



Bamberton Quarry

Blasting Program

Date Revised: March 30, 2019

TABLE OF CONTENTS

1.0 Introduction	Page 3
2.0 Blasting Conditions	Page 3
2.1 General	Page 3
2.2 Ministry of Mines Site Specific Conditions	Page 4
3.0 Rock Blasting (Section 4.6 from CMR Health and Safety Program)	Page 4
3.1 General	Page 4
3.2 Hazards	Page 4
3.3 PPE Required.....	Page 5
3.4 Definitions	Page 5
4.0 Blasting Documents	Page 6
4.1 Typical Blasting Notification	Page 6
4.2 Typical Record of Notification (Contact List)	Page 7
4.3 Typical Blast Design Log	Page 8

1.0 INTRODUCTION

This Blasting Program document outlines the blast planning and procedures for conducting blasting operations at the Bamberton Quarry.

Blasting is frequently conducted within several working areas of the Bamberton Quarry. Each blast is different and requires specific planning for each blast.

The Bamberton Quarry was originally started as a limestone quarry in 1912. It has been operational, with some extended periods of closure, up to the present. It has been operating continuously as an aggregate quarry since 2014. During this lengthy period of time, several unidentified access points have been developed to extract the resources from the site. Personnel in charge of blasting operations must be aware of these various access points to properly guard against inadvertent entry during blasting operations.

All personnel involved in the blasting operations should be familiar with this document to ensure the safety of themselves, other personnel on site and the equipment and structures in close proximity to the blast.

2.0 BLASTING CONDITIONS

2.1 General

Blasting is targeted to average 2 to 3 times in a month producing approximately 40,000 tonnes per month. This is an increase from the current 1 to 2 blasts per month (March 2019) where approximately 20,000 tonnes of blasted rock was produced.

Drilling and blasting is currently contracted out and no explosives are stored on site. The blasting contractor will be responsible for transporting the explosives to site.

All blasts will be conducted under the guidance of a personnel certified with the BC Ministry of Energy and Mines. This is a person with a valid certificate granted under Section 8.2.1 of the Code.

2.2 Ministry of Mines Site Specific Conditions

Blasting activities shall not be undertaken during the Nesting Period of birds protected under section 34(b) of the Wildlife Act.

All blasts shall be electronically monitored and the records shall be maintained at the Mine Office and

- a. These records shall be made available to an Inspector on request.
- b. Blast limits shall not exceed 120 Db on the “L” scale and 50mm/sec (2in/sec) PPV.
- c. Residences within a radius of 1000 metres shall be provided with 24 hours notification of blasting. This notification will specify a 4 hour window within which the blast will occur.

3.0 ROCK BLASTING (SECTION 4.6 FROM CMR OCCUPATIONAL HEALTH AND SAFETY PROGRAM)

3.1 General

Rock blasting is the controlled use of explosives and other methods such as gas pressure blasting pyrotechnics or plasma processes, to excavate, break down or remove rock. It is practiced most often in mining, quarrying and civil engineering such as dam or road construction. There are many aspects of this process that can pose serious injury or death to workers or the public.

Supervisors and employees of Coast Mountain Resources Ltd. should be familiar with blasting operations to ensure safety on all jobsites where blasting occurs.

3.2 Hazards

- Noise
- Mobile Equipment
- Steep uneven ground
- Explosive devices
- Flammable materials
- Dust

- Flying rock

3.3 PPE Required

- Hard hats
- Hi-vis vests
- Hearing protection
- Steel toed work boots
- Dust protection

3.4 Definitions

"Blaster"	means a person who is the holder of a valid blaster's certificate issued by the Board or acceptable to the Board.
"Blasting area"	means an area extending at least 50 m in every direction from a place where explosive materials are being prepared or fixed, or where an unexploded charge is known to exist.
"Blasting log"	means a written record of loading details, and site examination after the blast.
"Magazine"	means a structure used for the unattended storage of either detonators or explosives, which meets the regulations and standards of the explosives act.
"Misfire"	means a charge or part of a charge which, on initiation, failed or to complete detonation or function, a dangerous condition.
"Primer"	means an explosive to which a detonator or other initiating devise has been attached.
"Stemming"	means placing inert material in the portion between the top of the explosive column and the collar of the blast hole, intended to confine the explosive gases for an effective blast. Pea gravel is often used for this.

4.0 BLASTING DOCUMENTS

4.1 Typical Blasting Notification



BLASTING NOTIFICATION

COAST MOUNTAIN RESOURCES WILL BE CONDUCTING A
BLAST FOR ITS QUARRY OPERATIONS.

YOU'RE REQUIRED TO NOTIFY ALL YOUR EMPLOYEES/
CONTRACTORS OF THE UPCOMING BLAST.

BLASTING WILL COMMENCE ON
FRIDAY MARCH 8TH, 2019
BETWEEN 10:00 AM AND 1:00 PM

AND WILL BE CONDUCTED IN THE UPPER QUARRY AREA
IF YOU HAVE ANY QUESTIONS OR CONCERNS, FEEL FREE TO
CONTACT US:

JACKLYN KWIATKOWSKI (SCALES ADMINISTRATION/OFFICE)

778-356-4056

RICK HANNAH (MANAGING PARTNER/SHIFT BOSS)


250-883-3645

4.2 Typical Record of Notification (Contact List)

BLASTING NOTIFICATION CONTACT LIST

Contacts	Date Sent Out	Emailed	Phoned	In Person
Rene/MICO rene@malahatinvestment.ca 250-743-3737 250-618-7288	Mar 7, 19	✓	✓	
Alan/MICO alan@malahatinvestment.ca	Mar 7, 19	✓		
Heavy Metal brian@heavymetalmarine.com 250-883-0693	Mar 7, 19	✓		
Lehigh Cement Ltd dgarnett@lehighcement.com 250-480-9126	Mar 7, 19	✓		
Ruskin Construction gbrown@rcl.bz 250-360-0672 jcaulfield@rcl.bz	Mar 7, 19	✓		
Kinsol Timber Systems info@kinsoltimber.com 250-588-8770 jeff@kinsoltimber.com	Mar 7, 19	✓		
PM Technical pmunzar@shaw.ca 250-818-4579	Mar 7, 19	✓		
Ian Davis (Caretaker) 250-732-3581	Mar 7, 19		✓	
Bob and Char Roth 250-732-0519	Mar 7, 19		✓	

4.3 Typical Blast Design Log (sheet 1 of 2)



LITTLE ROCK
DRILLING & BLASTING LTD.

111111

Blast Design Log


Home: 250-365-3666
Cell: 250-365-0633
Fax: 250-365-7714

940 Waterloo Crescent
Castlegar, BC V1N 4M3
littlerockdrilling@shaw.ca

DATE (YYYY-MM-DD) **March 8 / 19** Time (hours) **0940 ±** a.m. p.m. Blast number **1**


Blast location Bamberton Quarry		Type of material medium	
Number of rows 4	Number of holes 17	Drilling pattern (specify metres or feet)	Burden 10' Spacing 10'
Depth of holes (specify metres or feet) AV 14m		Diameter of holes (specify millimetres or inches) 5"	
Maximum number of holes per delay 1		Maximum explosives weight (specify kg or lbs) (delay of 8 ms or greater) 112 Kg	
Number of decks per hole 1		Deck separation (specify metres or feet) NA	
Stemming (specify metres or feet) 10		Stemming material local	
Total weight of explosives (kg or lbs) 1645 Kg	Overall rock volume (m ³ or yd ³) 2,411.2 m³	Powder factor (kg/m ³ or lb/yd ³) 0.68 m³/Kg	

Explosives		Detonator assemblies											
Known name	Qty	Dual delay	Length	Qty	In-hole delay	Length	Qty	Surface delay	Length	Qty	Electric or electronic	Length	Qty
Anastomite	45	25/500	12m	16				42ms	20	4			
Redapure	32	✓	15m	16									
WR	17												
3" Hydramite	33 st												

Weather: <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Clear <input type="checkbox"/> Snow pt	Wind direction 15 	Wind speed (specify km/h or mph) 5 kph
Cover protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type and size NA	Blasting mats total used NA

Seismograph monitoring location No Reading taken		Calibrated? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No NA	Type of initiation system tube
1. Seismic data NA		2. Seismic data NA	

Distance to closest structure 250m	Description of closest structure office trailers	Electric cap and circuit test? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No NA
Name of blaster of record (please print) Don DAEM		

Helpers Terry St. Thomas		3. Roger Condy
JASON BAILEY		4.
Signature (blaster of record) 		

Sheet 2 of 2 of Blast Design Log

Blast Design Log

Blast #1

Sketch of shot/layout
Show direction of the north, distance to nearest structure (metres/feet), and timing

North ↗

Check off what you use

Type A

- Overburden
- Rock
- Stemming
- Main charge
- Primer
- Spacers/Decking
- Main charge
- Primer
- Sub-drilling

Type B

Stop

- 10'
- Overburden
- Rock
- Stemming
- Main charge
- Primer
- Spacers/Decking
- Main charge
- Primer
- Sub-drilling

WA II

Facing 7

Post blast

Overhang hazards? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Cutoffs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks