ems
environmental monitoring services

Pimlico Flats, no. 5,
Triq Viani,
Sliema, MALTA

Mob: +356 9944 5767
Email: tcini@yahoo.com

BLAST MONITORING REPORT

HM33 Hard Stone Quarry at Ta' Bellula, l/o Siġġiewi

4th March 2012

Details

Date	04-03-2012
Quarry number	HM33 – Hard Stone Quarry at Ta' Bellula, Għar Lapsi, l/o Siġġiewi
Quarry operator	Polidano Bros. Ltd.
ANFO Supplier	Framegrip Ltd
Police escort	PC 1277 – H Spiteri

Location and time of blasting

Three blasts were carried out all at 10:06 at approximately the points as indicated on the attached site diagram.

Summary of blasting conditions

Maximum charge per delay: 25 Kg

Vibration limits: 4 mm/s (20 to 40Hz) at the nearest sensitive point within 200m

Air overpressure limit: 120 dB (L)

Site Specific Permit

All holes were within quarry boundaries and within maximum depth.

Maximum charge per delay of 25 Kg was not exceeded.

Weather Conditions

Humidity [1]	Wind [1]	Temp. [1]	Atm. Pressure	Cloud Cover [2]
80%	6 Knots, SW	14 C	1020 hPa	50% high cloud

[1] As reported by weather.maltairport.com on 4 march 2013 at 09:15 at Luqa Airport [2] Our observation

Comments

All holes are at the middle shelf of the quarry.

The three blasts were organised as one group and detonated by means of five short-circuit exploders in very quick sequence and captured as one event by our seismograph.

Anthony Cini Digitally signed by

Notes

Seismograph was placed in front of the nearest residential area marked as "Ta' Skallec" (or E. Scicluna) on the way down to Għar Lapsi Bay.

Seismograph was set to trigger at 0.50 mm/s. Seismograph used is a MiniMate+ serial number BE9488.

Readings

Blast number	1	2	3
Time	10:06		
No. of holes	14	14	11
No. of delays	14	14	11
Depth of holes (m)	10.5	10.5	10.5
Max. Charge per delay (kg)	25	25	25
Total charge (kg)	350	350	350
Dist. from seismograph (m)	330	330	330
PPV (mm/s)	2.11		
Frequency (Hz)	14.3		
Air Overpressure (dB)	115.0		
Scaled Distance (m $kg^{-1/2}$)	66.0	66.0	66.0

Burden is an average of 2 metres, and distance between bore-holes is an average of 2.5 metres.

Weights in kilograms are rounded-up to the nearest unit, and depth in metres is rounded to the nearest ½ unit. Displacement between holes and the seismograph is measured using the online version of MEPA's Map Server and is accurate to the nearest 10 metres. Number of holes, their depth, burden, and the amount of ANFO used are as given by the quarry operator. Scaled distance and maximum charge per delay are calculated from the primary data. Weights are rounded-up to the nearest kilogram and the depth is rounded to the nearest ½ meter.

Observations

There was no flyrock outside quarry boundaries.

No damage to the surroundings of the quarry was observed during a brief inspection after the blasting. The three blasts do not show as five distinct wave-forms on the instrument printout but a single, long event. This means that they were detonated too close to one another.

Anthony Cini B.Sc.

ems
environmental monitoring services

Pimlico Flats, no. 5,
Triq Viani,
Sliema, MALTA
Tel: +356 2133 6405
Mob: +356 9944 5767
Email: tcini@yahoo.com

DATA COLLECTION SHEET

Date:	4-3-13		MIC for HM33 is **25Kg**
Quarry Name & Number:	**HM33** – Ta' Bellula, l/o Siggiewi	**Quarry Operator:**	Polidano Bros. Ltd.
Police Escort:	**No:** PS 1277	**Name:**	HERMAN SPITERI.
Blasting carried out by:	**Company:** FrameGrip Ltd.	**Name:**	MARIO CALLEJA
Seismograph readings by:	RAPHAEL MICALLEF		

Blast	Time	Holes	Delays	Dist. (m)	Depth (ft)	Depth (m)	Total charge Bags	Total charge (kg)	Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
1	10·06·59	14	14	330	35	10·5	14	350	25	2·11	14·3	115·0
2 *	— " —	14	14	330	35	10·5	14	350	25	— " —	— " —	
3 *	— " —	11	11		35	10·5	11	275	25	— " —	— " —	
4		39					39	975				
5												
6												
7												
8												
9												
10												
11												
12												

Location of Seismograph	(✓) In front of nearest residential area marked as "E. Scicluna" on the way down to Ghar Lapsi Bay	( ) Garage Area of Dar Tal-Providenza (hospital)	( ) Other:
Burden	Distance between boreholes: 2.5 m	Distance from rock face (burden): 2 m	

Notes (Please expand in below section and/or overleaf if space provided is not enough.)

Any horizontal holes? No Any blast made up of holes of different-depth? No Why? /

Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? Yes Why? *

Any visitors before/during/after blast? Nobody (note names and organizations)

Any complaints from neighbours? None reported (note names, number of persons/households?)

Note levels of holes: (1-3) Middle Shelf

Flyrock observation: None Outside Any damage to quarry surroundings? None Observed

Further Comments

* As indicated, to reduce blasts and speed up work.
* Cloud Cover – 50% high clouds.

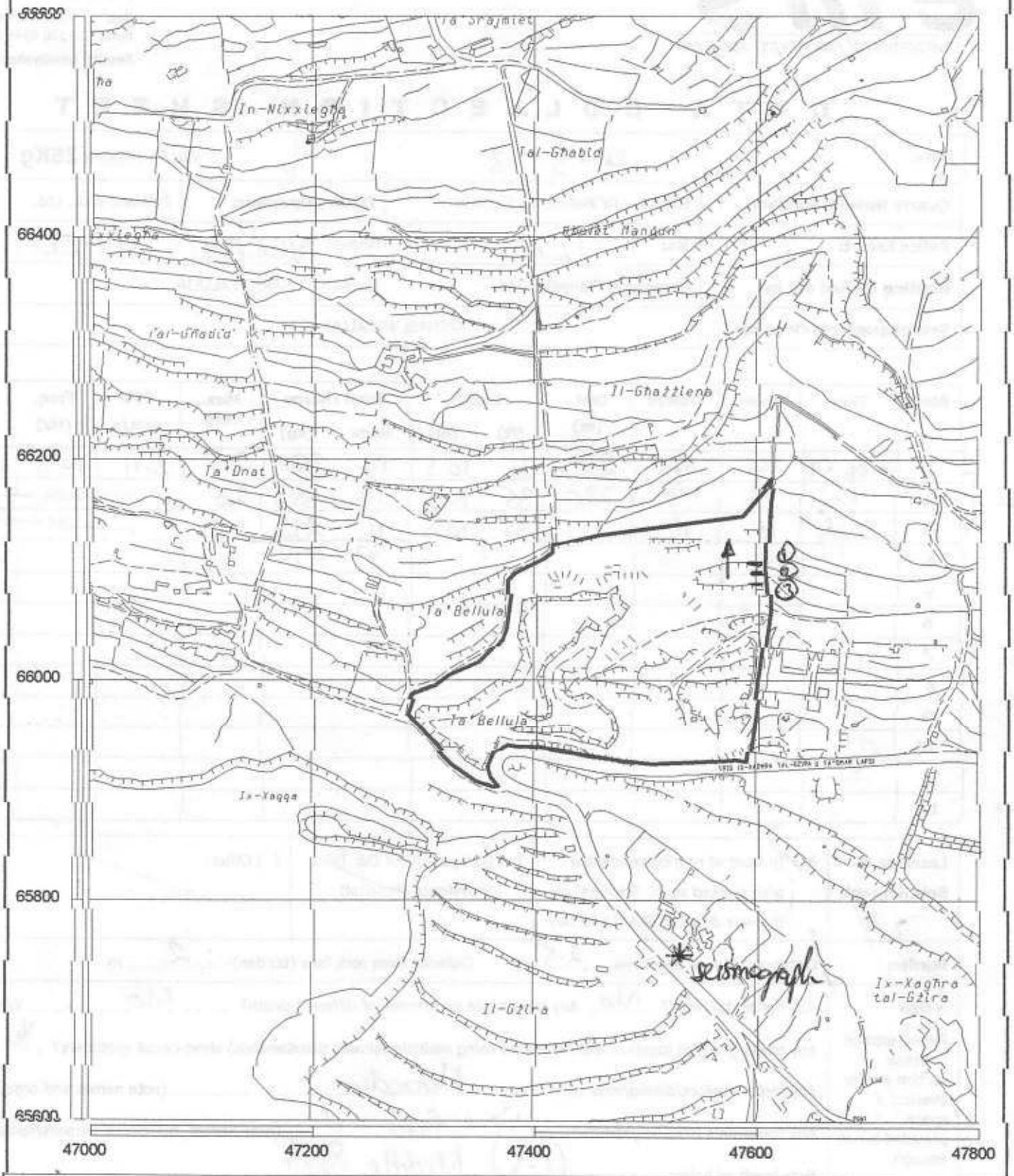
(use overleaf if more space is required)

Signatures

PS 1277 — Police.

Quarry.

E.M.S.



Malta Environment & Planning Authority

St. Francis Ravelin
Floriana
PO Box 200, Valletta
Tel:240976 Fax:224846

MEPA

Hardstone (LC) Quarry Site Plan

Quarry No. :-

HM 33

Scale :- 1:5000

Location :- Ta' Bellula, Siggiewi

Permitted Quarry Area :- 53851.47 sqm

Permitted Quarry Depth :- 40 m amsl

4-3-13

Part of Survey Sheet(s): 4665 4666

Date :- 6/5/03

Event Report

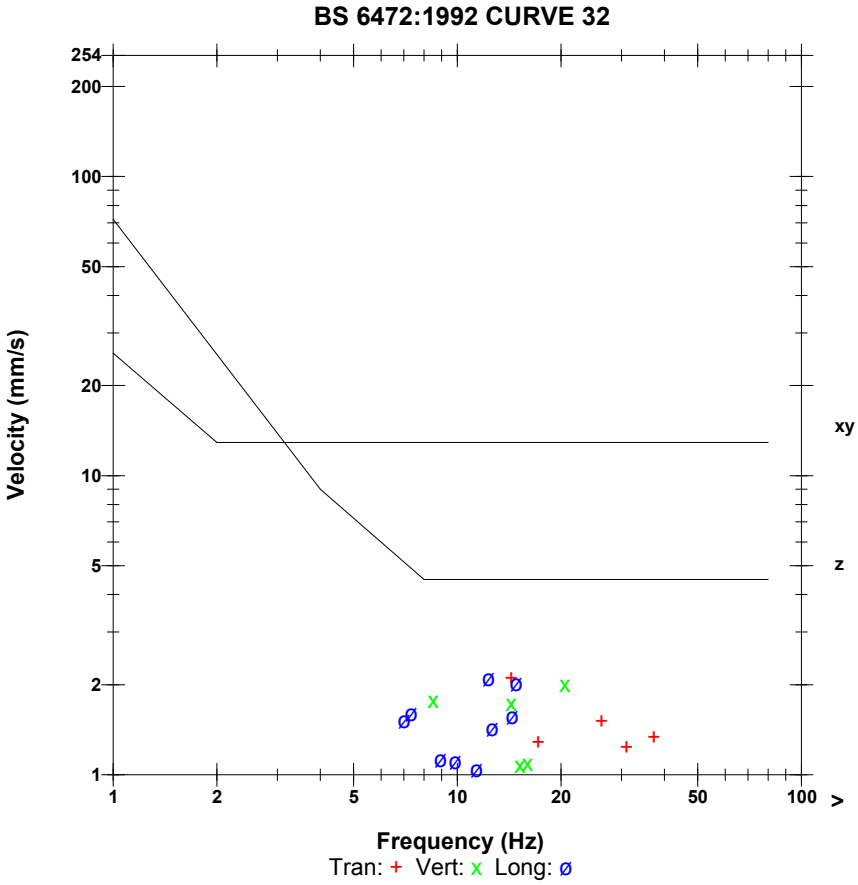
Date/Time Vert at 10:06:59 March 4, 2013
Trigger Source Geo: 0.510 mm/s, Mic: 119 dB(L)
Range Geo: 31.7 mm/s
Record Time 2.0 sec at 4096 sps
Notes
Location: Quarry Blasting
Client:
User Name: ems
General:

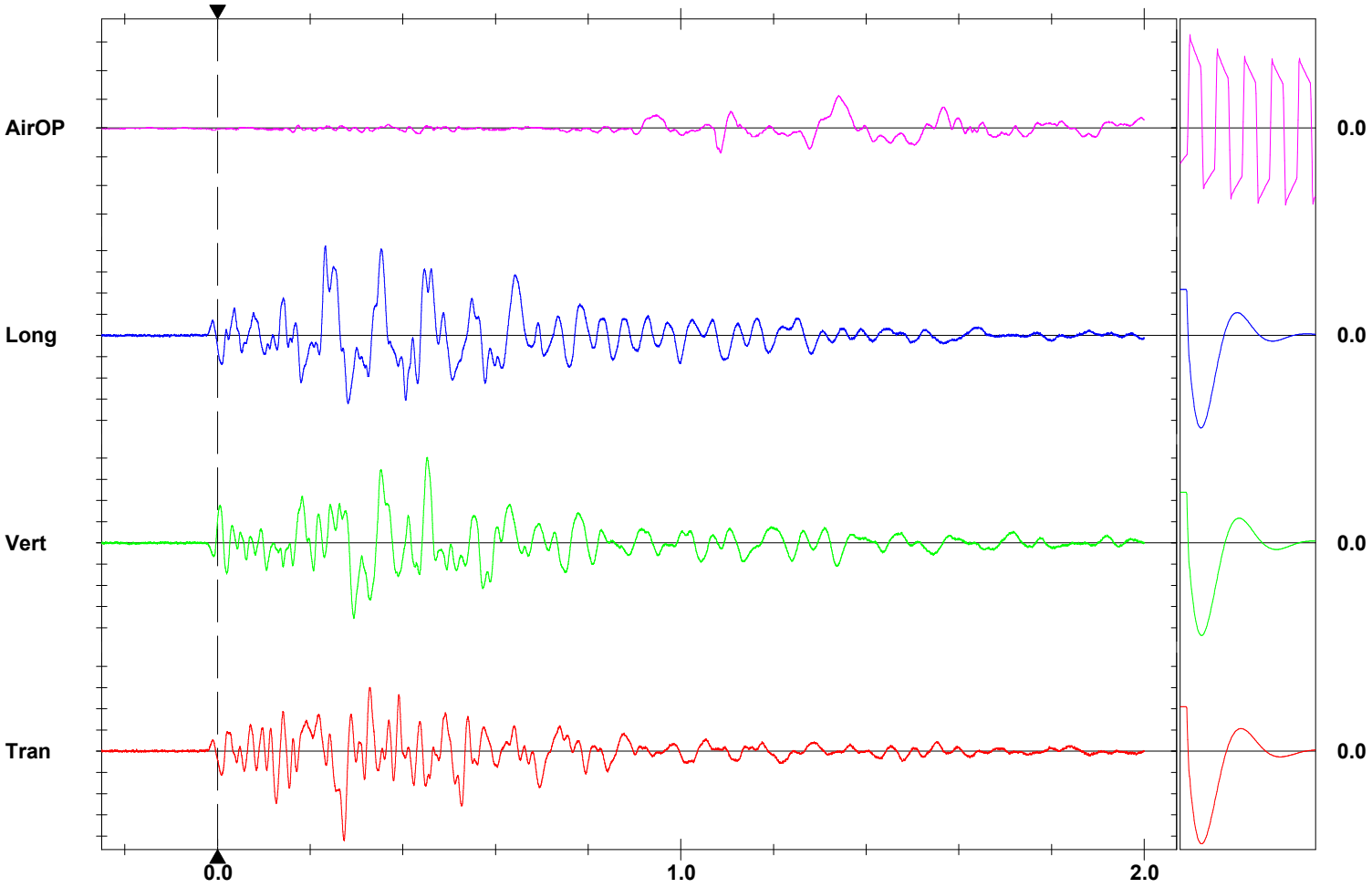
Serial Number BE9488 V 8.01-8.0 MiniMate Plus
Battery Level 6.1 Volts
Unit Calibration September 3, 2012 by Datum Monitoring
File Name K488EPAH.FN0

Microphone Linear Weighting
PSPL 115.0 dB(L) at 1.340 sec
ZC Freq 6.2 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 544 mv)

	Tran	Vert	Long	
PPV	2.11	2.02	2.11	mm/s
ZC Freq	14.3	20.5	12.3	Hz
Time (Rel. to Trig)	0.273	0.452	0.233	sec
Peak Acceleration	0.0398	0.0331	0.0464	g
Peak Displacement	0.0188	0.0275	0.0259	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.4	7.6	Hz
Overswing Ratio	4.1	3.8	4.1	

Peak Vector Sum 2.67 mm/s at 0.353 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check
Trigger =