

VAYNOR QUARRY First Periodic ROMP

Environmental Statement Appendix 11.1

Schemes for Blast Vibration Monitoring and the Control of Air Overpressure

The schedule of planning conditions associated with the Initial ROMP which came into effect on 31st December 2001 required the submission of schemes to the respective local Planning Authorities (Merthyr Tydfil County Borough Council (MTCBC) and the Brecon Beacons National Park Authority (BBNP) for

- a) The monitoring of blasting operations including the location of monitoring points and the equipment to be used.
- b) The methods to be employed to minimize the effects of air overpressure arising from blasting operations (ref condition 10 of the MTCBC schedule of conditions and condition 12 of the BBNP schedule of conditions).

Substantive quarrying operations ceased in the 1990's and there has been no recent quarrying activity at the Quarry. In these circumstances, and in the absence of blasting operations, the required blast monitoring and air overpressure management schemes were not submitted. However, the First Periodic ROMP provides an opportunity to re-visit this issue and in so doing submit a Scheme for blast vibration monitoring and the control of air overpressure to both meet the requirements of the current Initial Review conditions and provide reference details for the conditions which are being submitted under for approval with the First Periodic ROMP application.

The following details comprise the schemes required by a) and b) above as a 'Scheme for Blast Vibration Monitoring and the Control of Air Overpressure' which can be cross referenced in the updated schedules of conditions accompanying the First Periodic ROMP application.

a) Scheme for Blast Vibration Monitoring

The operator will, if so requested, notify the Local Planning Authority (LPA) at least 24 hours in advance of each blast, so that the authority will have the opportunity of carrying out its own blast monitoring should it wish. Such notification may be either by telephone or email to an appropriate person at the LPA.

Monitoring shall be carried out using a modern seismograph to record peak particle velocity, as well as air overpressure. Monitoring will be carried out at the façade of vibration sensitive buildings at one of the locations listed below, or such other location as may be previously requested by or agreed in writing by the LPA.

- Llwynsilanws Farm (to the north east of the quarry)
- Pen-rhiw-glais (to the east of the quarry)
- Glen View (to the east of the quarry)
- Sweetwater Park (to the south of the quarry)

Each individual blast carried out at Vaynor Quarry shall be monitored by the operator, with the following details being recorded for each blast event:

- Location of the seismograph.
- Location of the blast panel within the quarry.
- Weather conditions at the time of the blast.
- Maximum Instantaneous Charge Weight.
- Total charge weight.
- Peak Particle Velocity, recorded as the maximum of measurements taken in three mutually perpendicular directions at the ground surface.
- Air Overpressure

The results of blast monitoring will be recorded in a Database, in the form attached, and be maintained on site as well as being made available to the LPA within 48 hours of any formal request. The person responsible for providing this information will be the appointed quarry manger or his authorized deputy.

b) Scheme for the Control of Air Overpressure

Minerals Technical Advice Note, MTAN (Wales): Aggregates notes that because air overpressure is transmitted through the atmosphere, weather conditions such as wind speed and direction, cloud cover and humidity have a controlling influence on the levels received at sensitive properties and that, in view of this unpredictability, planning conditions to control air overpressure are unlikely to be enforceable. It is, however, noted that careful blast design should be able to resolve excessive levels of air overpressure and that such details are sufficiently covered by the Quarries Regulations 1999 which impose requirements relating to health and safety at quarries.

The control of air overpressure levels is a relatively straight forward process as the techniques required are also those used to control the risk of fly-rock as required by the Quarries Regulations. The process of fly rock control, such as face profiling, blast hole surveying etc., will thus automatically minimise the levels of air overpressure.

At Vaynor Quarry these controls will include:

- An exercise to be undertaken prior to the re-commencing of blasting operations to determine the optimum time delays in the firing sequence between holes and rows to minimise blast vibration and air overpressure.
- Pre-drill profiling of the quarry face to facilitate an accurate drill hole plan. The drilling plan will include consideration of AOP.
- Drill logs to be reviewed with any deviations in the drill holes to be considered when generating the blast specification required to comply with the Quarries Regulations.
- The length of stemming at the top of each drill hole will be no shorter than the critical burden which is the shortest point from the explosive column to the open air.

An additional control measure outside of those required for the control of fly-rock would be to ensure that the delay times across a face are slower than 300 m.s⁻¹ to avoid the risk of matching the speed of sound.

The above Schemes for Blast Vibration Monitoring and the Control of Air Overpressure comprise **Appendix 11.1** to the Blast Vibration Study undertaken as part of the EIA and reported as Chapter 11.0 of the ES.

The proposed schedules of updated planning conditions submitted to MTCBC and BBNPA as part of the First Periodic Review application cross reference these Schemes and require future quarrying operations to be undertaken in accordance with the Schemes.

August 2022