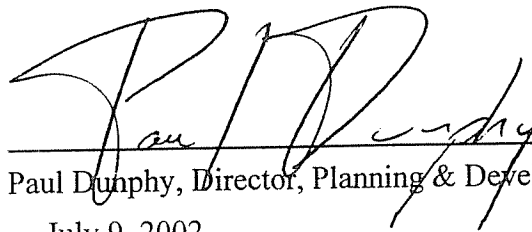


Halifax Regional Council
July 16, 2002

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



Paul Dunphy, Director, Planning & Development Services

DATE: July 9, 2002

SUBJECT: Blasting By-Law B-300

INFORMATION REPORT

ORIGIN

- At the January 22, 2002 meeting of Regional Council, a number of questions and concerns were raised with respect to HRM's Blasting Bylaw. (Item 11.2.2 (i)).

BACKGROUND

HRM's Blasting Bylaw was adopted in 1998. The bylaw primarily establishes an administrative process to ensure:

- blasting is only carried out by qualified individuals;
- that individuals are notified of blasting in their area; and
- that all relevant information required to file a damages claim is readily available to claimants (e.g. insurer and company contact information, condition of structure prior to blast and recorded information about the blasts etc.)

These three goals are achieved by requiring blasters to:

- have valid Provincial licences;
- carry sufficient insurance;
- carry out pre-blast surveys of nearby buildings and wells;
- deliver the pre-blast survey to all property owners within 300 metres of the blast;
- submit monitoring reports by an independent consultant which record the size, time and location of each blast (e.g. air blast and ground vibration);
- provide all relevant contact information about the company and insurer directly to all property owners in the area; and
- provide direct notification to area property owners of the intended time, date and duration of blasting and to also publish this notification in the newspaper.

The bylaw also specifies the maximum permitted levels for ground and air vibrations. It should be noted however that the bylaw does not specify how blasting is to be carried out in a safe or secure manner nor does it specify how blasting levels are to be achieved. Unlike a building permit for example, a Municipal blasting permit does not verify that the work has been designed in a safe or acceptable manner to meet the bylaw's specifications. The onus of determining how to meet the bylaw's requirements is placed entirely upon the blaster. This is based upon three factors:

- the expertise and liability rests with a licensed and insured blaster;
- the Municipality lacks expertise to review and inspect the design and practice of blasting; and
- the Municipality wishes to avoid any liability claims resulting from blasts which cause property damage.

In the case of violations, three remedies are available. These are stop work orders, revocation of the permit and legal charges.

DISCUSSION

What Has Been Done?

Staff has undertaken a review of the administrative processes used in issuing and monitoring blasting permits and improved these processes. These increased administrative procedures have increased the elapsed processing time for a blasting permit from two days to four days. The changes include the following.

- Checklists to ensure all required documentation is submitted (e.g. insurance and contact documents, notifications, pre-blast surveys, dates, time and location of work etc.).
- Blasting documents are centrally located in each office and cross referenced to building permits so that all staff can access the information. This permits a quick response to investigate complaints or to provide all relevant information required to file a damages claim.
- Blasting monitoring reports are now submitted and reviewed at least once a week and more frequently if there have been problems in the area or with a specific blaster.
- A "zero tolerance" policy has been established with respect to all violations of the bylaw's blast, dust control and monitoring requirements once a permit is issued. All violations of the bylaw's blasting limits or other bylaw requirements are now referred for prosecution immediately.
- Blasting permits are issued for shorter periods of time so that if problems develop the permit expires before the entire project is completed. This has resulted in a greater number and duration of work stoppages on blasting sites. As a result new permits are not issued and new blasting work cannot proceed until the blaster corrects the existing problems.

- The Province (i.e. the Dept. of Environment and Labour) has guaranteed that if any blaster undertakes work without a valid Municipal permit, they will immediately go to the site and suspend the blaster's Provincial certificate.
- Staff now regularly specifies dust control measures in the "conditions" section of the blasting permit when dry conditions or existing homes and businesses are nearby.
- Previously staff only required written confirmation that the pre-blast survey had been done. Staff now requires documentation verifying that all buildings and wells in the blast area have been surveyed.

Outstanding Issues

- Staff will explore further cooperation with the Dept. of Environment and Labour especially with respect to their ability to review the performance of blaster's work and revoke or suspend licences for poor practices or violations of the Provincial Occupational Health and Safety regulations.
- Legal Services has identified problems with our ability to testify as to the accuracy and reliability of the independent monitoring reports when this evidence is presented in prosecutions. This restricts our ability to successfully prosecute. This issue will be reviewed further to determine whether this problem can be easily overcome by establishing new procedures within the terms of the existing bylaw or whether a fundamentally different approach and amendments to the bylaw are required (e.g. HRM hires the independent monitors).
- A review of the Bylaw's fines and legal remedies will be conducted in the context of HRM's Bylaw Rationalization project. One of the issues this project is reviewing is the fines and legal remedies for all Municipal bylaws.
- Staff will continue to do background research on the technical requirements specified in the bylaw. It must be recognized however that staff has no expertise in this area and will likely have to either rely upon the Dept. of Environment and Labour staff for expertise or hire consultants.

There appears to be an increasing expectation, though not necessarily a consensus, from the public and Council that the Municipality should have a significant role in reviewing and inspecting blasting plans and operations. In some case it has been argued that this should go so far as to include hydrogeological requirements to assess the potential impact upon aquifers and ground water supplies for wells. If this is the case there is a significant gap between these expectations and the role the Municipality has specified for itself in the current bylaw. The question therefore is whether the Municipality needs or wants to fundamentally alter its role with respect to regulating the blasting industry and as a consequence fundamentally change the scope of the bylaw. A further update will be provided to Council after the summer break on this issue along with the other issues identified above.

BUDGET IMPLICATIONS

N/A

FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the Approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

N/A

ATTACHMENTS

Blasting Bylaw (HRM Bylaw B-300)

<p>Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.</p> <p>Report Prepared by: Jim Donovan, Acting Manager, Permits & Inspections</p>
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**HALIFAX REGIONAL MUNICIPALITY
BY-LAW NUMBER B-300
BY-LAW RESPECTING BLASTING**

Number and Short Title

- 1 This By-law shall be known as By-law Number B-300 and shall be cited as the "Blasting By-law."

Definitions

2. In this By-law:
- (a) "Air Blast" means the noise created by the pressure wave generated by a blast transmitted through the air.
 - (b) "Blasting Area" means a zone 150 meters in any direction from the blasting hole in which explosives are being primed or loaded into blast holes or in which unexploded charges are believed to exist and can include any larger area if necessary in the opinion of the blaster or the Inspector for a particular blast;
 - (c) "Blaster" means a person named on a valid blasting certificate issued by the Department of Labour of the Province of Nova Scotia.
 - (d) "Blasting" means the movement, preparation and use of explosives conducted at a blasting area or in relation to the use of explosives but does not include delivery to, or the initial storage at, the Blasting Area by a properly qualified person in accordance with Federal and Provincial law;
 - (e) "Inspector" means the Building Inspector for the municipality, and any by-law enforcement officers authorized by the Inspector to act in his or her stead to administer this by-law;
 - (f) "Municipality" means the Halifax Regional Municipality;

Blasting Permit

3. (1) No person shall discharge, or cause to be discharged, any blast resulting from the use of an explosive without first having obtained a blasting permit from the Inspector.

- (2) No blasting permit shall be issued where the proposed activity is not consistent with the provisions of the applicable Land Use Bylaw.
- (3) Notwithstanding section 3 (1), a blasting permit is not required for blasting for a grave site or for underground mining.
- (4) Notwithstanding section 3 (1), the Inspector may give permission for blasting without a permit in an emergency situation involving a power pole accident.

Permit application

- 4. The applicant for a blasting permit shall make written application on a form provided by the Municipality.
- 5. The application shall contain the following information:
 - (a) the identity of the applicant;
 - (i) if the applicant is an individual, his name and civic business address and telephone number;
 - (ii) if the applicant is a firm or partnership, the name and address and occupation of each officer or partner and its civic business address and telephone number; or
 - (iii) if the applicant is an incorporated company, the registered agent of the company and his civic business address and telephone number; and
 - (b) the purpose of the work;
 - (c) depth to which it is proposed to drill or blast;
 - (d) a description of the scope of the work;
 - (e) the date upon which work is proposed to commence and the probable duration;
 - (f) the name, address and telephone number of the contractor engaged in the work, if any;
 - (g) the name, address, telephone number and Province of Nova Scotia blaster certificate number of each blaster in charge of the blasting;

- (h) the name, address and telephone number of the consulting firm engaged to do seismic and air blast monitoring;
- (i) a certificate of insurance (I.B.C. Form No. 2328) which provides a policy of commercial general liability for bodily injury and property damage in the amount of \$1,000,000.00 per occurrence which includes the Halifax Regional Municipality as an additional insured, a cross liability clause and a blasting endorsement for the full limits of the policy;
- (j) a plan showing the location of the work and the location of all utilities including but not limited to sewer, water, power, telephone and natural gas in blasting area;
- (k) A written preblast survey of all structures in the blasting area and all wells within 300 meters of the blasting hole, prepared by an independent person, and proof of delivery of each survey to the property owner; and
- (l) such other information as the Inspector may require.

Duration

- 6. A blasting permit shall expire on the expiry date indicated on the permit, to a maximum of one year, or, where none is indicated the permit shall expire (3) three months from the date issued.

Permit fee

- 7. The application shall be accompanied by a permit fee of One Hundred Dollars (\$100.00).

Blaster Required

- 8. (1) A blasting permit shall not be issued to an applicant unless the applicant is a blaster, the applicant has a blaster in his employ, or the applicant has a contract with a blaster in respect of the work for which the permit is intended.
- (2) The blaster named in the application shall be on the work site at all times while blasting is being carried out and the blasting area shall be under his supervision.

Automatic Revocation

9. (1) A blasting permit issued under this By-law shall be automatically revoked if the applicant ceases to be a blaster, the applicant ceases to have a blaster in his employ, or the applicant no longer has a valid contract with a blaster in respect of the work for which the permit is issued, as the case may be.
- (2) Notwithstanding subsection (1), if the applicant ceases to be a blaster, or if the blaster named in the application ceases to be employed or have a valid existing contract in respect of the work, and if the applicant employs another blaster or enters into a valid contract with a blaster in respect of the work, the applicant shall notify the Inspector in writing of the name, address, telephone number and certificate number of the new blaster, the permit shall remain in full force and effect, and shall operate as if the new blaster were the blaster named in the original application.

Issuance of Permit

10. The Inspector shall issue a blasting permit to the applicant where:
 - (a) all the requirements for an application set out in Section 5 have been met;
 - (b) the proposed work set out in the application conforms with this By-law and all other applicable laws; and
 - (c) the proposed work set out in the application conforms with any other term or condition imposed by the Inspector pursuant to this By-law.

Not Transferable

11. Permits issued under this By-law are not transferable

Terms and Conditions

12. The Inspector may impose terms and conditions with respect to any of the following matters at any time while a blasting permit is in effect:
 - (a) the period during which blasting may be carried out;
 - (b) the suppression of noise and vibrations emanating from the blasting;

Drilling Dust Control

13. (1) During drilling and blasting, dust from the operations shall be contained within the property boundary so not to cause a nuisance to any other property, sidewalks or streets.
- (2) One or more of the following methods may be used to prevent the escape of dust:
 - (a) water jet
 - (b) water spray
 - (c) dust collector, and
 - (d) other dust control methods approved by the Inspector.

Maximum Particle Velocity

14. (1) The maximum particle velocity for each blast shall not exceed the limits as defined in Appendix 'A'.
- (2) At the start of blasting operations, the blaster shall monitor the initial shots in order to give scaled distances (distances divided by weight of explosives per delay) which will maintain maximum particle velocities below the limit as defined in Appendix 'A' for each blast.
- (3)
 - (a) A minimum of two blast monitoring stations must be used to measure each blast, one of which must be located in the Blasting Area;
 - (b) Notwithstanding subsection (2), where there are no structures or underground utilities within the Blasting Area, the monitoring station shall be located at the nearest structure or utility.
- (4) A sensor to monitor the air blast and ground movement shall be located within the blasting area as well as immediately adjacent to the nearest structure to the blast hole within the blasting area.
- (5) Notwithstanding subsections 3 and 4, where the blasting area is located completely within the boundaries of the property where blasting is being undertaken, the two monitoring stations shall be located at the nearest structures or utilities outside of the property.

Maximum Air Blast

15. The noise created by an air blast shall not exceed 128 (one hundred and twenty-eight) decibels as measured on the linear scale.

Blast Monitoring Requirement

16. The applicant shall engage an independent monitoring agency which shall maintain a complete record of the following for each blast:
- (a) (i) the maximum particle velocity with plot(s) of the wave form from the monitoring seismograph(s) to support this value. Plots of particle velocity versus frequency are required together with the velocity limits; the vector sum of the vertical and horizontal components is to be used to compute individual maximum particle velocities; and
 - (ii) the maximum air blast in decibels together with the weighting scale;
 - (b) a description of the monitoring equipment used, including seismograph type, particle motion sensor type and air blast sensor type; including model and serial numbers;
 - (c) a plan of the blasting operation showing locations of shots, with listings of charge sizes and delays used for each blast; and locations of seismic and air blast monitoring stations with listings of distances and directions from monitoring equipment sensors to individual blasts or centres of blasts where multiple shots are fired;
 - (d) a plan showing the location of the sensor within or immediately outside of the building at which readings are measured, including the height (or depth) of each sensor relative to ground level; this plan must be drawn such that locations maybe transferred to the plan described in 16(c);
 - (e) meteorological conditions at the time of firing of each blast, including temperature, wind speed and direction, general conditions and in the case of quarry blasting the presence or absence of temperature inversions as recorded by Environment Canada, all of which shall be recorded for each blast and, in the case of construction, for each day.

Blast Monitoring Project Requirements

17. The applicant shall maintain a complete record of the following items for each blasting project:
- (a) proof of on-site internal instrument calibration for both particle velocity and air blast;

- (b) evidence of the manufacturer's or an independent laboratory's most recent calibration for both particle velocity and air blast sensors and seismograph;
- (c) estimated errors for all parameters including maximum particle velocity, maximum air blast, distances, charge weight, calibrations, locations, azimuth and heights(depths); and
- (d) project information including the names, addresses and telephone numbers of the developer, insurance company, monitoring company, blasting company, blaster, and civic address of the blasting site.

Submit Records

18. The records described in Section 16 (a) shall be submitted to the Inspector on completion of the blasting, or when requested by the Inspector. All other records shall be submitted to the Municipality upon request by the Inspector.

Hours of Blasting

19. (1) No blasting shall take place on public holidays.
- (2) No blasting shall be carried out except between 8:00 a.m. and 6:00 p.m., Monday to Friday inclusive.
- (3) Notwithstanding subsection (1), the Inspector may grant a blasting permit to carry out blasting operations on weekends or holidays if the blasting occurs a minimum of 850 meters from any residence, and if, in the opinion of the Inspector, such operation is in the interest of public convenience. In such cases the hours of blasting shall be limited to 10:00 a.m. to 6:00 p.m.
- (4) Such permit may be granted for a period of up to three days upon such terms and conditions as may be determined by the Inspector.
- (5) Notwithstanding subsections 2 and 3, no blasting shall be permitted after official sunset.

Warning Signal

20. All blasting shall be signaled by the sounding of a warning signal, audible within the blasting area, effected by the use of a horn and in the sequence shown in Appendix "B."

Notification

21. (1) The applicant shall give notice by handbills delivered by hand or pre-paid post to every property owner and household or business within the blasting area and to any other persons in the vicinity of the blasting site who would be expected to be adversely affected by the noise or shock of a blast, or any other persons or agencies as directed by the Inspector, which shall contain:
- (a) the name of the person or company responsible for the blasting, with contact person and telephone number;
 - (b) the intended date and time when blasting shall commence and its expected duration period;
 - (c) the location of the blasting; and
 - (d) the name of the insurance company covering the blasting operation of the blaster.
- (2) The notice required by subsection (1) shall be delivered at least seven (7) days prior to the commencement of blasting.
- (3) The applicant shall publish a copy of the notice required by subsection (1) for one day at least three days prior to the commencement of blasting in a newspaper circulating in Halifax Regional Municipality at a minimum size of two columns wide by four inches high with the title "Blasting Notice" in large bold type on one line.

Refusal of Permit

22. If the applicant has been unable to comply with the requirements set out in Section 10 or elsewhere in this Bylaw, the Inspector shall not issue a permit.

Revocation of a Permit

23. The Inspector may revoke a permit where:
- (a) there is a violation of any condition under which the permit was issued or subsequently imposed; or
 - (b) there is a violation of any provision of this Bylaw;

Appeal

24. If the Inspector refuses to grant a permit, or if the applicant is aggrieved by the terms and conditions imposed, the applicant may appeal to Council by notice in writing filed with the Municipal Clerk stating the grounds upon which he appeals. A copy of such notice shall be delivered to the Inspector.
25. The Council shall hear such appeal at a time and place to be decided by the Municipal Clerk and may grant or refuse the application, reinstate the permit or grant the application upon such terms and conditions as in the absolute discretion of Council are considered proper for the effective carrying out of the purpose of this By-law.
26.
 - (1) The Inspector instead of revoking a permit may issue a stop work order where there is a violation of this By-law or a failure to comply with any of the terms and conditions subject to which a permit is issued.
 - (2) No blasting shall take place while a stop work order is in effect.
 - (3) A stop work order may be appealed in the same manner as a refusal to issue a permit.

Violations

27. Every person who contravenes or fails to comply with any provision of this By-law is guilty of an offence and is liable on summary conviction to a penalty not exceeding Five Thousand Dollars (\$5,000) and in default of payment to imprisonment for a period not exceeding ninety (90) days.

Court order

28. In the case of a continuing violation of this By-Law and in addition to any other remedy and to any other penalty imposed, the Municipality may apply to a Judge of the Trial Division of the Supreme Court, by way of action by Originating Notice for an injunction ordering the person violating to cease the violation and the Judge may make any order that in the Judge's opinion the justice of the case requires.

Repeal

29. **City of Halifax Ordinance 165, “The Blasting Ordinance”;
City of Dartmouth By-law B-200, “Blasting By-law”;
Halifax County Municipality By-law No. 42, “Blasting and
Dangerous Materials;**

**Town of Bedford By-law 232910, Respecting Blasting; and
any amendments thereto are hereby repealed.**

APPENDIX B

Approved Blasting Signals:

Appendix "A"

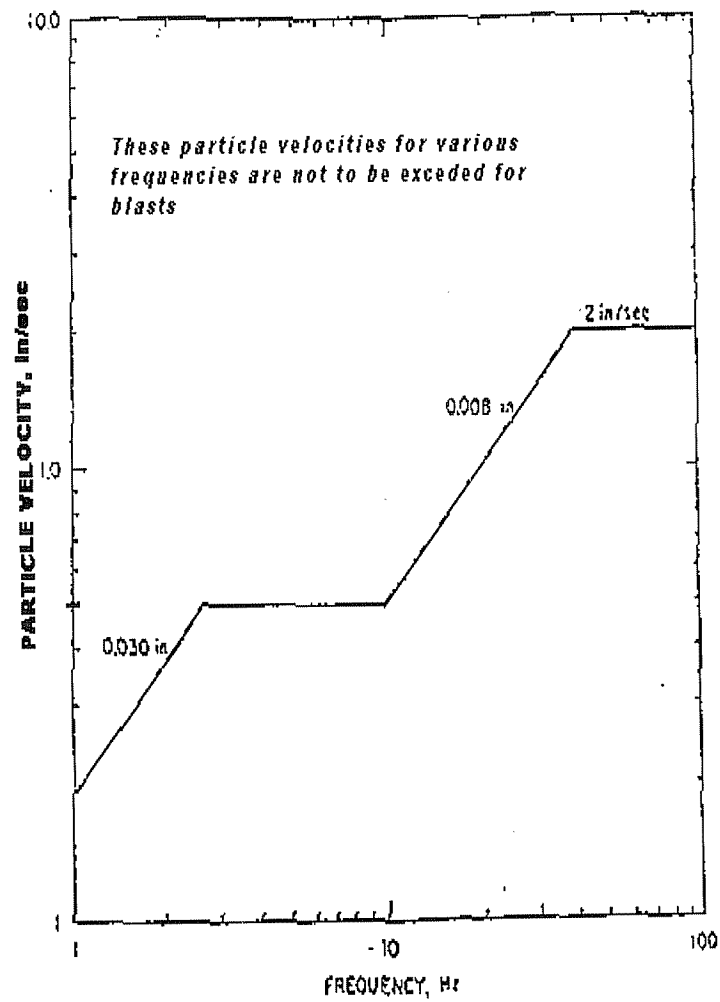


Figure 1

Maximum Particle Velocity Graph Versus Frequency

- (1) Before the blast: give three (3) long signals at five second intervals.
- (2) Wait - 2 minutes.
- (3) Fire blast.
- (4) After area is cleared by the blaster, give ALL CLEAR - one 15 second signal.

Done and passed by Council this 27th day of October, A. D., 199

BY-LAW B-300

Notice of Motion:	April 28, 1998
First Reading:	May 12, 1998
“Notice of Intent” Publication:	July 4 & September 26, 1998
Second Reading:	October 27, 1998
Third Reading:	October 27, 1998
Approval of Minister of Housing & Municipal Affairs:	November 17, 1998
Effective Date:	December 2, 1998