

BLAST MONITORING REPORT

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

11th February 2012

Details

Date	11-02-2012
Quarry number	HM33 – Hard Stone Quarry at Ta' Bellula, Ghar Lapsi, l/o Siggiewi
Quarry operator	Polidano Bros. Ltd.
ANFO Supplier	Framegrip Ltd
Police escort	PC 1127 – F Bonello

Location and time of blasting

Five blasts were carried out all at 12:09 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: 120dB (L)

Site Specific Permit

All holes were within quarry boundaries and within maximum depth.

Maximum charge per delay of 25Kg was not exceeded.

Weather Conditions

Humidity ^[1]	Wind ^[1]	Temp. ^[1]	Atm. Pressure	Cloud Cover ^[2]
54%	16 Knots, SW	14 C	1016 hPa	Clear

[1] As reported by weather.maltairport.com on 11 February 2012 at 12:20 at Luqa Airport [2] Our observation

Comments

All holes are at the middle shelf of the quarry.

The five 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.

Notes

Seismograph was placed in front of the nearest residential area marked as “Ta’ Skallec” (or E. Scicluna) on the way down to Ghar 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	4	5
Time	12:06				
No. of holes	15	15	15	15	12
No. of delays	15	15	15	15	12
Depth of holes (m)	10.5	10.5	10.5	10.5	10.5
Max. Charge per delay (kg)	25	25	25	25	25
Total charge (kg)	375	375	375	375	300
Dist. from seismograph (m)	330	330	330	330	330
PPV (mm/s)	2.65				
Frequency (Hz)	13.8				
Air Overpressure (dB)	116.7				
Scaled Distance (m kg^{-1/2})	66.0	66.0	66.0	66.0	66.0

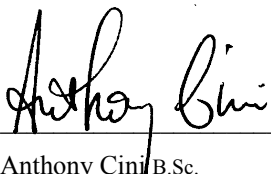
Burden is an average of 2 metres, and distance between bore-holes is an average of 2.5 metres.

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 five blasts do not show as five distinct wave-forms on the instrument printout. This means that they were detonated too close to one another.



Anthony Cini B.Sc.

DATA COLLECTION SHEET

Date:	11-2-13		MIC for HM33 is 25Kg	
Quarry Name & Number:	HM33 - Ta' Bellula, l/o Siggiewi	Quarry Operator:	Polidano Bros. Ltd.	
Police Escort:	No PC 1127	Name:	FRANKIE BONELLO.	
Blasting carried out by:	Company: FrameGrip Ltd.	Name:	MARIO CALLEJA	
Seismograph readings by:	RAPHAEL MICALLEF			

Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
					(ft)	(m)	Bags	(kg)				
1	12-09-24	15	15	330	35	10.5	15	375	25	2.65	13.8	116.7
2	11	15	15	330	35	10.5	15	375	25			
3	11	15	15	330	35	10.5	15	375	25			
4	11	15	15	330	35	10.5	15	375	25			
5	11	12	12	330	35	10.5	12	300	25			
6		72					72	1800				
7												
8												
9												
10												
11												
12												

Location of Seismograph	<input checked="" type="checkbox"/> In front of nearest residential area marked as "E. Scicluna" on the way down to Ghar Lapsi Bay	<input type="checkbox"/> Garage Area of Der Tal-Providenza (hospital)	<input type="checkbox"/> Other:
Burden	Distance between boreholes: 2.5 m Distance from rock face (burden): 2 m		
Notes	Any horizontal holes? <u>No</u> Any blast made up of holes of different-depth? <u>No</u> Why? <u>/</u> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>Yes</u> Why? <u>*</u> Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations) Any complaints from neighbours? <u>None Reported</u> (note names, number of persons/households?) Note levels of holes: <u>(1-5) Middle Shelf</u> Flyrock observation: <u>None Observed</u> Any damage to quarry surroundings? <u>None Observed</u>		
Further Comments	* As indicated, to reduce blasts and speed up work * Cloud Cover - Clear.		

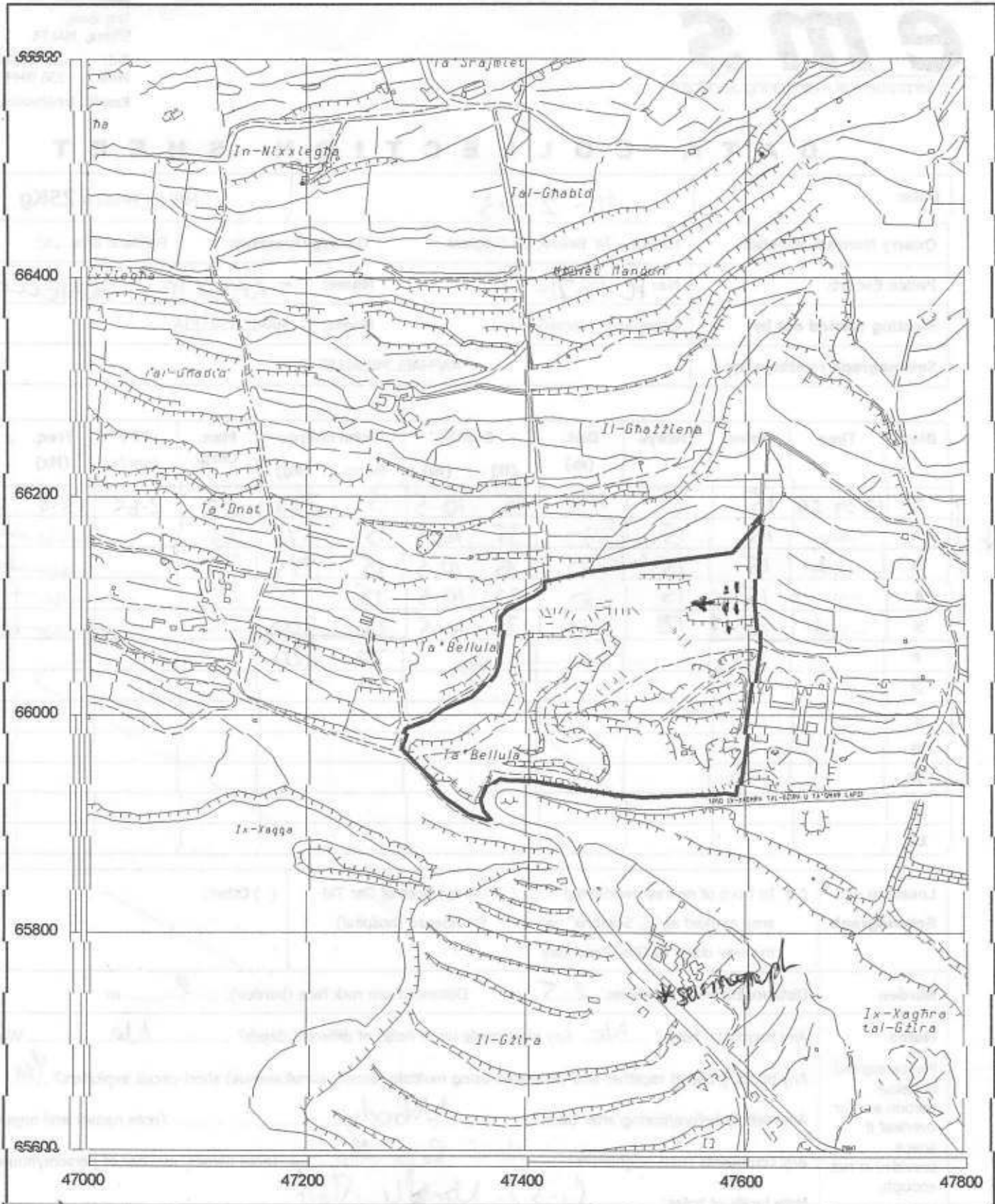
(use overleaf if more space is required)

Signatures

[Signature]

[Signature]

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Malta Environment & Planning Authority

Hardstone (LC) Quarry Site Plan

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



Quarry No. :-
HM 33

Location :- Ta' Bellula, Siggiewi

11-2-13
[Handwritten signature]

Scale :- 1:5000

Permitted Quarry Area :- 53851.47 sqm

Permitted Quarry Depth :- 40 m amsl

Part of Survey Sheet(s): 4665 4666

Date :- 6/5/03

Date/Time Long at 12:09:24 February 11, 2013
Trigger Source Geo: 0.510 mm/s, Mic: 17.8 pa.(L)
Range Geo: 31.7 mm/s
Record Time 2.0 sec at 4096 sps

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 K488EO7R.300

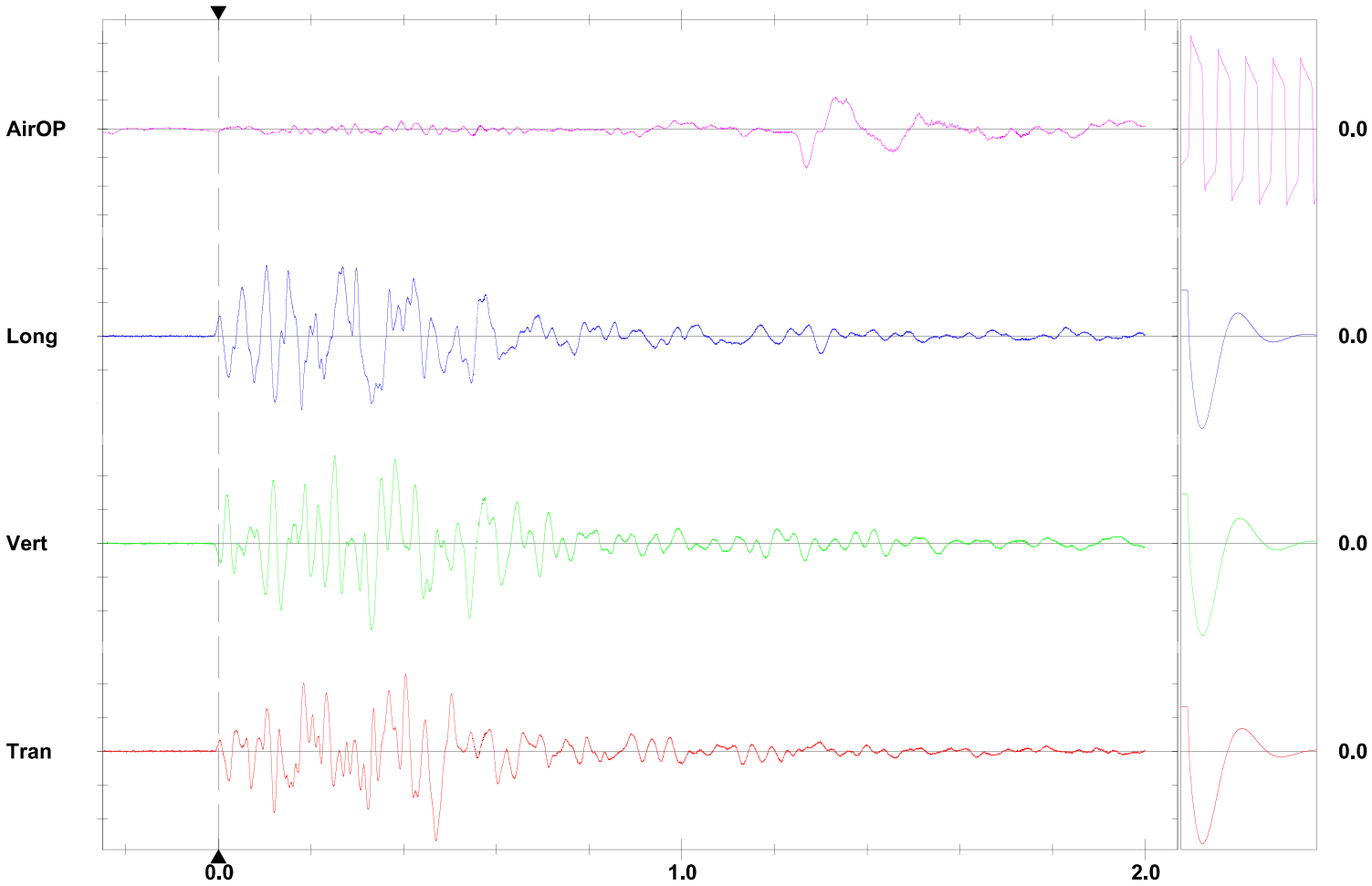
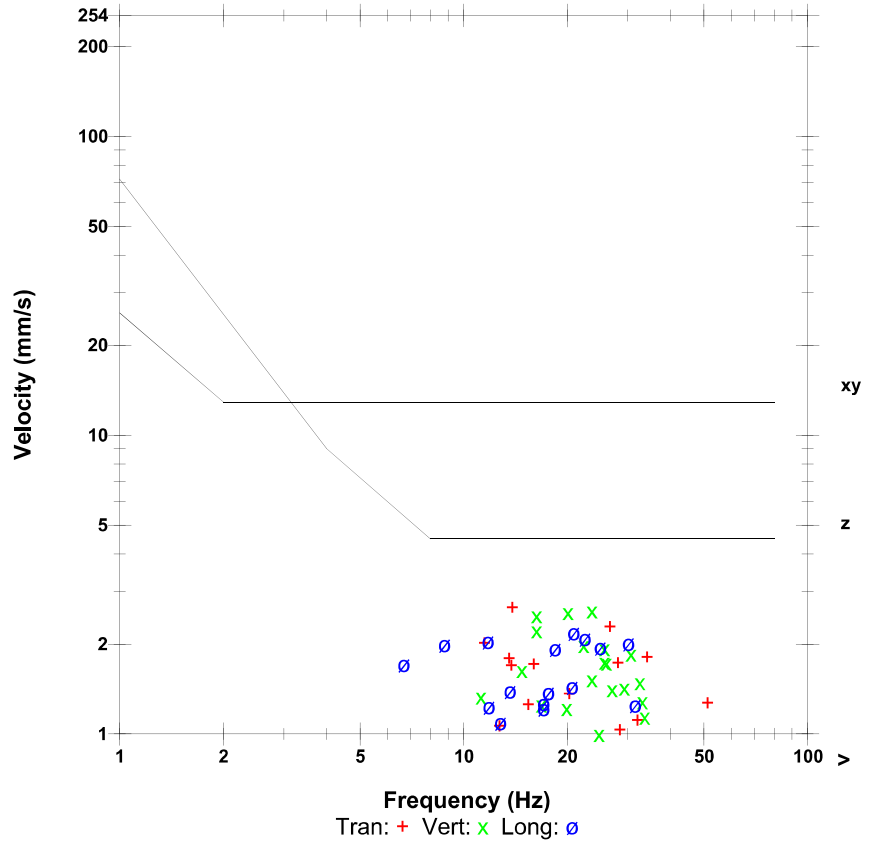
Notes
 Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 13.8 pa.(L) at 1.268 sec
ZC Freq 4.2 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 590 mv)

	Tran	Vert	Long	
PPV	2.65	2.59	2.19	mm/s
ZC Freq	13.8	23.5	20.9	Hz
Time (Rel. to Trig)	0.469	0.251	0.180	sec
Peak Acceleration	0.0597	0.0530	0.0597	g
Peak Displacement	0.0270	0.0207	0.0362	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.4	7.6	Hz
Overswing Ratio	4.1	3.7	4.1	

Peak Vector Sum 3.31 mm/s at 0.333 sec

BS 6472:1992 CURVE 32



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div
Trigger = ▶ ◀

Sensor Check