

ALNA BLASTING ORDINANCE

Section 1: Applicability; Intent and Purposes of this Ordinance.¹

- A. **Applicability Clause.** This Ordinance shall apply to all blasting operations for **Projects** of 1 acre or more and all production blasting operations for **Projects** of 1/2 acre or more. **No blasting shall be done within 250 feet of any structure on an adjacent parcel** of land not owned by the person doing such blasting without a permit. No blasting operation **Project**, subject to the provisions of this Ordinance may commence operation until an application pursuant to this Ordinance has been submitted to and reviewed and approved in writing by the Planning Board. Nothing herein shall relieve the user of explosives from complying with any state or federal laws relative to the use of explosives. **Any person, corporation, or other form of legal entity, not subject to the foregoing terms, shall nevertheless be subject to the provision of the Ordinance set forth in Section 5: Notice B.**
- B. Blasting is a common, long and generally accepted activity in the production of various stone and gravel products in the mining and quarrying industries. It is also regularly employed in site preparation for building construction, and occasionally in farming. To avoid possible negative consequences that may derive from unregulated blasting, the Town of Alna establishes this ordinance.
- C. This ordinance establishes specific standards for blasting operations, notice requirements, ~~instrument~~ monitoring requirements of blasting operations, a permit process for blasting, and other associated standards and requirements.
- D. It is intended to minimize the effects of airblast overpressure, ground vibration, dust, and noise associated with blasting, which may be detrimental to the enjoyment of life, property, and the conduct of business for those individuals affected.

Commented [EP1]: The ordinance should include a section entitled "Effectivity."

Commented [EP2]: Give a title to each paragraph, or delete the title from this paragraph.

Commented [EP3]: Although its frequent capitalization suggests that it should be interpreted as having some sort of special meaning, this term is not included in the definitions, but should be both defined and used consistently throughout the ordinance.

Commented [EP4]: Inconsistent capitalization: the words "Project" and "Projects" are only capitalized in this paragraph and in the definition of the word "Project," even though the word appears numerous other times in the document. To avoid ambiguity as to whether the uncapitalized instances fall outside the definition, all instances of these words in the ordinance should have consistent capitalization.

Commented [EP5]: This sentence should be moved from the applicability section of the document to the standards section. It has nothing to do with applicability of the ordinance.

Commented [EP6]: This is a word salad, and is confusing. The full intent can be made clearer by deleting this sentence, and replacing the first sentence with the following:

"All blasting within the Town of Alna must comply with the applicable notice requirements specified in Section 4C and Section 5. All other provisions of this ordinance shall apply to all blasting operations for Projects of 1 acre or more, and all production blasting operations for Projects of 1/2 acre or more."

¹ Definitions of terms used herein can be found in Section 13 starting at page 12

- E. It is intended to provide standards that will also prevent permanent damage to the geologic, hydrogeologic, and wildlife resources and ecological balance in the region outside the immediate blast area. The ordinance is intended to protect the quality of life and the homes of residents, neighborhoods, property, groundwater, wildlife resources, scenic beauty and/or businesses, all lying outside the approved work area and potentially affected by the blasting.
- F. It is intended to be effectively and efficiently administered without causing undue financial and administrative hardship to blasting operators.

Section 2: Statutory authority; administration; effect on other regulations.

- A. This ordinance is enacted pursuant to 30-A M.R.S.A. §3001 and shall be administered by the CEO and the Planning Board of the Town of Alna.
- B. The requirements of this ordinance are in addition to any other ordinances, regulations, and statutes, and where different standards are contained elsewhere, the more restrictive standards shall apply.
- C. This ordinance does not replace or negate federal and/or state requirements pertaining to explosives.

Commented [EP7]: This sentence is superfluous, and need not be included within the ordinance. Although state and federal law allows ordinances to implement more restrictive requirements, neither allows municipal ordinances to replace or negate federal or state laws, regardless of whether the ordinance redundantly includes a sentence like this one.

Section 3: Permit required; applications; hearings; fees; bond and insurance.

A permit shall be required for all blasting operations identified in Section 1 A and obtained prior to any blasting with explosive devices or materials within the boundaries of the Town of Alna.

- A. Applications for a permit may be obtained in the Town Office or on the Town Website.
- B. Applications for blasting permits shall be submitted to the Planning Board and shall contain the following information:

- 1) The name address, email address and phone number of the applicant.

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- 2) The name, address, email address and phone number of the property owner, and the Town of Alna Tax Assessor's map and lot number(s) for the parcels identified in the application.
- 3) The name, address, email address and phone number of the general contractor.
- 4) The locations of the proposed blasting activity.
- 5) The estimated total number of cubic yards of material, not including overburden, to be removed by blasting.
- 6) An estimate of the number of blasts required to remove the specified amount of material.
- 7) A description of the project for which the blasting is being undertaken.
- 8) Adjacent land uses.
- 9) The location of adjacent structures and distance to those structures.
- 10) The projected dates work is to be undertaken.
- 11) Any other information deemed necessary by the Board.

C. Upon determination by the Planning Board that a blasting application is complete for processing the Planning Board shall review and act upon the application within 60 calendar days.

- 1) The Board may approve, approve with conditions, or deny the application based on the performance standards contained herein. The applicant must be notified in writing by first-class mail within 10 days of the decision.

D. Public hearing. A public hearing shall be held on all blasting applications.

- 1) All abutting property owners and/or those property owners within 1000 feet of the property line of the property for which the permit is requested shall be notified by first class certified mail, return receipt requested, at least 10 days prior to the date of the hearing. A list of names and mailing addresses shall be provided as part of the application. Such notification shall be the responsibility of the applicant, and evidence of such notification shall be provided to the Planning Board.
- 2) Notification of the public hearing shall be given by the Town of Alna in a newspaper of local publication twice, the first time being at least seven days prior to the date of the hearing and the second time at least four days prior to the date of the hearing. The cost of this publication will be paid by the applicant.

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Commented [EP8]: It needs to be made clear that this is the Town's responsibility, and not the responsibility of the applicant. As originally written, it was unclear whether the Town or the applicant has authority and responsibility to give this notice under the ordinance.

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E. Fees. All applications for blasting permits shall be accompanied by a fee and deposit as determined by the Alna Select Board.

F. Bond and proof of insurance.

- 1) The applicant and/or the blaster may be required to post a bond in an amount to be determined by the Planning Board for those cases reviewed by the Board.
- 2) The applicant and/or the blaster shall present proof of liability insurance in a minimum amount of \$2,000,000 combined single limit per occurrence for production blasting, and a minimum amount of \$1,000,000 combined single limit per occurrence for other blasting.

Commented [EP9]: If a bond is to be required by the ordinance, then the ordinance should make clear what the purpose of the bond is. While I've seen requirements for completion bonds for things like solar array projects, that doesn't really make sense in this context. Is the purpose of this bond intended to ensure that cleanup and remediation can be completed once blasting operations stop? Is the bond intended to cover some other financial contingency?

G. Effective period. Permits shall be effective for no more than 365 days from the date of approval.

Section 4: Performance Standards

Except as otherwise specifically set forth herein, the performance standards set forth in the blasting provisions found in MRS Title 38 Section 490-Z, Section 14 (Blasting) effective as of the date of the adoption of this ordinance, as they may be amended from

time to time, shall apply to blasting in the Town of Alna. It is intended that the stricter standards, whether set forth herein or in Section 490 Z, Section 14, are to be applied. Further, if Section 490 Z, Section 14, is amended to make any of such standards less restrictive such amendments shall not apply, unless and until they are specifically adopted by the town of Alna.

All notices sent to the Maine Department of Environmental Protection (the "Department") under Section 490-Z, Section 14 shall simultaneously be sent to the ~~Clerk, Town of Alna~~ Alna Town Clerk. Waivers or variances granted by the Department shall only be binding on the Town if similarly granted by the Planning Board.

- A. Applications for a production blasting permit for a quarry must provide a valid permit for the quarry in which the blasting will occur.
- B. Applications for a blasting permit as required by this Ordinance, must provide a valid permit, if required, for the project with which the blasting is associated.
- C. Hours of detonation. Hours of detonation for production blasting shall be limited to daylight hours, no earlier than 10:00 a.m. or later than 1:00 p.m. Monday through Friday inclusive, except by special exception as in Section 11 of this ordinance, excluding the following legal holidays: New Year's, Memorial Day, Fourth of July, Labor Day, Thanksgiving, and Christmas. Blasting may not occur more frequently than 3 times per day. Underground production blasting may be exempted from these requirements provided that a waiver is granted by the Planning Board.
- D. Hours of detonation for all non-production blasting and drilling in preparation for both production and non-production blasting. Hours of detonation and drilling in preparation for blasting are limited to between sunrise and sunset or between 8:00 a.m. and 4:00 p.m., whichever is greater, Monday through Friday inclusive. In no case shall a blast and drilling occur on the following legal holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving and Christmas.

Commented [EP10]: This is ambiguous and poorly worded. Is this intended to require a local permit for mining operations as part of the blasting permit? Is it intended to require a DEP permit for blasting operations (conditional on local permits). It's important to be specific as to the intent of this paragraph.

Commented [EP11]: This paragraph is redundant with paragraph A. The same comments that apply to paragraph A are applicable here.

Commented [EP12]: It seems sort of ironic to prohibit detonation on New Year's Day and the Fourth Of July; holidays for which fireworks are often included as part of associated celebrations.

Commented [EP13]: Is it really the intent of this ordinance to allow someone with a non-production blasting operation (say for personal use or for foundations, etc.) and for all non-production operations on less than one acre to blast at any time of the day or night? By exempting non-production operations <1 acre from applicability, is it really the intent of this ordinance to allow drilling in those instances at any time of the day or night?

One way to address this is to reference Section 4C along with Section 5B in the "Applicability" paragraph as portions of the ordinance that must be observed by anyone who does blasting within the Town of Alna, regardless of whether any other provisions apply to them.

Commented [EP14]: This sentence is really ambiguous and could be open to unintended interpretation. Since sunrise is NEVER later than 8PM (it's as late as about 7:15 am at the winter solstice), and is NEVER earlier than 4PM (it's about 4:10PM at the winter solstice), one interpretation is that hours of detonation and drilling in preparation for blasting are always permitted between sunrise and sunset (which affords more hours for blasting than would be the case if these activities were restricted to happening only between 8am and 4pm). Because daylight hours can be really long during summer, it may be better to simply limit these activities to happening between 8am and 4pm.

- E. Emergency situations. Blasting of any type may occur at any time in situations deemed to be emergencies by the CEO after consultation, if possible, with the Select Board. Emergency situations may include, but are not limited to, blasting to install utilities damaged by weather events or blasting to correct a misfire of explosives in an otherwise permitted blast event.
- F. The notification requirements established herein apply to any property of concern as determined by the Planning Board but no closer than the property line of property under the control, through ownership or lease or other contractual arrangement, or persons having blasting operations performed.
- G. The applicant shall also comply with all standards and conditions contained in other permits issued for such projects and local, state, and federal statutes and regulations. The requirements established herein shall be measured at the property line of the applicant or at the closest building(s) on abutting properties as determined by the CEO and/or the Planning Board, as the case may be.
- H. Wildlife Protection. The blasting operation shall not impair, disturb, or displace any federal or state-listed rare or endangered form of animal or plant life; nor shall they destroy or impair any wildlife habitat that could be avoided by modification of the proposed operation. A written or electronic communication from the Maine Department of Inland Fisheries and Wildlife, concerning animal life, and the Maine Department of Agriculture, Conservation & Forestry, Natural Areas Program, concerning plant life, indicating that the blasting operation will not impair, disturb, or displace, nor endanger, destroy or impair such animal or plant life in any significant way shall be dispositive of such matter.
- I. Groundwater Protection. Water is a precious resource, and measures shall be taken to protect groundwater quality. Water quality shall be as found in the nearest non-owned well within 250 feet from the property line or as determined by the Planning Board and from post-blast testing results. Post-blast testing shall be done no sooner than 24 hours or no later than 48 hours following a blast. Turbidity in wells tested shall be no greater than that which existed prior to the blasting as established in the pre-blast survey if such survey has been completed.

Commented [EP15]: This sentence is unnecessary. The blaster obviously has separate obligations to comply with the conditions of permits issued by each permit-granting authority, whether or not this ordinance states such a requirement. The Town of Alna and any citizen with standing could obviously file complaints with such state or federal authorities, whether or not this ordinance requires compliance with the conditions of state and federal permits.

Commented [EP16]: This sentence is so vague and arbitrary as to be meaningless and unenforceable. The ordinance provides no specification as to what constitutes "water quality." Furthermore, it presumes without any basis whatsoever that the "quality of water" in "the nearest non-owned well within 250 feet from the property line" would be equivalent to the water quality at some unspecified location (presumably a monitoring well at or near the property line). As an absolute bare minimum, this groundwater protection paragraph should be specifying the number and location of monitoring wells, the specific water quality characteristics that are to be monitored, and the maximum allowable deviation from pre-blast baselines that are acceptable. It should also make clear what happens if post-blast testing shows an unacceptable deterioration of water quality. Who gets notified? Does blasting have to stop? Who decides?

- 1) Except as previously permitted, no excavation or extraction shall occur within 5_—feet of the seasonal high ground water table.
- 2) The applicant shall submit a site-specific groundwater monitoring plan that specifies the locations, timing and parameters to be measured. At a minimum, water quality testing parameters shall include turbidity, blasting chemicals, volatile organic compounds and semi-organic compounds, metallic metals, radon, specific conductance, sodium, chloride, iron, manganese, nitrate, nitrite, PFAS, pH and perchlorate.
- 3) Where the Board is concerned that blasting operations may impact groundwater quality or drinking water supplies, the applicant shall perform such pre-blast and post-blast water quality tests or hydrogeological studies as may be necessary to develop a water monitoring program in order to monitor any adverse impacts of the operation on the quality or quantity of groundwater and drinking water supplies. Such testing shall not be required if the property owner refuses access to their property or declines such testing in writing.
- 4) Explosive products shall be selected that are appropriate for site conditions and safe blast execution, and that have adequate water resistance for the site conditions to minimize the potential for groundwater contamination.
- 5) Muck piles (the blasted pieces of bedrock) and rock piles shall be managed so as to reduce the potential for groundwater contamination including by removing the muck pile from the blast area as soon as practicable and by managing the interaction of blasted rock piles and stormwater to prevent contamination of surface water and groundwater.

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J. Qualified Blaster. All blasting operations shall be conducted by a blaster who is fully licensed and insured for the transportation, use and handling of explosives and by experienced, trained, and competent personnel who understand the hazards involved and have demonstrated knowledge of safety requirements and current applicable regulations.

K. Blasthole Loading Practices. The following blasthole loading practices shall be followed:

- 1) Drilling logs shall be maintained by the driller and communicated directly to the blaster. The logs shall indicate the depths and lengths of voids, cavities, and fault zones or other weak zones encountered, as well as groundwater conditions.
- 2) Explosives shall be managed on-site so that they are either used in the borehole, returned to the delivery vehicle, or placed in secure containers for off-site disposal.
- 3) Spillage around the borehole shall be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal.
- 4) Loaded explosives shall be detonated immediately and shall not be left in the blastholes overnight, except when safety or weather requires detonation to be postponed.
- 5) Loading equipment shall be cleaned in an area where wastewater can be contained and disposed of in a manner that prevents release of contaminants to the environment.
- 6) Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking, and column rise need to be attended to.

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Section 5: Notices.

- A. All production blasting operations shall have notices of such blasting published in a newspaper of local publication and mailed by first class mail to all property owners within 1000 feet of the blasting property 10 days prior to the intended date of the commencement of blasting. Notice shall include the description of the blasting signals to be used during the operation and an address and telephone number where property owners may request further information and notification. Any property owner requesting further notification shall do so in writing to the person conducting the blasting operation.

B. Any person intending to perform blasting, not requiring a permit pursuant the Section 1 A. of this Ordinance, shall first notify the CEO, or their duly authorized representative, and the Town Clerk, that a blast is planned. Such notification shall be received at least 24 hours prior to the planned detonation and shall give the time (within two hours), location where blasting is to be done, the amount of explosives to be used and the name and business address of the person responsible for the blasting operation. Additional notification shall be received at least one hour prior to the planned detonation and shall give the time (within 30 minutes). The notification may be given orally over the telephone.

1) Prior to any blast, the person responsible for the blast shall inform all property owners, who have requested in writing to be so informed, of the impending blast. Such notification shall be given by telephone 24 hours prior to the blast stating the time of the blast [within] one hour.

Section 6: Instrumentation.

All seismographs used for compliance with this ordinance shall meet the following minimum specifications:

- A. Seismic frequency range: two to 200 Hz (~~±three±~~ Hz).
- B. Acoustic frequency range: two to 200 Hz (~~±one±~~ db).
- C. Velocity range: 0.02 to 4.0 inches per second.
- D. Sound range: 110 to 140 dB linear.
- E. Transducers: three mutually perpendicular axes.
- F. Recording: provide time-history of waveform.
- G. Calibration: be laboratory calibrated as often as necessary, but at least once every 12 months according to ~~manufacture's~~ manufacturer's recommendations.

Commented [EP17]: Is notice effected when one places a phone call to the CEO, regardless of whether the CEO answers? What if the phone call is placed on Saturday and the CEO doesn't check voice mail until Monday morning? What if there is no answer? Just seems as though in order to minimize the potential for disputes over whether adequate notice was given, we require that notice be written, and that the time the notice shall be measured from the time at which is was accepted. (This could be in the form of an emailed acknowledgement from the CEO. It could also be acceptable, for example, for someone to give written notice to the clerk during regular office hours, and for the clerk to provide a copy of the written notice that includes a written acknowledgement of receipt.)

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Commented [EP18]: Seems as though we're asking for disputes by not requiring a form of notification that can be documented.

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Section 7: Inspection and monitoring.

The CEO or their authorized representative may conduct tests and observe any authorized blasting operations, and may also order that additional ground vibration and airblast overpressure measurements using approved instrumentation be made by persons responsible for blasting operations to ensure that the limits specified in Section 4 are not exceeded.

Section 8: Record.

Persons responsible for blast operations shall maintain a record of each blast. All records shall be retained at least three years following cessation of the blasting operation, and shall be available for inspection by the CEO and shall contain the following minimum data:

- A. The name of person responsible for the blasting operation.
- B. The location, date, and time of the blast.
- C. The names of blaster in charge.
- D. The type of material blasted.
- E. The number of holes, burden, and spacing.
- F. The diameter and depth of holes.
- G. The types of explosives used.
- H. The amount of explosives used.
- I. The maximum amount of explosives per delay period of eight milliseconds or greater.
- J. The maximum number of holes per delay period of eight milliseconds or greater.

- K. The method of firing and type of circuit.
- L. The weather conditions (including such factors as wind direction, cloud cover, etc.).
- M. The height or length of stemming.
- N. If mats or other protections were used.
- O. The type of detonators used and delay periods used.
- P. Seismograph and airblast readings, when measured, and from where measured.

Section 9: Compliance schedule.

- A. For blasting operations existing at the time of adoption of this ordinance where this ordinance is more restrictive, a grace period of six months will be granted wherein such operations will be “grandfathered” in order to bring existing operations in line with this ordinance. Six months after the adoption of this ordinance, all preexisting blasting operations shall also be brought under the provisions of this ordinance.
- B. A complete review of all activities under this ordinance shall be undertaken by the CEO and the Planning Board 12 months after adoption of this Ordinance to determine if the levels are adequate and reasonable to achieve the purpose for this ordinance as intended. The results of this review shall be reported to the ~~Board of Selectmen~~Select Board of the Town of Alna and the ~~Chairman of the~~ Planning Board Chair of the Town of Alna.

Section 10: Exceptions based on undue hardship.

Applications for a permit for exception from the performance standards designated in this ordinance may, on the basis of hardship, be made to the CEO or the Planning Board. Any permit granted hereunder shall contain a description of all conditions upon which said permit has been granted and shall specify a reasonable time that the permit shall be effective.

Commented [EP19]: This should either be left entirely to the Planning Board, OR this paragraph should state specific circumstances under which the CEO may grant exceptions. Leaving it to the applicant to “shop” between the two authorities for the desired outcome is a recipe for trouble.

A. The CEO or Planning Board, as applicable, may grant the exception as applied for only if:

- 1) The activity or operation will be of a temporary duration, i.e., a limited number of blasts at a specific site, and cannot be done in a manner that would comply with this Ordinance.
- 2) No other reasonable alternative is available to the applicants; and
- 3) The applicants represent, and the CEO or Planning Board finds, that blasting as permitted will not violate recognized safety standards.

B. Upon the issuance of any exception permit, the CEO or Planning Board, as applicable, may prescribe any reasonable conditions or requirements deemed necessary to minimize ~~the~~ adverse effects upon the community.

Section 11: Violations and penalties.

The submission of false information required by this ordinance or the violation of this ordinance or the violation of any condition attached to a permit granted under this ordinance shall constitute a land use violation and be penalized in accordance with 30-A M.R.S.A. §4452.

Section 12: Severability.

If any provision of this ordinance is declared unconstitutional or held by a court of valid jurisdiction to be invalid, it shall not affect any other section, clause, or provision thereof, but the same shall remain in full force and effect.

Section 13: Definitions.

As used in this ordinance, the following terms shall have the meanings indicated:

A. AIRBLAST

An airborne shock wave resulting from detonation of explosives. "Airblast" may be caused by burden movement or the release of expanding gas into the air. "Airblast" may or may not be audible.

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B. APPLICANT

The owner or other individual, corporation or other business entity who or which applies for the legal right to conduct blasting at real property which it has the legal right to use and is responsible for managing and conducting blasting operations.

C. BLAST SITE

The area where explosive material is handled during the loading of drilled blastholes, including the perimeter formed by the loaded blastholes and 50 feet in all directions from loaded blastholes [see 38 M.R.S.A. § 490-W(5)].

D. BLASTER

An applicant who has been awarded a permit to conduct blasting.

E. BLASTING

Any activity entailing the use of explosives for the purpose of producing an explosion to demolish structures or to fragment rock for mining, quarrying, excavation and construction.

F. BLASTING OPERATIONS

All processes ~~conducted in association with site or other at the blasting site associated with site preparation for blasting,~~ and the detonation of explosives. For the purposes of determining the applicability of this ordinance, the area of blasting operations is defined as a perimeter of [XXX] feet lateral distance beyond the footprint on the surface of the Earth corresponding to the maximum extent of boreholes intended for placement of explosives is the area actively affected by these processes.

G. DECIBEL

The unit of sound pressure commonly used to measure airblast from explosives. The decibel scale is logarithmic.

H. EXPLOSIVES

Any substance, chemical compound, or mechanical mixture that is commonly used for the purpose of producing an explosion to fragment rock for mining, quarrying, excavation, and construction. Initiation devices (detonator, detonating cords, *etc.*) are also included under this definition.

I. FLYROCK

Commented [EP20]: The original definition was vague, and should be replaced by objective criteria that can be measured. Something like the phrase "XXX feet lateral distance beyond the footprint..." needs to be included because boreholes need not be vertical.

Commented [EP21]: The original sentence was overly complex and difficult to parse. The definition is made clearer and more specific by using the phrase "blasting site," which is also defined in this section.

Commented [EP22]: It is preferable to replace the original language, which was vague and subjective, with something that is definitive and measurable.

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Rock that is propelled through the air or along the ground which leaves the secured blast area as a result of the detonation of explosives.

J. GROUND VIBRATIONS

Shaking of the ground caused by blasting. Ground vibrations are to be measured along three **orthogonal** principal axes (x, y, z); namely, transverse, vertical, and longitudinal, all of which are subject to the performance standards herein.

K. GROUNDWATER

Water beneath the earth's surface often between saturated soil and rock that supplies wells and streams.

L. HERTZ

A term used to express the frequency of ground vibrations and airblast. One "hertz" is one cycle per second.

M. PARTICLE VELOCITY

A measure of ground vibration. "Particle velocity" describes the velocity at which a particle of ground vibrates when excited by a seismic wave. It is measured in inches per second.

N. PRODUCTION BLASTING

Repetitive blasting for the primary purpose of extracting or removing natural materials for commercial sale, barter, or exchange.

O. PROJECT or BLASTING OPERATION PROJECT

For the purposes of this Ordinance, the "Project" shall include all blasting **operations** anticipated to be undertaken during the completion of a contract or series of contracts, for demolition, excavation or construction, or during the life of a quarry operation.

P. QUARRY

The property designated in the application and permit where rock is excavated for the purpose of extracting or removing natural materials for commercial sale, barter, or exchange.

Q. SECURED BLAST AREA

The area designated by permit in which blasting is permitted.

Commented [EP23]: Definitions that appear within an ordinance do not need to be prefaced with the phrase "for the purposes of this Ordinance." It is obvious that the definitions that appear within the ordinance are applicable to the ordinance itself.

Commented [EP24]: The word "blasting" should be replaced with the previously defined phrase "blasting operations" in this context, so that a "Project" would include not only blasting itself, but also all blasting preparations.

R. SEISMOGRAPH

An instrument that measures and may supply a permanent record of earthborn vibration induced by blasting.