

City of Chilliwack

Bylaw No. 3429

A bylaw to regulate and prohibit the use of *vibratory construction equipment*, explosive agents and equipment for **Blasting and Drilling on development sites**

WHEREAS Council is empowered to regulate, prohibit and impose requirements in relation to the protection and enhancement of the well-being of its community in relation to nuisances, noise, vibration, odour, dust, elimination or any other matter that is liable to disturb the quiet, peace, rest, enjoyment, comfort, or convenience of individuals or the public and in relation to the emission of smoke, dust, gas, sparks, cinders, fumes or other effluvia that is liable to foul or contaminate the atmosphere;

AND WHEREAS Council is empowered to regulate, prohibit and impose requirements in relation to explosives;

AND WHEREAS Council is empowered to regulate the gross weight of vehicles or loads in relation to a highway in the municipality;

AND WHEREAS Council deems it advisable to protect and enhance the well-being of its community, and legislate in relation to the health, safety or protection of persons or property, by enacting a bylaw to regulate, prohibit and impose requirements in relation to the Blasting of rocks and other materials;

NOW THEREFORE, the Council of the City of Chilliwack, in open meeting assembled, enacts as follows:

1. This Bylaw may be cited as **“Development Site Preparation Bylaw 2007, No. 3429”**.

INTERPRETATION

2. In this Bylaw:

“Affected Owners” means the owners or occupiers of parcels of land referred to in Section 7(11);

“Application” means a document in the form set out in Schedule “A”;

“Blast” or “Blasting” means the use of explosives for the purpose of moving, displacing or breaking rock or other material;

“Blaster” means the person, firm or corporation engaged by the Owner to conduct Blasting and includes an agent, contractor or employee of the Blaster;

“Control Measures/Blasting Plan” means a document that complies with the requirements set out in Section 7(8);

INTERPRETATION (continued)

“Director” means the *Director of Planning and Engineering*, their lawful deputy, or any person designated by Council to act in their place; (AB#4744)

“City” means the City of Chilliwack;

“Drill” or “Drilling” means the use of a power drill for the purpose of moving, displacing or breaking rock or other material;

“Engineer” means a professional engineer who specializes in rock mechanics and has expertise in Blasting in urban areas, is independent of the Blaster, and is acceptable to the Director, who is retained to carry out the duties under Sections 7(8) and 14 to 18;

“Hospital” means a hospital or licensed hospital under the *Hospital Act*;

“Letters of Assurance” means a document or documents in the form set out in Schedule “E”, to be completed, executed and delivered by the Engineer under Section 7(7);

“Owner” includes

- (i) a grantee of a right-of-way in favour of a statutory authority on or over which the person proposes to Blast; and
- (ii) a person authorized in writing by the Owner to act as the Owner’s agent for purposes of this Bylaw;

“Permit” means a document, in the form set out in Schedule “B”, to permit Blasting to be conducted;

“Public Lands Application” means an “Application” by a person, other than the City, to Blast on a highway, park, right-of-way or other area that is held or controlled by the City.

“vibratory construction equipment” means any equipment or device employed to conduct site preparation that is capable of generating vibrations that can cause a nuisance or damage to nearby existing buildings or infrastructure. such activities include pile driving, rock breaking, ground densification for liquefaction control, and vibratory soil compaction. (AB#4744)

APPLICATION

3. Sections 4 to 30 do not apply to work in, on or about a mine in respect of which the Chief Inspector under the *Mines Act* RSBC 1996 c. 293 has issued a permit for the mine.

BLASTING PROHIBITIONS

4. A person shall not Blast except as permitted by and in accordance with this Bylaw.
5. Without limiting Section 4, a person shall not Blast unless they hold a valid Permit in respect of the Blasting.

BLASTING PROHIBITIONS (continued)

6. A person shall not contravene the terms and conditions of a Permit issued under this Bylaw.

APPLICATION FOR PERMIT

7. *Before Blasting or undergoing other construction activity utilizing Vibratory Construction Equipment proximate to buildings and infrastructure, an Owner will comply with the setback distances indicated in the following table:*

Setback Distances Requiring Application for Permit

<i>Structure</i>	<i>Setback from Vibration</i>
<i>Modern Buildings</i>	<i><20 m</i>
<i>Historic Buildings, buildings in poor condition</i>	<i><30 m</i>
<i>Hospitals and schools</i>	<i><30 m</i>
<i>Underground Infrastructure</i>	<i><15 m or as required by Utility Owner</i>

The Geotechnical Engineer for the development shall determine whether vibration monitoring shall be needed for rock excavation, ground densification and soil compaction activities. The City may also require an indemnity from the Owner in the form and with the content of that attached as Schedule “C”, and vibrations monitoring for sites where concerns have been brought to their attention. (AB#4744)

- (1) a completed Application;
- (2) a copy of a valid Blasting Certificate issued to the Blaster by Worksafe BC (the original of which must be produced for inspection if required by the Director);
- (3) an indemnity from the Owner in the form and with the content of that attached as Schedule “C”;
- (4) a certificate of insurance providing coverage for the Blaster, the Owner and the other parties as specified in Schedule “D” against liability for loss or damage to persons or property as a result of the Blasting, which insurance shall remain in force while the Permit is valid;
- (5) the fee set out in Schedule “F”;
- (6) if required by the Director, a topographic survey of the parcel (or the applicable portion) where the Blasting is to be carried out, prepared by a BCLS or a professional engineer;

APPLICATION FOR PERMIT (continued)

- (7) Letter(s) of Assurance;
 - (8) a Control Measures/Blasting Plan, prepared by the Blaster and accepted in writing by the Engineer, which shall consist of a sketch of the Blasting pattern and include the sequence of detonation and the maximum weight of explosives to be detonated per delay and shall specify measures designed to minimize potential injury to any person and avoid, control or minimize the impact of the Blasting, unless the Blasting is not proposed within 150 metres of any structure, utility line, railway, public or private road, street, lane, driveway or walkway or is not expected to produce a rock cut over 3.5 metres high;
 - (9) a report detailing how drill rigs and compressors are to be muffled and confirming compliance with Section 29;
 - (10) information on the purpose for which Blasting is being undertaken, the amount of material proposed to be removed, and such other information as is necessary to enable the Director to determine the amount of material permitted to be removed under the provisions of the Soil Removal and Deposit Bylaw, as amended from time to time, or any other bylaw or policy of the City;
 - (11) a report on the results of a pre-Blast survey which shall be made of all principal structures and outbuildings, swimming pools, retaining walls, patios and driveways on any parcel of land within 30 metres of the Blasting. *Pre-construction surveys shall also include the use of Vibratory Construction Equipment. A 15m setback is recommended for construction vibrations.* The Blaster must cause the survey to be conducted after notice in writing to the Affected Owners (being the owners of the parcels to be surveyed) and after giving the Affected Owners a reasonable opportunity to be present or to have an agent present. The report of the pre-Blast survey must identify by words and/or pictorially all observed damage to structures existing on the property inspected and anything that may be susceptible to damage from Blasting and shall be signed by the person conducting the survey and by the Affected Owners.
(AB#4744)
- 8.** For a Public Lands Application, the persons seeking permission to Blast shall sign all forms, complete all requirements and bear all responsibilities, liabilities and costs under the Bylaw and otherwise, as if they were the Owner.

PERMIT

- 9.** The Director must issue a Permit if the Owner has complied with Section 7 and applicable enactments.
- 10.** Authority to Blast under a Permit expires fourteen (14) days after the date of issuance of the Permit.

PERMIT (continued)

11. If the Director is satisfied that any policy of insurance or security provided under Sections 7(3) or (4) will remain in effect, the Director may, on the application of the Owner and upon receiving such further information as the Director may require, extend from time to time the authority to Blast under a Permit.
12. The Director may cancel or suspend the authority to Blast under a Permit if there are reasonable grounds to believe that the Owner or Blaster has done anything in violation of this Bylaw or the Permit, or in violation of any agreement made pursuant to Sections 7(3) and (4).
13. No person who has had their authority to Blast under a Permit cancelled or suspended may engage in or carry on Blasting in the City.

MONITORING OF *GROUND VIBRATIONS*

14. On properties larger than 4,000 m², the Owner must, at the Owner’s cost, retain an Engineer to act on the Owner’s behalf to:
 - (1) complete the requirements of Section 7 that relate to the Engineer;
 - (2) monitor the Blasting and *construction vibrations*; and, (AB#4744)
 - (3) ensure that the Blasting complies with the Blasting Plan, the Permit and the requirements of this Bylaw.
15. The Engineer must immediately notify the Director if they have direct or indirect knowledge of a contravention of the Control Measures/Blasting Plan, the Permit, or the provisions of this Bylaw.
16. Ground vibration measurements must be made while *Blasting and imparting ground vibrations in proximity to buildings and infrastructure of concern*, as determined by the Engineer. All records pertaining to the safety aspects of the entire rock removal project and its impact on neighbouring properties, including vibration records, Control Measures/Blasting Plan(s) and delay patterns, must be retained by the Blaster for a period of six years. (AB#4744)
17. The Engineer must be present at the first Blast that is of the full magnitude specified in the Control Measures/Blasting Plan. During the course of Blasting, the Blaster must forward to the Engineer all Blast records and the Engineer must review the Blast records and confirm to the Director, if requested, that Blasting is being carried out in accordance with the Control Measures/Blasting Plan, and immediately report any problems, unusual circumstances or inconsistencies to the Director.

MONITORING OF *GROUND VIBRATIONS* (continued)

18. Ground vibrations must not at any structure exceed *the following limits:*

<i>Structure</i>	<i>Vibration Source</i>	<i>Peak Particle Velocity</i>
<i>Modern Buildings</i>	<i>Blasting</i>	<i>See Schedule “G”</i>
<i>Historic Buildings, buildings in poor condition or with vibration sensitive operations</i>	<i>Blasting</i>	<i>13 mm/s</i>
<i>Modern Normal Importance Buildings</i>	<i>Repetitive/ Continuous Vibratory Construction Equipment/ Activity</i>	<i>15 mm/s</i>
<i>Historic Buildings, Older buildings in poor condition, with vibration sensitive operations, or surgical centers</i>	<i>Repetitive/ Continous Vibratory Construction Equipment/ Activity</i>	<i>7 mm/s</i>
<i>Underground Infrastructure</i>	<i>Blasting</i>	<i>Use USBM criteria or otherwise specified by Utility Owner</i>
<i>Underground Infrastructure</i>	<i>Vibratory Construction Equipment</i>	<i>15 mm/s or otherwise specified by Utility Owner</i>

- (1) The Air Overpressure from Blasting should be limited to 125 dB (2) The Blasting plan shall illustrate the location, type of structure, estimated age and potential historical value of buildings within 30 m of the Blast location. An estimate of the PPV, frequency, and air over-pressure at the nearest structure should also be provided
- (2) Vibration construction activities as mentioned previously include, but are not limited to, rock breaker, pile driving, vibratory ground densification, and vibratory compaction of fill soil.
- (3) Other infrastructure such as pipelines and vaults may also require vibration monitoring and reporting in conformance with the infrastructure Owner’s requirements. (AB#4744)

HOURS AND CONDITIONS

- 19.** Blasting may only be done:
- (1) on Monday to Friday, not including holidays, and then only between 8:00 a.m. and 5:00 p.m.;
 - (2) when atmospheric or other conditions permit a clear observation at a radius of not less than 100 metres from the place where the Blasting is to be carried out.

NOTIFICATION

- 20.** The Affected Owners must be notified by the Blaster, in writing, prior to Blasting. The notice must describe the work to be done, the approximate quantity of rock to be removed, the expected date of commencement, the estimated duration of the project, methods to be used to safeguard persons and property, the warning methods to be used to signal an impending Blast, and the name and phone number of the representative of the Blaster or Owner who will provide additional information.
- 21.** The Owner must give the City and the Affected Owners at least 48 hours’ notice of the commencement of any Blasting, and at least one week’s notice of any Blasting expected to continue for more than two days.
- 22.** No Blasting may be done within 300 metres of a School or Hospital until notice as required in Sections 20 and 21 has also been given to the senior administrator of the School or Hospital, as the case may be, and has been provided to the Director. Further notice must be given to the senior administrator, or their designate, at least two hours prior to each actual Blast, stating the approximate time of the Blast.

BLASTING SAFETY

- 23.** The Blaster must ensure a security person (equipped with and trained in the use of warning and signalling devices approved by Worksafe BC) is posted at every location where vehicles or pedestrians might be affected by a Blast. Prior to any Blast, the security person must signal vehicles and pedestrians to prevent them from entering an area which may be affected by the Blast. No Blasting may be done until all persons and vehicles vacate the area affected by the Blast.
- 24.** Prior to a Blast adjacent to a travelled highway, the Blaster must cause an effective warning to be given (in accordance with Worksafe BC regulations) in sufficient time to enable persons or vehicles to move to a safe distance from the area that may be affected by the Blast. When a Blast is completed, the Blaster must cause the area affected by the Blast to be inspected to ensure that it is free of unexploded charges, explosive material and other material which the Blasting has caused to be a danger or potential hazard. When the Blaster’s inspection is completed, the security person must restore normal vehicular and pedestrian traffic as soon as reasonably practicable.

BLASTING SAFETY (continued)

25. While Blasting is being carried on, the Blaster must provide at least one competent assistant and as many additional competent assistants as circumstances may require and cause them to warn and implement all reasonable precautions to safeguard the occupants of buildings who may be affected by the Blast.

POST BLAST REQUIREMENTS

26. The owner must notify, or cause to be notified, the Director and each Affected Owner, in writing, when the Blasting to be carried out under the Permit has been completed.
27. At any time within sixty days after the date of notice given under Section 26, an Affected Owner may give notice to the Owner or the Blaster that the Affected Owner’s property has sustained damage as a consequence of the Blasting. On receipt of such notice, the Owner or the Blaster must conduct a post-Blast survey of the property under the direction of the Engineer. The Affected Owner or an authorized agent must be given notice of and a reasonable opportunity to be present during the post-Blast survey. If the Affected Owner doesn’t permit entry to the property within two weeks of the notice being given, or cooperate in the post-Blast survey, the Affected Owner’s allegation of damage is deemed to be satisfied. The Engineer must complete the post-Blast survey without delay and submit a report of the survey to the Director who must provide copies to the Owner and the Affected Owner.
28. The amount of any loss or damage within the scope of an indemnity under Section 7(3) that remains unpaid to the City six months after the date of the post-Blast survey shall be deemed to be a debt due to the City which may be recovered by the City in the same manner as taxes due on the parcel of land where the Blasting was carried out.

DRILLING

29. No person may drill rock with a pneumatic drill. For certainty, a person may drill rock with a hydraulic drill.

TRUCK TRAFFIC

30. A person shall not drive or operate on a highway in the municipality a motor vehicle that is permanently fitted with special equipment to carry, or is designed to and normally used to carry, a load, whether it operates as a single unit or pulls a trailer, if the load:
- (1) is comprised of rock, sand, gravel or other such material;
 - (2) exceeds one tonne in weight; and
 - (3) did not emanate directly from a mine in respect of which a permit has been issued by the Chief Inspector under the *Mines Act*,
on a Saturday, Sunday or holiday, or at any other time between 5:00 p.m. and 8:00 a.m.

OFFENCE AND PENALTY

- 31.** Every person who violates a provision of this Bylaw, or who consents, allows or permits an act or thing to be done in violation of a provision of this Bylaw, or who neglects to or refrains from doing anything required to be done by a provision of this Bylaw, is guilty of an offence and is liable to the penalties imposed under this Bylaw, and is guilty of a separate offence each day that a violation continues to exist.
- 32.** Every person who commits an offence is liable on summary conviction to a fine not exceeding \$10,000.00 or to imprisonment not exceeding the maximum allowed under the Offence Act, or to both a fine and imprisonment.

SEVERABILITY

- 33.** If a portion of this Bylaw is held invalid by a Court of competent jurisdiction, then the invalid portion must be severed and the remainder of this Bylaw is deemed to have been adopted without the severed section, subsection, paragraph, subparagraph, clause or phrase.

SCHEDULES

- 34.** The following schedules are attached to and form part of this Bylaw:

- Schedule “A” – Application for a Blasting Permit;
- Schedule “B” – Blasting Permit;
- Schedule “C” – Blasting Permit Indemnity;
- Schedule “D” – Insurance Requirements;
- Schedule “E” – Letters of Assurance;
- Schedule “F” – Fee Schedule.
- Schedule “G” – USBM Blasting Study Data (AB#4744)*

Received first reading on the 5th day of June, 2007.

Received second reading on the 5th day of June, 2007.

Received third reading on the 5th day of June, 2007.

Finally passed and adopted on the 7th day of June, 2007.

Amendment Bylaw No. 4744 adopted on the 1st day of October, 2019.

“Clint Hames”

Mayor

“Robert L. Carnegie”

Clerk

“Development Site Preparation Bylaw 2007, No. 3429” – Schedule “A”

Schedule “A” – Application for a Blasting Permit

1. I, _____, of _____
(print full name of owner) (address)
am the registered owner of the following lands (phone no.) _____

(street address)

(legal description)

2. I hereby authorize _____
(print full name of owner’s agent)
of _____,
(company name) (phone no.)

to act as my agent pursuant to “Development Site Preparation Bylaw 2007, No. 3429”
(the “Bylaw”).

3. The purpose of the Blasting is:

- | | |
|------------------------------|----------------------------|
| (1) road and utilities | (4) utility connections |
| (2) house or garage | (5) power pole |
| (3) driveway or parking area | (6) other (describe) _____ |

4. Parking area _____m², width of driveway _____m.

5. Building footprint of house and garage shown on plan for which building permit applied for: _____m² less building footprint of previous house and garage _____m² equals net building footprint _____m².

6. Previous volume of rock removed _____m³. Remaining rock allowed to be removed based on Section 5, above: _____m³.

7. Volume of rock to be removed within footprint of house and garage and above finished floor slabs elevation as certified by BCLS _____m³.

8. Estimated total volume of rock to be Blasted _____m³ (include over-Blast below floor slab surface and outside of foundation walls).

9. Expected date of starting of drilling _____. Estimated duration _____.

10. The fee as required by the Bylaw is enclosed.

11. The following documentation is provided in support of this application:

- (1) A title search conducted within the last 30 days.
- (2) A copy of a valid Blasting certificate issued by Worksafe BC to the Blaster who will undertake the work.
- (3) The indemnity as required by Schedule “C” of the Bylaw, in force from time to time.
- (4) A certificate of insurance as required by Schedule ”D” of the Bylaw, in force from time to time.
- (5) A topographic survey prepared by BCLS or engineer (if required).
- (6) Letters of Assurance in the form of Schedule “E” of the Bylaw, in force from time to time.
- (7) A Control Measures/Blasting plan.
- (8) Pre-Blast survey report (including a plan of the area showing the affected parcels and those parcels requiring notification) prepared in compliance with the Bylaw, in force from time to time.
- (9) A report on noise control as required by the Bylaw, in force from time to time.

12. The above information is certified to be correct:

(owner’s agent signature)

(owner’s signature(s)
or authorized signatory if a corporation)

Schedule”B” – Blasting Permit

This permit authorizes the Blaster referred to in the Blasting Certificate provided in relation to the application to Blast at the Owner’s property referred to in the application for a period of fourteen calendar days from the date of issue in accordance with the provisions of the “Development Site Preparation Bylaw 2007, No. 3429”, in force from time to time, Control Measures/Blasting Plan submitted and the recommendations in the Letter of Assurance filed with the Application.

Changes from the specifications referred to in the application are listed below and are part of this Permit:

Permit Approved: _____ Date of Permit: _____
Director of Engineering

Extension Approved: _____ Date of Extension: _____

Schedule “C” – Blasting Permit Indemnity

Date: _____

To: The Director of Planning and Engineering City of Chilliwack
8550 Young Road South
Chilliwack BC V2P 8A4

Re: _____
Address of Project (print)

Legal Description of Project (print)

The undersigned hereby indemnifies the City of Chilliwack with respect to all actions, causes of actions, claims, demands, costs and expenses (including legal fees) arising from or in any way connected to the activities on the above referenced property for which a Blasting permit is applied for pursuant to “Development Site Preparation Bylaw 2007, No. 3429”, in force from time to time, or any acts or omissions of the Blaster, the undersigned agent or their employees and agents relating thereto.

Owner’s Name (print)

Owner’s signature
(If owner is a corporation the signature of a signing officer must be given here.)

Owner’s Agent signature

(AB#4744)

Schedule “D” – Insurance Requirements

Insurance

The Owner shall provide to the Director of Planning and Engineering with a certificate of insurance to insure damage to persons or property that may be injured by the Blasting. This insurance shall be public liability and property damage insurance with Five Million Dollars (\$5,000,000.00) coverage inclusive for loss or damage in respect of injury or death of any person or persons and/or damage to property from any one accident or occurrence. There shall be no third party deductible for bodily injury or property damage loss and no space warranty clause. The City, the Director of Engineering, any engineer hired as a consultant by the City in relation to a particular application, and the company employing the holder of the Blasting certificate shall be named insureds. Notification will be given by the insurer to the Director of Engineering by registered mail not less than 30 days prior to material change, cancellation or termination of the insurance.

(AB#4744)

Schedule “E” – Letters of Assurance

Confirmation of Commitment by Owner and by Engineer

Re: Verification of Control Measures/Blasting Plan and Monitoring of Blasting by a Registered Professional

To: The Director of Planning and Engineering
City of Chilliwack
8550 Young Road South
Chilliwack BC V2P 8A4

Dear Sir:

Re: _____
Address of Project (print)

Legal Description of Project (print)

The undersigned Owner has retained _____ as an Engineer to review a Control Measures/Blasting Plan and to monitor the Blasting as required by “Development Site Preparation Bylaw 2007, No. 3429” (the “Bylaw”), in force from time to time,

The Owner and the Engineer have read the Bylaw. The Owner and the Engineer acknowledge their responsibility to each to notify the Director of Planning and Engineering if the Engineer ceases to be retained by the Owner either before the date the Engineer ceases to be retained or, if that is not possible, then as soon as possible.

The Owner and the Engineer understand that where the registered professional ceases to be retained at any time during construction, work on the above project will cease until such time as:

- (1) a new registered professional is retained, and
- (2) a new letter in the form set out in Schedule “E” to the Bylaw is filed with the Director of Planning and Engineering.

The Engineer hereby gives assurance that the Control Measures/Blasting Plan reviewed by this registered professional in support of the application for the Blasting permit substantially complies with the Bylaw, in force from time to time, and other applicable enactments respecting safety and meets all reasonable criteria for safety of life and property and will provide the further written assurance required by Section 7.7 of the Bylaw, in force from time to time.

The Engineer hereby undertakes to be responsible for field reviews of the Blasting as required in the Bylaw, in force from time to time.

The Engineer also undertakes to notify the Director of Planning and Engineering in writing as soon as possible if the Engineer’s contract for field review is terminated at any time.

The undersigned Engineer certifies that they are licensed to practice as a professional engineer under the *Engineers and Geoscientists Act* and is specialized in rock mechanics.

Registered Professional

Owner

Registered Professional’s Name (print)

Owner’s Name (print)

Registered Professional’s Signature

Owner’s or Owner’s appointed agent’s signature. (If owner is a corporation the signature of a signing officer must be given here.)

Address (print)

(affix Registered Professional’s Seal here)

(If the Registered Professional is a member of a firm, complete the following:)

I am a member of the firm _____ and I sign this letter on behalf of the firm.
(print name of firm)

(AB#4744)

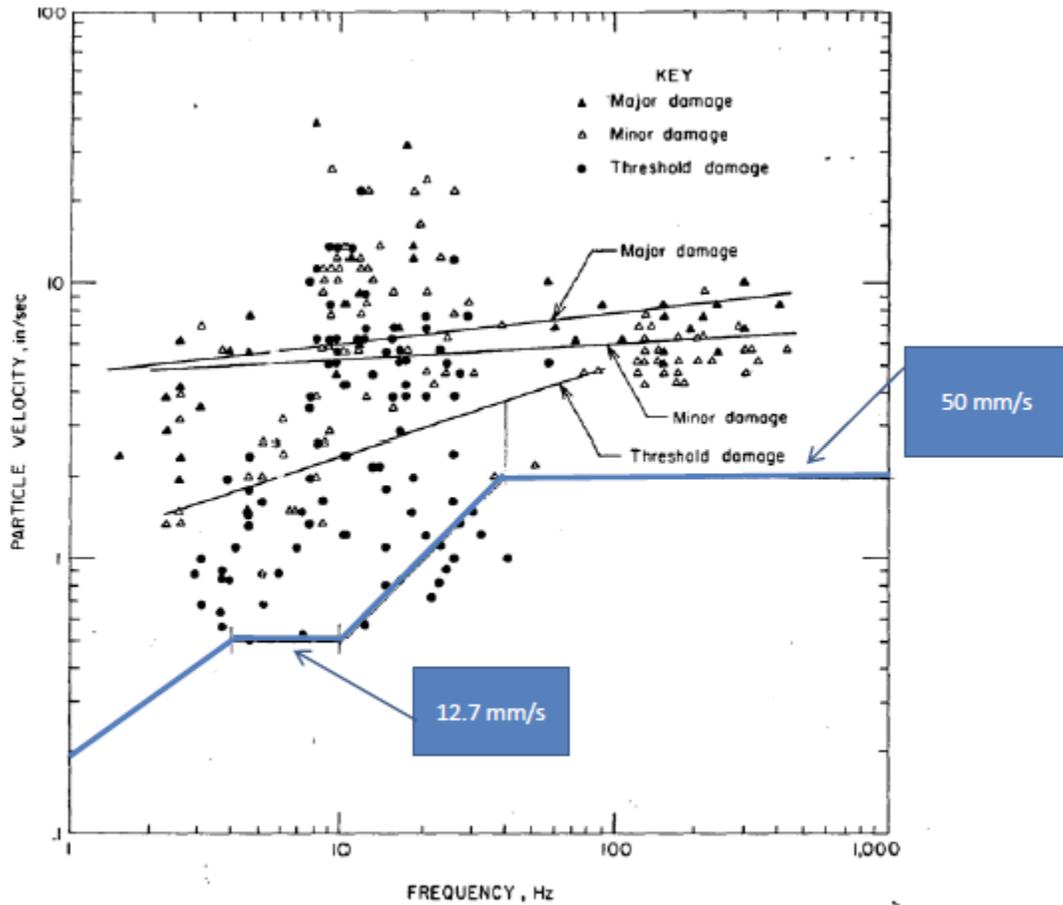
Schedule “F” – Fee Schedule

The fees that apply are as follows:

- (1) for Blasting < 50³ rock and it is not for construction of a building \$100.00
- (2) in all other cases: \$500.00

Schedule “G”

USBM Blasting Study Data Showing Measured PPV and Frequency to Recorded Building Damage



Source: USBM RI 8507, Figure 58

(AB#4744)