6                     | -41.3                     | 0.0                      | -41.3           | 8.3                | 29.7                               | 35.8                              |
| <b>Tipping and Restoration Close to Surface - Position D - Worst Case - No Screening</b>           |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 42        | 460      |            |          | -33.3                     | -39.6                     | 0.0                      | -39.6           | 34.9               |                                    |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 34.0               |                                    |                                   |
| Loading Shovel (Rqd During Crushing)   | 72.0     | 10.0         | 1         | 100       | 45        | 900      |            |          | -39.1                     | -46.9                     | 0.0                      | -46.9           | 25.1               |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 42        | 460      |            |          | -33.3                     | -39.6                     | 0.0                      | -39.6           | 11.9               |                                    |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 42        | 460      |            |          | -33.3                     | -39.6                     | 0.0                      | -39.6           | 14.6               |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 42        | 460      |            |          | -33.3                     | -39.6                     | 0.0                      | -39.6           | 10.1               | 35.0                               | 37.8                              |
| <b>HGVs on Road Passing Property</b>   |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 45        | 20       |            |          | -7.2                      | -7.0                      | 0.0                      | -7.2            | 44.3               |                                    |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 42        | 20       |            |          | -6.7                      | -6.3                      | 0.0                      | -6.7            | 43.0               | 46.7                               |                                   |



Calculation Points

**Mick George Ltd - Stonehill Quarry**  
**Calculated Noise Levels from Site Operations**

25-Mar-2020

Receptor: Wansford Village  
 Height: 34 m

Uses BS5228

Predicted Freefield Noise Levels

|  | Ref @10m | Ref Dist (m) | No. (/hr) | % On Time | Source Ht | Dist S R | Barrier Ht | Dist S-B | Distance Attenuation Hard | Distance Attenuation Soft | CRTN Barrier Attenuation | Max Attenuation | Activity LAeq [dB] | Overall LAeq [dB] Normal Operation | Overall LAeq [dB] During Crushing |
|--|----------|--------------|-----------|-----------|-----------|----------|------------|----------|---------------------------|---------------------------|--------------------------|-----------------|--------------------|------------------------------------|-----------------------------------|
| <b>Occasional Limestone Extraction in Eastern Area of Quarry</b>   | 75.7     | 10.0         | 1         | 50        | 35        | 750      | 42         | 120      | -37.5                     | -44.9                     | -11.3                    | -48.8           | 23.9               | 31.2                               | 34.9                              |
| Excavator Loading HGV  |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| <b>Tipping and Restoration - Eastern End - Close to Surface - Position D - Worst Case - No Screening</b> |          |              |           |           |           |          |            |          |                           |                           |                          |                 |                    |                                    |                                   |
| Dozer  | 79.3     | 10.0         | 1         | 33        | 42        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 31.2               | 31.2                               |                                   |
| Crusher (Periodic Use)   | 80.9     | 10.0         | 1         | 100       | 46        | 1100     |            |          | -40.8                     | -49.0                     | 0.0                      | -49.0           | 31.9               | 31.9                               |                                   |
| Loading Shovel (Regd During Crushing)  | 72.0     | 10.0         | 1         | 100       | 45        | 1100     |            |          | -40.8                     | -49.0                     | 0.0                      | -49.0           | 23.0               | 23.0                               |                                   |
| HGV Movement (Laden)   | 80.0     | SEL          | 5         | -         | 42        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 8.1                | 8.1                                |                                   |
| HGV Tipping  | 82.7     | SEL          | 5         | -         | 42        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 10.8               | 10.8                               |                                   |
| HGV Movement (Unladen)   | 78.2     | SEL          | 5         | -         | 42        | 650      |            |          | -36.3                     | -43.3                     | 0.0                      | -43.3           | 6.3                | 31.2                               | 34.9                              |



Calculation Points