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JUN 3 1 2019

McCALLUM ROCK DRILLING

mccallumrock.com

CUSTOMER NAME:	Eastside Rock Products	Date	24	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT.	DIR.	WEATHER:	Cloudy
LOCATION/CITY:	Fall City	MONTH:	May	LOCATION/ADDRESS:	Station 1		TEMPERATURE/°F:	Mild
LOCATION/STATE:	Washington	YEAR:	2019	METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	East
BLAST LOCATION:	Top Bench			G.P.S. LOCATION (STATION/STRUCTURE):	N47.54892 W121.90838			
QUARRY/PIT ID.:	Raging River Quarry	TIME:	3:32	G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	8'		WIND SPEED:	Light
BLAST NO.:	N/A			G.P.S. LOCATION (BLAST ZONE):	47°32'49.78"N 121°54'21.78"W			
JOB NO. :	3254	AM/PM:	PM	G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	8'		CEILING LEVEL	Medium

	1	2	3	4		1	2	3	4
TYPE OF HOLES:	Vertical (production)	Vertical (production)			BURDEN/FT. :	9'	9'		
NO. OF HOLES:	12	24			SPACING/FT. :	9'	10'		
HOLE DIAMETER/ IN. :	3.5"	3.5"			SUBDRILL/FT. :	0'	0'		
HOLE DEPTH/RANGE/AVG.FT. :	34' / 34'	46'-47' / 46'			MATERIAL BLASTED:	basalt	basalt		
STEMMING LENGTH/RANGE/AVG./FT. :	10'-13' / 10'	9'-41' / 9'			STEMMING TYPE:	5/8"minus	5/8"minus		

EXPLOSIVES COMPANY USED:	McCallum Powder
DECKING:	NO
BLASTING MACHINE USED:	R.C.B.M.
METHOD OF FIRING:	NONEL
BLASTING MATS USED:	NO
QUANTITY OF BLASTING MATS USED:	N/A
MAX. NO. OF HOLES/DECK PER 8 MS :	2
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	130
MAX. WT. OF EXPLOSIVES PER ANY 8 MS INTERVAL :	260
GROUND RESPONSE(K) FACTOR:	60
PREDICTED P.P.V.:	0.17
SCALED DISTANCE :	50.61

	EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
1	AUSTINITE 15	BAG(S)	50	2500.000	DUAL DELAY	50	12
2	AUSTINITE 15 WR	BAG(S)	10	500.000	DUAL DELAY	60	24
3	BLACK CAP BOOSTER	350 G	30	22.500	IN - HOLE	16	24
4	RED-E-PRIME	1 1/4 X 8	30	12.600	QRC #42	20	10
5	HYDROMITE 880	2 1/2 X16	51	169.830			
6	QUICKSTART	500' ROLL	2	0.594			
7							
8							
9							
10							

TOTAL EXPLOSIVES USED/LBS.:	3,205.524
TOTAL VOLUME/CUBIC YARDS :	4,934.0
ROCK DENSITY/SPECIFIC GRAVITY :	1.50
TOTAL WEIGHT/TONS :	7,401
POWDER FACTOR/LBS./CUBIC YARDS:	0.65
POWDER FACTOR/LBS./TON:	0.43

TOTAL NO. OF DETONATORS USED:	70
SHOT RESULTS	
FRAGMENTATION:	MEDIUM
MUCK PILE CONFIGURATION:	SLOPED
FLYROCK:	NO
ALL HOLES DETONATED:	YES

BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.
Tyler Hallett	EXUS00021692	YES						
Daniel Ford		N/A						
Ethan Gillaspie		N/A						
Caleb Corona		N/A						
Jake Young		N/A						

SEISMOGRAPH TYPE:	INSTANTEL & WHITE
NO. OF SEISMOGRAPHS USED :	4
SEISMOGRAPH OPERATOR(S):	Tyler Hallett
COMPANY:	McCALLUM ROCK DRILLING

LOCATION OF SETUP:	Station 1
DISTANCE FROM BLAST/FT.:	816
IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
SIGNATURE OF BLASTER IN CHARGE	Tyler_Hallett

COMMENTS: Looked great. Shot time was 3:32PM

CUSTOMER NAME: Eastside Rock Products

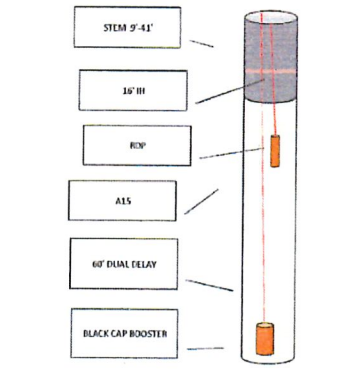
LOCATION/CITY: Fall City

BLAST LOCATION: Top Bench

JOB NAME/#: Raging River Quarry 3254

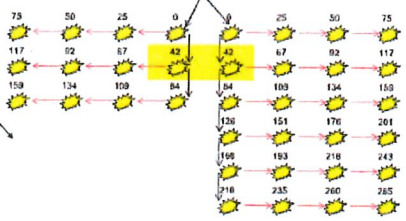
DATE: 5/24/2019

HOLE PROFILE



47°32'49.78"N
121°54'21.78"W

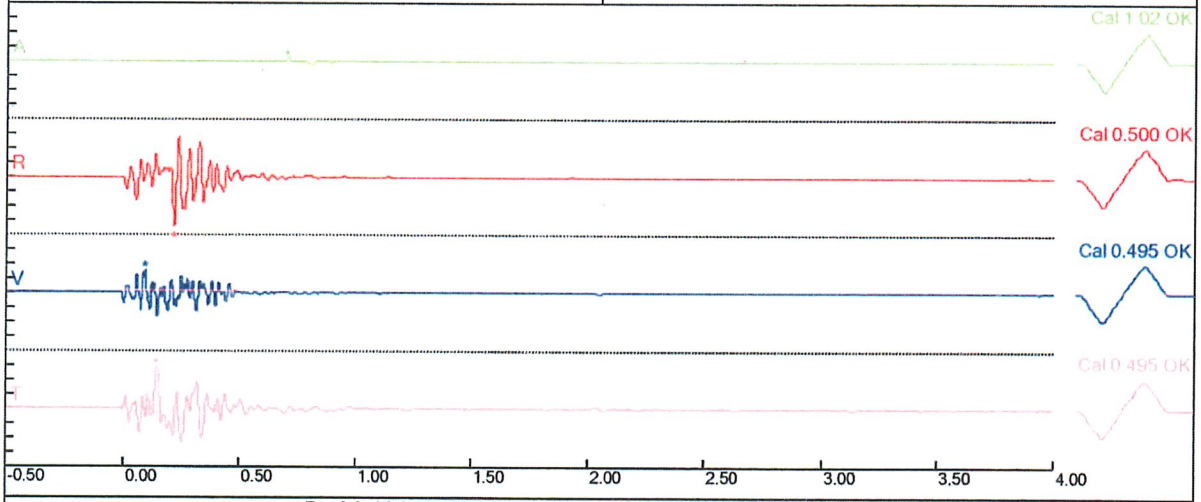
INITIATION POINT



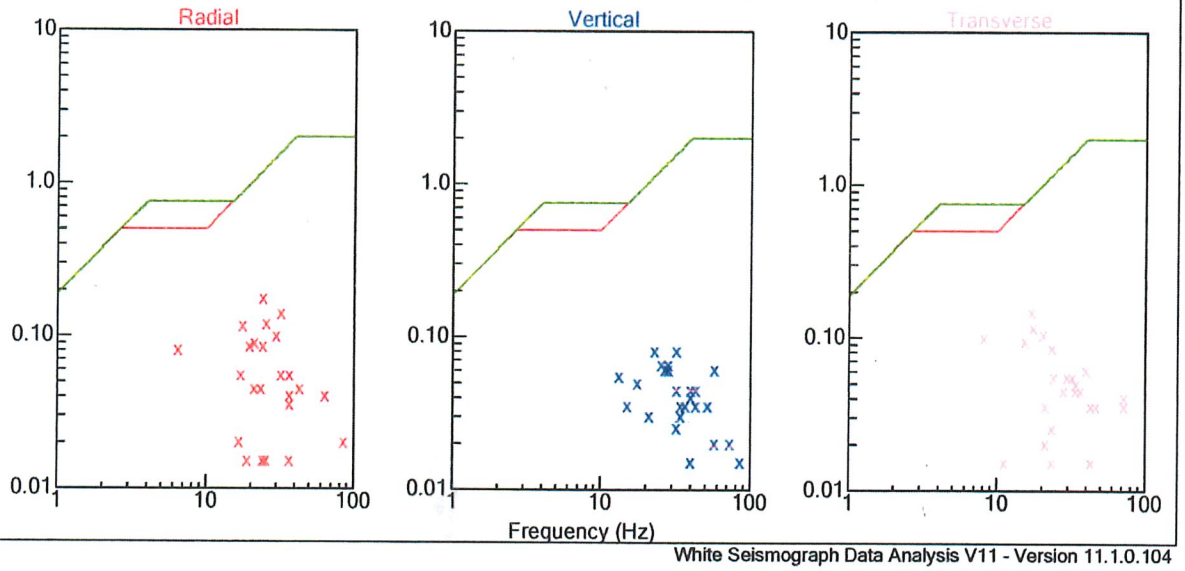
Eastside Rock Products (Raging River Top Bench)
47°32'49.78"N 121°54'21.78"W
Seismograph located at Station 1
N47.54892 W121.90838
816' from blast location.
Actual shot time 3:32PM

File: 6307201905241433172.dtb
Number: 172
Date and Time: 5/24/2019 2:33:00 PM
SN: 6307
Seismic Trigger: 0.0300 in/sec
Air Trigger: 112 dBL
Sample Rate: 1024
Duration: 4 Seconds
Pre-Trigger: 0.5 Second
Seismic Range: 2.50 in/s
Acoustic Range: 142 dBL
Gain: 2.0x
Voltage: 6.50

Peaks and Frequencies	Graph Information
PPV Maximum: 0.175 in/sec (0.2168 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 100 dBL @ 0.0 Hz (0.6992 sec)	Acoustic Scale: 126 dBL
Radial: 0.175 in/sec @ 24.3 Hz (0.2168 sec)	Seismic Scale: 0.200 in/sec (0.0500 in/sec/div)
Vertical: 0.0800 in/sec @ 23.2 Hz (0.0947 sec)	Time Intervals: 0.50 sec
Transverse: 0.145 in/sec @ 17.0 Hz (0.1445 sec)	
Last Calibration Date: 4/17/2018	



Particle Velocity Versus Frequency - USBM Limits (RI 8507, 1980)

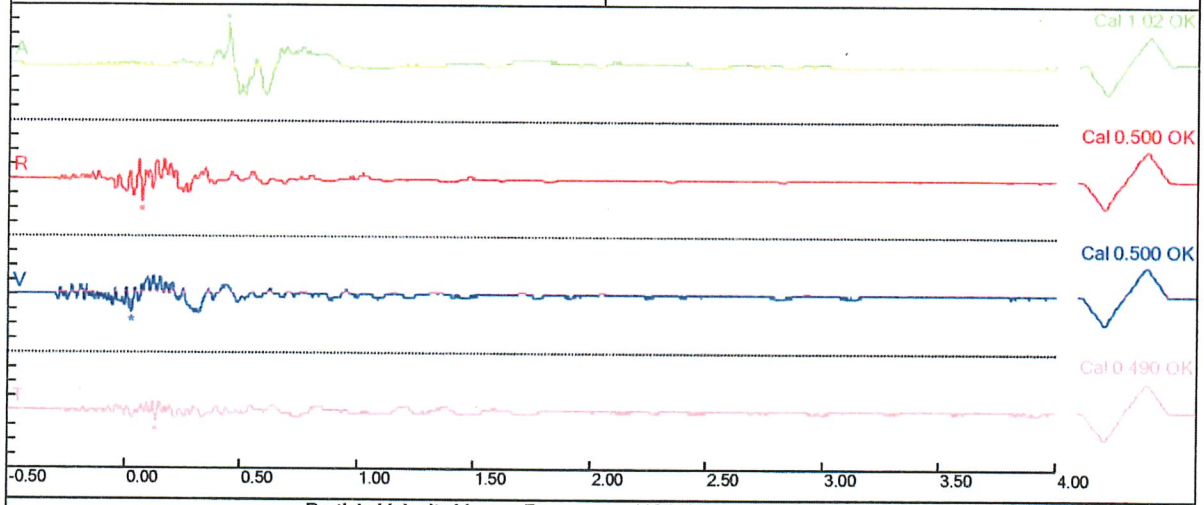


White Seismograph Data Analysis V11 - Version 11.1.0.104

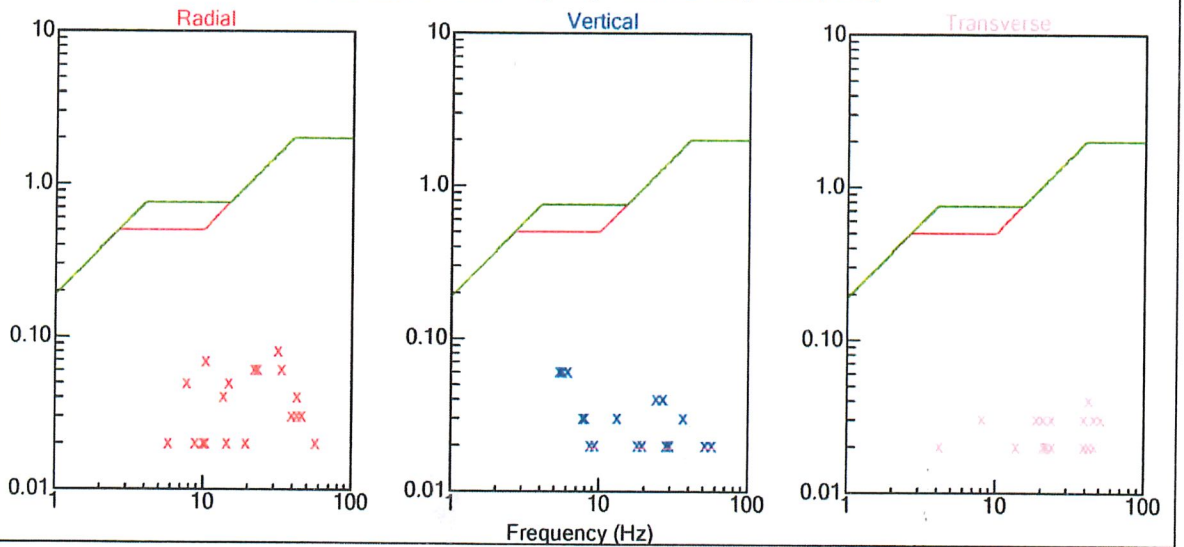
Eastside Rock Products (Raging River Top Bench)
47°32'49.78"N 121°54'21.78"W
Seismograph located at Station 2
N47.54663 W121.90302
753ft from blast location.

File: 6309201905241532286.dtb
Number: 286
Date and Time: 5/24/2019 3:32:00 PM
SN: 6309
Seismic Trigger: 0.0500 in/sec
Air Trigger: 130 dBL
Sample Rate: 1024
Duration: 4 Seconds
Pre-Trigger: 0.5 Second
Seismic Range: 5.00 in/s
Acoustic Range: 142 dBL
Gain: 2.0x
Voltage: 6.60

Peaks and Frequencies	Graph Information
PPV Maximum: 0.0800 in/sec (0.0723 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 123 dBL @ 12.4 Hz (0.4414 sec)	Acoustic Scale: 126 dBL
Radial: 0.0800 in/sec @ 32.0 Hz (0.0723 sec)	Seismic Scale: 0.200 in/sec (0.0500 in/sec/div)
Vertical: 0.0600 in/sec @ 6.2 Hz (0.0264 sec)	Time Intervals: 0.50 sec
Transverse: 0.0400 in/sec @ 42.6 Hz (0.1348 sec)	
Last Calibration Date: 4/17/2018	



Particle Velocity Versus Frequency - USBM Limits (RI 8507, 1980)

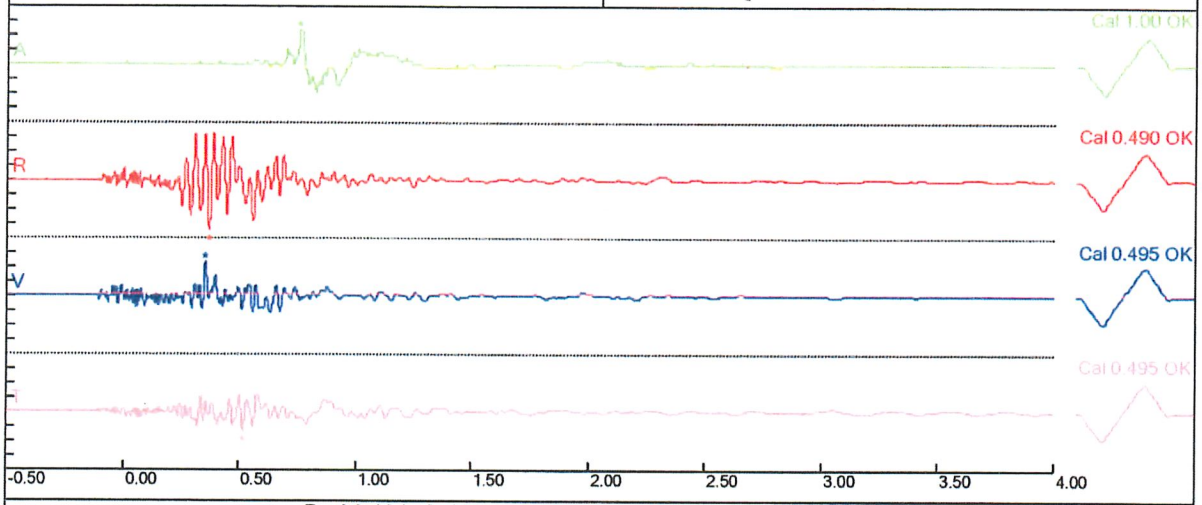


White Seismograph Data Analysis V11 - Version 11.1.0.104

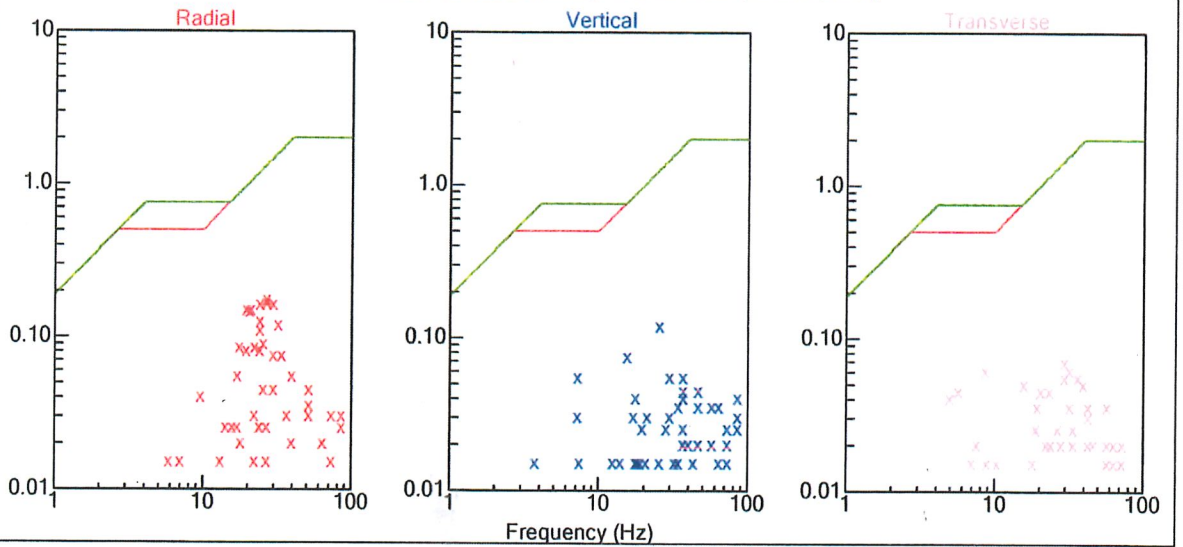
Eastside Rock Products (Raging River Top Bench)
47°32'49.78"N 121°54'21.78"W
Seismograph located at Station 4
N47.54743 W121.90209
976ft from blast location.

File: 63082019052415340O9.dtb
Number: 009
Date and Time: 5/24/2019 3:34:00 PM
SN: 6308
Seismic Trigger: 0.0400 in/sec
Air Trigger: 142 dBL
Sample Rate: 1024
Duration: 4 Seconds
Pre-Trigger: 0.5 Second
Seismic Range: 2.50 in/s
Acoustic Range: 142 dBL
Gain: 2.0x
Voltage: 6.50

Peaks and Frequencies	Graph Information
PPV Maximum: 0.175 in/sec (0.3672 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 122 dBL @ 12.1 Hz (0.7549 sec)	Acoustic Scale: 126 dBL
Radial: 0.175 in/sec @ 26.9 Hz (0.3672 sec)	Seismic Scale: 0.200 in/sec (0.0500 in/sec/div)
Vertical: 0.120 in/sec @ 25.6 Hz (0.3516 sec)	Time Intervals: 0.50 sec
Transverse: 0.0700 in/sec @ 30.1 Hz (0.5195 sec)	
Last Calibration Date: 4/17/2018	



Particle Velocity Versus Frequency - USBM Limits (RI 8507, 1980)



White Seismograph Data Analysis V11 - Version 11.1.0.104

Event Report

Date/Time	Vert at 3:35:05 PM May 24, 2019
Trigger Source	Geo: 0.030 in/s, Mic: 117.0 dB(L)
Range	Geo: 10.000 in/s
Record Time	5.0 sec at 1024 sps

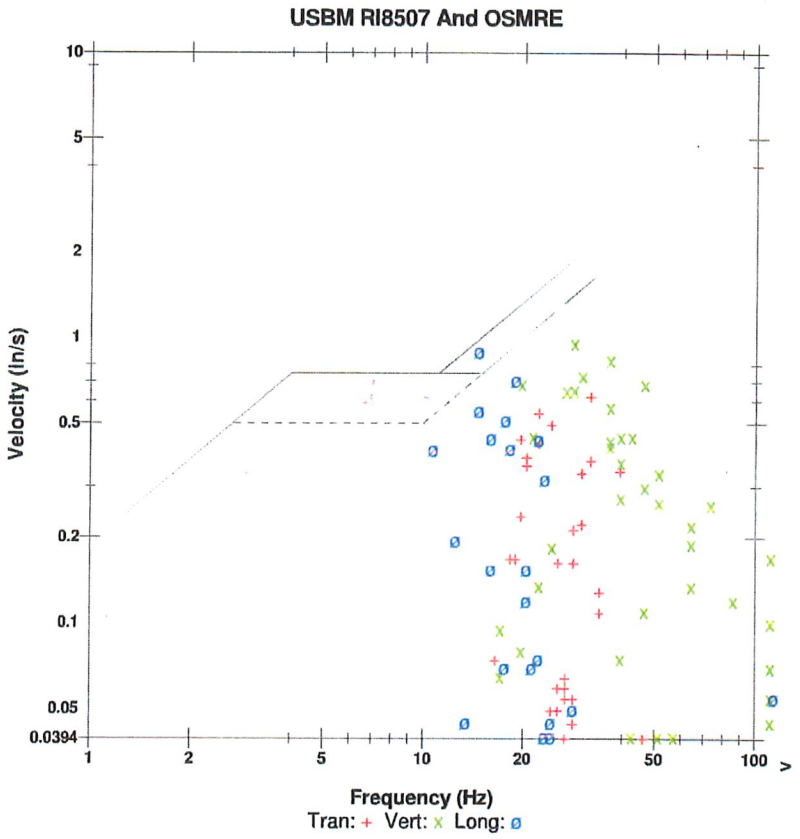
Notes

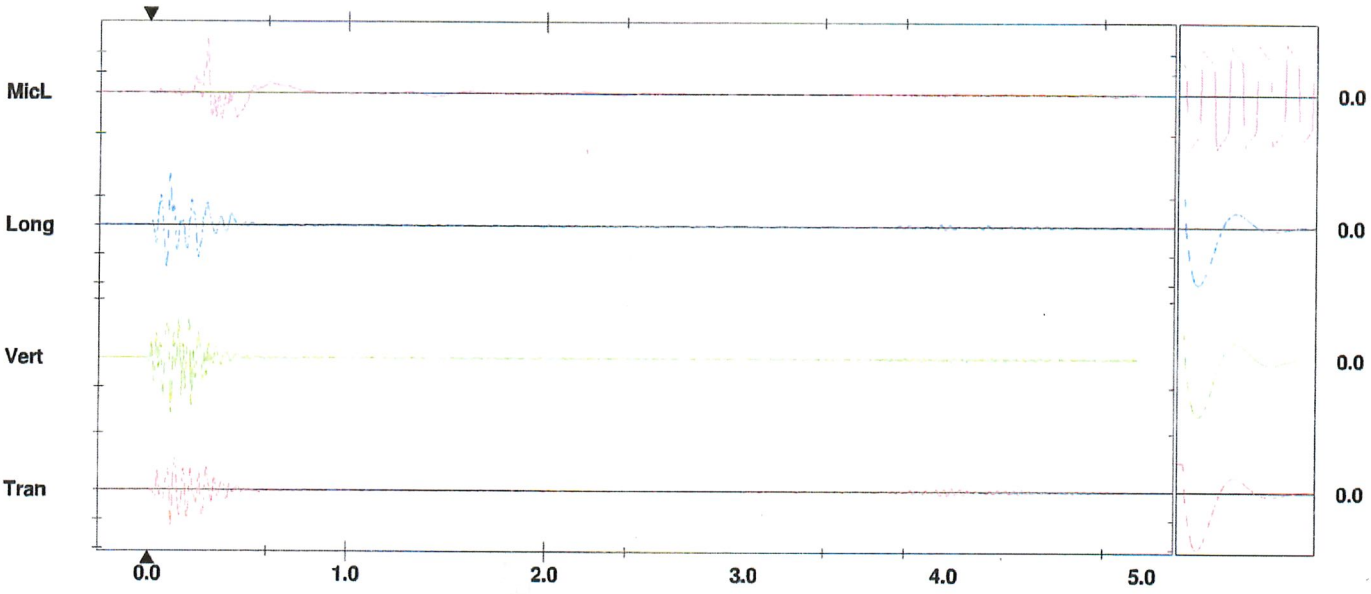
Serial Number	BE16478 V 10.72-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	March 11, 2019 by Instantel
File Name	__TEMP.EVT

Post Event Notes
Eastside Rock Products
Station 5. N47.54681 W-121.90504
Shot location 47°32'49.78" N 121°54'21.78"W
276' from blast

Microphone	Linear Weighting
PSPL	133.5 dB(L) 0.014 psi(L) at 0.290 sec
ZC Freq	14 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 633 mv)

	Tran	Vert	Long	
PPV	0.630	0.955	0.895	in/s
PPV	46.99	50.60	50.04	dB
ZC Freq	32	28	15	Hz
Time (Rel. to Trig)	0.119	0.116	0.106	sec
Peak Acceleration	0.305	0.557	0.477	g
Peak Displacement	0.004	0.006	0.007	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.8	7.8	7.7	Hz
Overswing Ratio	3.8	3.4	4.0	



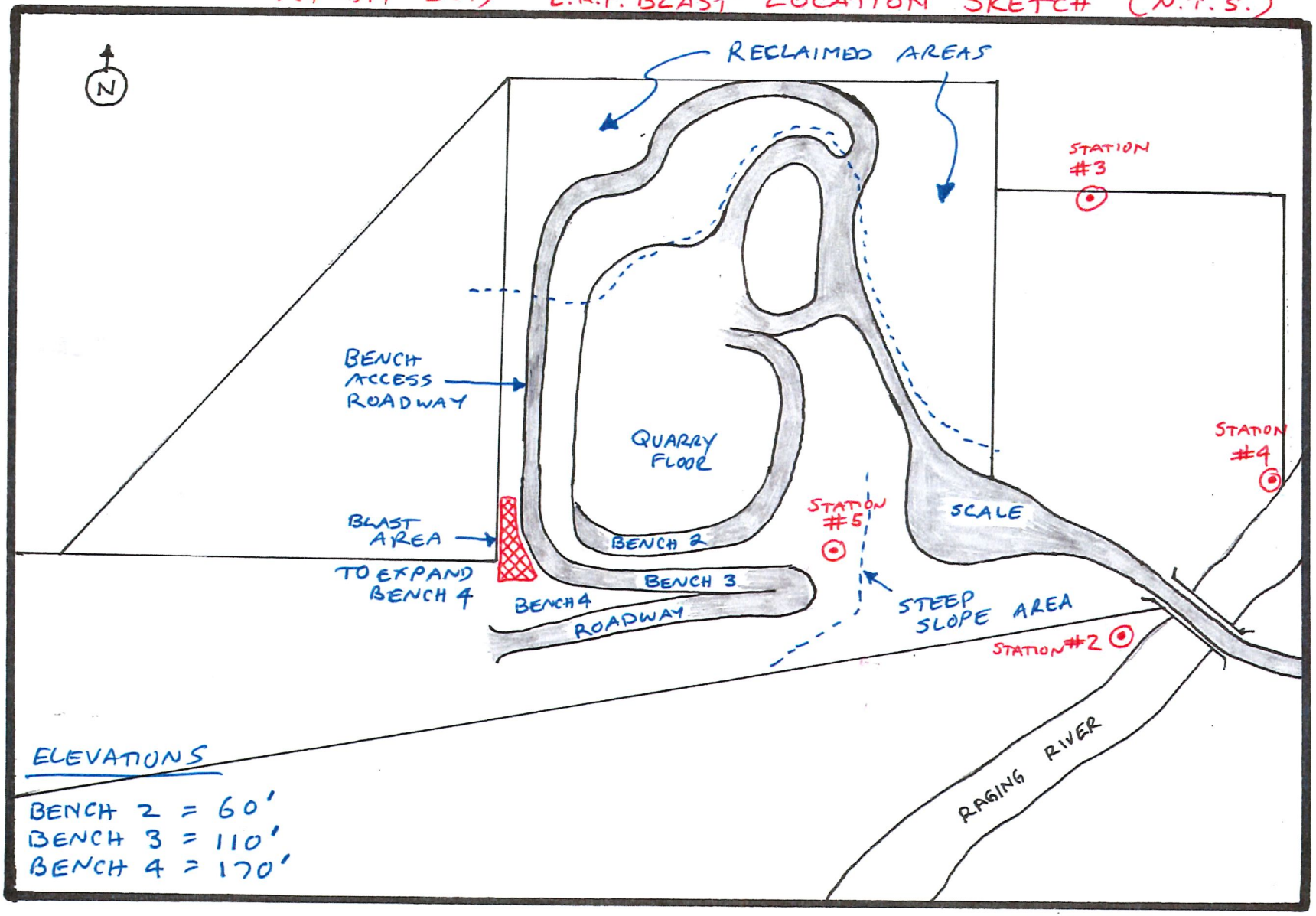


Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 in/s/div Mic: 0.005 psi(L)/div
Trigger = ▶ ◀

Sensor Check

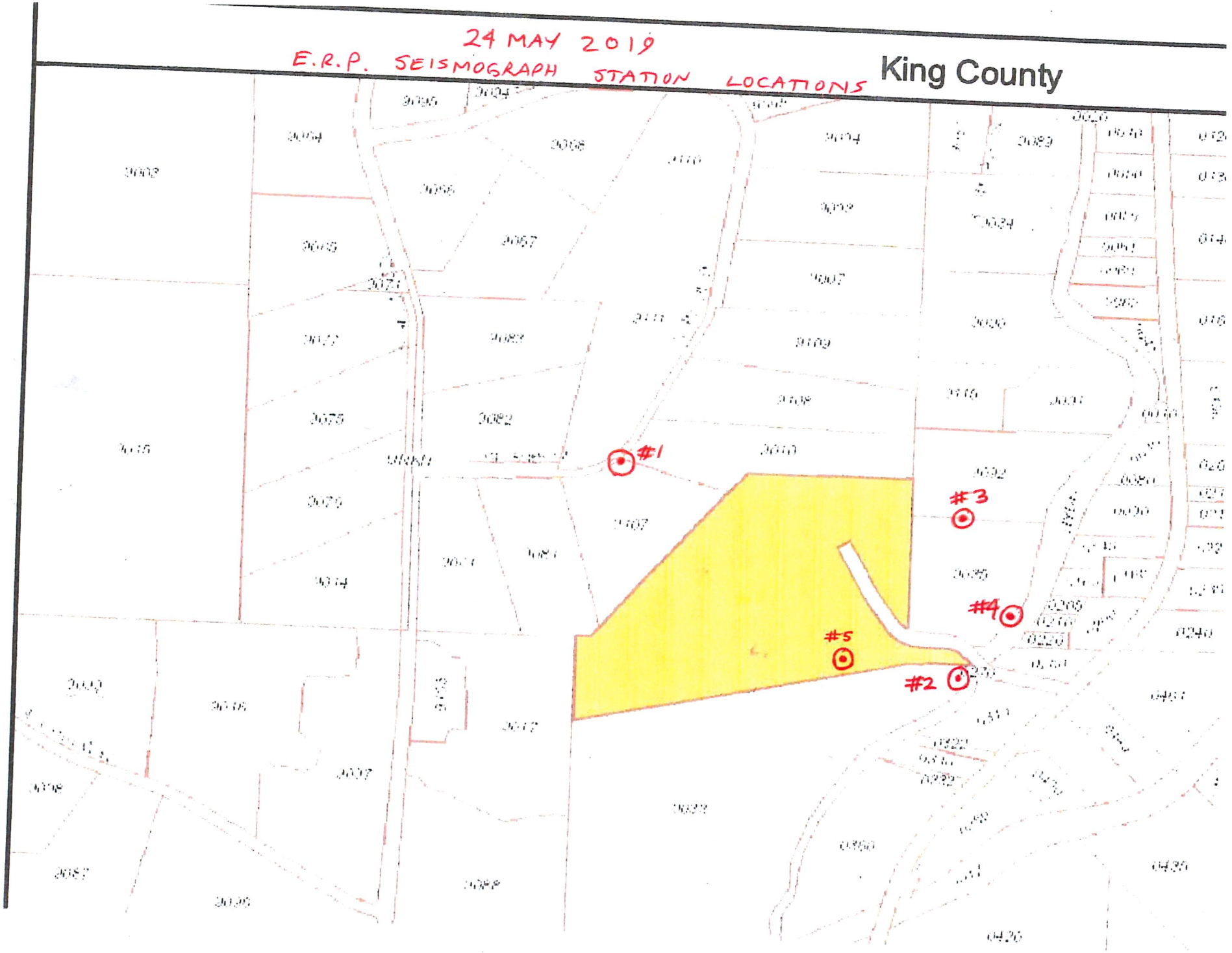
Printed: May 31, 2019 (V 10.72 - 10.72)

24 MAY 2019 E.R.P. BLAST LOCATION SKETCH (N.T.S.)



24 MAY 2019

E.R.P. SEISMOGRAPH STATION LOCATIONS



Barto, Joe

From: Ian Mooney <ian@eastsiderock.com>
Sent: Friday, July 12, 2019 9:14 AM
To: Barto, Joe
Cc: jcpmka@msn.com
Subject: May 24 Blast Report

Joe,

Please see attached report from our last blast at the quarry:

1) There were only 4 seismographs available on blast day - we omitted Station 3 at the end of the cul-de-sac in order to monitor (temporary) Station 5. There is consistent and predictable data from Station 3 for the past several years, and Stations 2 and 4 continue to monitor the same general area.
2) The area blasted is identified on the attached sketch, along with nominal bench elevations.

Ian Mooney
Quarry Manager – Eastside Rock Products
425-394-6699
ian@eastsiderock.com