SURFACE MINE PERMIT MODIFICATION

Under the authority of Chapter 1514 of the Revised Code, the Chief of the Division of Mineral Resources Management hereby orders and grants a modification to Ohio Surface Mine Permit IM-340.

Issued To: ENON SAND AND GRAVEL LLC
P.O. Box 158
Sabina, OH 45169-0158

Telephone: (937) 584-2486

Permit Number: IM-340
Application Number: IMM-340-5

Effective: 07/13/2017
Expires: 04/24/2022

Reason for Modification:
Blasting Revisions

Conditions

The issuance of this modification means only that the application to conduct a surface mining operation meets the requirements of Chapter 1514 of the Revised Code, and as such DOES NOT RELIEVE the operator of any obligation to meet other federal, state or local requirements.

This modification is conditioned upon the compliance of the permittee with Chapter 1514 of the Revised Code and rules adopted pursuant thereto, and performance of the measures set forth in the Mining and Reclamation Plan in a timely manner, and upon the right of the Chief, division inspectors, or other authorized representatives of the Chief to enter upon the premises at reasonable times for the purposes of determining whether or not there is compliance with Chapter 1514 of the Revised Code.

Signature: D Crow for Lanny E. Erdos **Date:** 07/13/2017
Chief, Mineral Resources Management

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT
2045 Morse Road, Bldg. H-3
Columbus, OH 43229-6693

REQUEST TO MODIFY A MINING AND RECLAMATION PLAN

1. Operator's Name **Enon Sand & Gravel, LLC**

   Phone **513-771-0820**

2. Address **P.O. Box 158, Sabina, OH**

   Zip Code **45169**

3. Permit IM-**340**

4. Section of plan and mining year for which modification is requested:

   Item 22

5. Description of proposed modification:

   Item 22 - Updating form to current version

6. Reason for requesting modification:

   The Industrial Minerals Blasting Plan updated to the current form with new information.

Cory Kiser
Signature

Mining Engineer
Title

7/10/2017
Date

FOR DIVISION USE ONLY

This request is hereby ☑ approved ☐ disapproved.

Date 7-12-17 Signed D Crow for Lanny E. Erdos
Chief, Division of Mineral Resources Management

Revised 09/2006
DNR-744-6018

Permit No. D1-340

or

Appl. No. _____

Ohio Department of Natural Resources
Division of Mineral Resources Management

Industrial Minerals Blasting Design

RECEIVED
MAY 18 2017
ODNR - DMRM
Lebanon Office

Applicant's Name: **Enon Sand & Gravel, LLC**

1. Place an "X" in the box next to each paragraph that describes the general type(s) of blasting to be used.

☒ **Limestone, dolomite or sandstone production blasts**, with typical hole depths of about 20 to 120 feet, drilled vertically; hole diameters of about 4 to 8 inches; burdens and spacings ranging from about 10 to 20 feet (depending largely on hole diameter, rock and explosive types), explosives consisting of bulk or bagged ANFO, emulsions or blends, and cast primers with delay detonators; stemming with drill cuttings or crushed stone; and delay separations between holes and rows.

☒ **Overburden blasts** in rock materials above the production blasts, with design criteria similar to the production blasts described above.

☒ **Cap rock blasts or shallow production blasts** (e.g., less than about 15 feet deep), in limestone, dolomite, clay, shale or sandstone, with smaller hole diameters, burdens and spacings than the production blasts described above.

☒ **Small scale presplit blasts** for dimension stone, rip-rap, or final wall control, using closely spaced small-diameter holes (normally in a single row), decoupled explosive charges such as large-grain detonating cord or small diameter cartridges, and short delay periods between holes.

☐ **Other:** *Describe below.*

2. Place an "X" in the box next to each paragraph below that applies to the method(s) to be used to demonstrate compliance with applicable ground vibration and airblast limits at dwellings, public or commercial buildings, schools, churches, or community or institutional buildings (outside the permit area and not owned by the permittee).

☒ A seismograph will be used beside the nearest dwelling or building to demonstrate that: 1) the ground vibration did not exceed the frequency-dependent particle velocity limits of Appendix B in the U.S. Bureau of Mines RI 8507 (1980); and 2) the airblast, measured with a two-hertz, high-pass system, did not exceed 133 decibels.

☒ If a seismograph is not used as indicated in the above paragraph, the maximum weight of explosives detonated per delay (within any period less than 8-milliseconds) will comply with the scaled distance equation, $W=(D/90)^2$, where W is the maximum allowable charge-weight per delay (in pounds), D is the distance (in feet) to the nearest dwelling or building and "*90*" is the required scaled distance factor.

INSPECTOR

☐ In applying the USBM limits to the nearest dwelling or building, the lower plateau (for plaster-on-lath) at 0.50 inches per second (ips) shall apply at its corresponding frequencies, unless the permittee submits site-specific evidence to support the application of the higher plateau (for drywall) at 0.75 ips, relative to a single dwelling/building or group of dwellings/buildings, as appropriate. **Place an "X" in this box only if such evidence has been submitted as an addendum to this application item.**

☐ The ground vibration and airblast limits may be waived by the current owner or controlling authority of a dwelling or building. **Place an "X" in this box only if such a waiver, in the form of a written consent, has been submitted as an addendum to this application item.**

3. Place an "X" in the box next to each paragraph below that applies to the method(s) to be used to demonstrate compliance with applicable ground vibrations limits at the nearest structure not listed in item b, above, such as oil/gas wells, oil/gas transmission and distribution lines, high-voltage steel transmission towers, public water lines, dams, silos, and unoccupied barns and pole buildings (outside the permit area, and not owned by the permittee).

☒ A seismograph will be used beside the nearest structure (or above it, if buried) to demonstrate that a peak particle velocity of 2.0 ips was not exceeded.

☒ If a seismograph is not used as indicated in the above paragraph, the maximum weight of explosives detonated per delay (within any period less than 8-milliseconds) will comply with the scaled distance equation, $W=(D/40)^2$, where W is the maximum allowable charge-weight per delay (in pounds), D is the distance (in feet) to the nearest structure, and 40 is the required scaled distance factor.

☐ A peak particle velocity limit higher than 2.0 ips may be approved for a specific structure if supported by site-specific technical evidence. **Place an "X" in this box only if such evidence has been submitted as an addendum to this application item.**

☐ The ground vibration limit may be waived by the current owner or controlling authority of a structure. **Place an "X" in this box only if such a waiver, in the form of a written consent, has been submitted as an addendum to this application item.**

4. In the space below or as an addendum to this application item, identify any site-specific conditions requiring special blasting considerations. (If none, write "NONE".) Then describe in detail, the blast design features, scheduling, traffic control, or other appropriate methods to accommodate the site-specific conditions. *(As an example, blasting close to a major highway would be a site-specific condition; methods to ensure the safety of the motoring public would include such things as blast design criteria to prevent flyrock, and traffic control measures suited to the type of highway.)*

The following seismographic monitoring requirements are supplemental to any other monitoring requirements in the blast plan, and will apply to blasting within 1,000 feet of dwellings that are outside the permit limits and not owned by the permittee:

1. Every blast will be monitored with a seismograph outside the nearest dwelling.

2. To account for potential directional effects on ground vibration and airblast levels, every blast will also be monitored outside a second dwelling that is in a different direction from the nearest dwelling by at least 45 degrees (if such a dwelling exists within 1,000 feet).
3. If blasting in the area between the J. & W. Goodbar property and the Echo Hills Estates subdivision, monitoring will be conducted outside the nearest dwelling to the south and the nearest dwelling to the north.

The following will apply to blasting in the vicinity of a public road:
The mine manager or foreman will have traffic stopped when blasting within 300' of the paved portion of Fairfield Pike, Garrison Rd., or S. Tecumseh Rd., and at larger distances whenever the blaster-in-charge determines that the blasting area would extend to the paved portion of any public road. Stoppage of traffic will be conducted in a safe and legal manner, using flagmen, 2-way radios or cell phones, appropriate signs, and assistance (if required by law) from the appropriate road authority. If traffic is stopped during blasting, such action will be documented by the blaster-in-charge on the required blast record.