

PIT AND QUARRY GUIDELINES



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Approved By: George Fox

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I. DEFINITIONS

Abandonment	means cessation of production of aggregate for a period of 12 months.
Active area	means the area required to operate a pit or quarry. This includes the site "working face" and associated works.
Administrator	means a person appointed by the Minister, and includes an acting administrator.
Aggregate	means all consolidated and unconsolidated material, excluding gypsum, limestone, peat or minerals as defined under the <i>Mineral Resources Act</i> .
Associated works	means any building, structure, processing facility, pollution abatement system or stockpiles of aggregate.
Department	means Nova Scotia Environment and Labour (DEL)
Disturbed area	means any area on a pit or quarry site that has been stripped of vegetation and is susceptible to erosion.
Liquid effluents	means storm run-off, wash water, or any other liquid waste.
Minister	means the Honourable Minister of Environment and Labour for the Province of Nova Scotia.
Pit	means an excavation made for the purpose of removing consolidated rock from the environment without the use of explosive.
Quarry	means an excavation requiring the use of explosives, made for the purpose of removing consolidated rock from the environment.

Originating Division: Environmental Monitoring and Compliance Division
Scope: Guidelines under the *Environment Act*

Rehabilitation	means restorative work performed or to be performed in accordance with the approved rehabilitation plan.
Rehabilitation plan	means a written plan approved the Department to provide for partial or total abandonment of the pit or quarry and may include an initial rehabilitation plan, progressive rehabilitation or a final rehabilitation plan.
Scrap	means all waste material including rejected metal, lumber, and tree stumps.
Watercourse	Means the bed and shore of every river, stream, lake, creek, pond, spring, lagoon, or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not, and all ground water.

II. APPLICATION

1. These guidelines apply to all pit and quarry operations, as defined under Division V Part 2 (e) and (f) of the *Activities Designation Regulations*.
2. Notwithstanding subsection II (1), an approval is not required in relation to:
 - (a) pit and quarry operations where the aggregate is utilized for public purposes by or for the Department of Transportation and Public Works;
 - (b) land being cut for road or highway construction;
 - (c) where the primary purpose of aggregate removal is for development and not for aggregate production.
- (3) With respect to operations noted in II(2)(a) the Department of Transportation and Public Works shall ensure these operations adhere to these guidelines. However, Nova Scotia Environment and Labour will have the final authority on any matter relating to interpretation and enforcement.

III. SEPARATION DISTANCE FOR PIT OPERATIONS

- (1) No person responsible for the operation of a pit shall locate the active area within:
 - (a) 30 m of the boundary of a public or common highway unless the person has consent from the Department of Transportation and Public Works to operate closer;

- (b) 30 m of the bank of any watercourse or ordinary high water mark;
 - (c) 30 m of the boundary of the pit property.
- (2) No person responsible for the operation of a pit shall locate the excavation “working face” of the pit within:
- (a) 30 m of the boundary of a public or common highway unless the person has consent from the Department of Transportation and Public Works;
 - (b) 30 m of the bank of any watercourse or ordinary high water mark;
 - (c) 90 m of the foundation or base of a structure located off site. Structure includes but is not limited to a private home, a cottage, an apartment building, a school, a church, a commercial building or, a treatment facility associated with the treatment of municipal sewage, industrial or landfill effluent, an industrial building or structure, a hospital, and a nursing home, etc.*;
 - (d) 15 m of the property boundary when a structure on the abutting property is not involved.

*** NOTE:** This distance is measured from the working face of the pit to the foundation or base of the structure. This distance can be reduced with written consent from all individuals owning structures within 90 m.

IV. SEPARATION DISTANCE FOR QUARRY OPERATIONS

- (1) No person responsible for the operation of a quarry shall locate the associated works within:
- (a) 30 m of the boundary of a public or common highway unless the person has written consent from the Department of Transportation and Public Works to operate closer;
 - (b) 30 m of the bank of any watercourse or the ordinary high water mark;
 - (c) 30 m of the boundary of the property on which the quarry is located.
- (2) No person responsible for the operation of a quarry shall blast within:
- (a) 30 m of the boundary of the public or common highway unless the person has written consent from the Department of Transportation and Public Works;

- (b) 30 m of the bank of any watercourse or the ordinary high water mark;
- (c) 800 m of the foundation or base of a structure located off site. Structure includes but is not limited to a private home, a cottage, an apartment building, a school, a church, a commercial building, a treatment facility associated with the treatment of municipal sewage, industrial or landfill effluent, an industrial building or structure, a hospital, nursing home etc.*
- (d) 15 m of the property boundary when a structure on the abutting property is not involved.

*** NOTE:** The separation distance is measured from the working face and point of blast to the foundation or base of the structure. This distance can be reduced with written consent from all individuals owning structures within 800 m.

V. LIQUID EFFLUENT DISCHARGE LEVELS

- (1) All storm run-off from the operating site and all liquid effluents resulting from the operation shall be collected and treated to meet the following suspended solids concentrations prior to discharge into a watercourse or beyond the property boundaries:
 - (a) maximum suspended solids concentration in an grab sample - 50 mg/l;
 - (b) maximum arithmetic monthly average suspended solids concentration - 25 mg/l;
- (2) All wash water systems shall be arranged in closed circuit.

VI. SUSPENDED PARTICULATE LEVELS

- (1) If requested by DEL, dust emission and particulate matter shall be monitored at a monitoring point located beyond the property boundary of the pit or quarry and shall not exceed the following limits at or beyond the property boundary:

<u>Parameter</u> Suspended Particulate Matter	<u>Max. Limit</u> 60-70 µg/m ³ annual geometric mean 120 µg/m ³ average concentration over a 24 hour period
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- (2) Suspended Particulate Matter shall be measured by the High Volume Method as described in Report No. E.P.S. 1-AP-73-2.
- (3) Monitoring stations shall be located on the property line of the site being monitored, or at other locations as directed by the Minister, or Administrator.

VII. SOUND LEVEL LIMITS

- (1) The following sound level limits shall be observed at the property boundaries of the pit or quarry:

Leq. Sound Level Limits **

“Night”	“Evening”	“Day”
55 dBA	60 dBA	65dBA
Night:	23:00- 7:00, All Day Sunday and Statutory Holidays	
Evening:	19:00 - 23:00 Hours	
Day:	07:00 - 19:00 Hours	

**** NOTE:** The equivalent sound level is measured in terms of dBA. The equivalent sound level, then, takes into account the major factors influencing the effect of noise on man, magnitude, frequency range and time variation.

- (2) Monitoring stations shall be located on the property line of the site being monitored or at other locations as directed by the Minister or Administrator.

VIII. BLASTING

(1)(a) No person responsible for the operation of a quarry shall permit any blasting on site to exceed the following limits:

Concussion (Air Blast) 128 dBA

Within 7 m of the nearest structure not located on the property where the blasting operations occur, or other locations as directed by the Minister or Administrator.

Ground Vibration 0.5 in./sec.
(12.5 mm/s) Peak Particle Velocity

Measured below grade or less than 1 m above grade in any part of the nearest structure not located on the property where blasting occurs, or other locations as directed by the Minister or Administrator.

(1)(b) No person shall fail to monitor all blasts for the parameters outlined in VIII(1)(a).

(2) Monitoring results shall be forwarded to the Department on a monthly basis unless otherwise indicated.

(3) No blasting shall occur on Sunday, on a statutory holiday prescribed by the Province, or on any day between the hours of 1800 hours and 0800 hours.

(4) Every person responsible for the operation of a quarry shall have a technical blast design prepared by a qualified person which ensures the ground vibration and air concussion outlined in VIII (1) can be achieved.

(5) Every person responsible for the operation of a quarry shall conduct a pre-blast survey of all structures within 800 m of the point of blast. This survey should be conducted with Nova Scotia Environment and Labour's "*Procedure For Conducting a Pre-Blast Survey*".

(6) No blasting is to take place if a thermal inversion is anticipated at the time of the proposed blast.

IX. REHABILITATION

- (1) Every person responsible for the operation of a pit or quarry shall:
 - (a) within six (6) months of receiving an approval submit an interim security in amounts outlined in the section titled Security X (3) and (4);
 - (b) before the expiry of the time period referred to in section X (2) the proponent shall post a final security which shall be calculated using the rehabilitation plan and the factors outlined in section X (5)
 - (c) within twelve (12) months of abandonment of the pit or quarry the site shall be rehabilitated to the satisfaction of the Department and in accordance with an approved rehabilitation plan.

X. SECURITY

- (1) Every person responsible for the operation of a pit or quarry shall post a security in accordance with the provision of Section 13 of the *Approvals Procedure Regulation* and Section 57 of the *Environment Act*.
- (2) The Proponent shall post an interim security in the amounts noted in section (3) and (4) until a final calculation referred to in section (5) is calculated. The interim security shall not exceed one (1) year unless otherwise agreed upon in writing by the Administrator.
- (3) The amount of security for a pit shall be \$6250/ha (\$2500/acre) of disturbed area.
- (4) The amount of security for a quarry shall be \$6250/ha (\$2500/acre).
- (5) Before the expiry of the interim security, the Proponent shall submit a rehabilitation plan. This rehabilitation plan shall include the estimated total cost for labour, equipment, supplies and services to undertake the following activities:
 - (a) surface contouring;
 - (b) establishing proper drainage;
 - (c) revegetation work;
 - (d) any work necessary to reclaim the pit or quarry.

XI. PROTECTION OF GROUNDWATER RESOURCES

Prior to any excavation below the watertable a hydrological study will be required and approval must be obtained from the Minister or Administrator.

DATED at Halifax, Nova Scotia, this 4th day of May, 1999.

original signed by
George Fox
Deputy Minister