

BLAST MONITORING REPORT

HM33 Hard stone quarry at Ta' Bellula, I/o Siggiewi

4th May 2012

Details

Date	04-05-2012
Quarry number	HM33 – Hard stone Quarry at Ta Bellula, Ghar Lapsi, I/o Siggiewi
Quarry operator	Polidano Bros. Ltd
ANFO Supplier	Framegrip Ltd
Police escort	PS 284 – P Cauchi

Location and time of blasting

Three blasts were carried out as one group at 11:43 at approximately the points as indicated on the attached site diagram.

Summary of blasting conditions

Maximum charge per delay: 25Kg

Recommended vibration limit: <8 mm/s at the nearest residential/commercial areas.

Site Specific Permit

All holes were within quarry boundaries and within maximum depth.

Maximum charge per delay of 25Kg was not exceeded.

Weather Conditions

The current conditions as reported on www.maltaweather.com on 04/05/2012 at 11:30 Zejtun Malta are the following: humidity 46%, wind: 5.9km/h N, temperature: 23.3C, cloud cover: clear.

Comments

All holes are at the middle shelf of the quarry.

The three blasts were organised as one group and detonated by means of three short-circuit exploders in very quick sequence and were 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

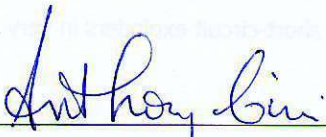
Blast number	1	2	3
Time	11:43		
No. of holes	16	16	10
No. of delays	16	16	10
Depth of holes (m)	10.5	10.5	10.5
Max. Charge per delay (kg)	22	22	23
Total charge (kg)	338	338	225
Dist. from seismograph (m)	360	360	360
PPV (mm/s)	0.95		
Frequency (Hz)	37.2		
Air Overpressure (dB)	108.8		
Scaled Distance (m kg^{-1/2})	76.8	76.8	75.1

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

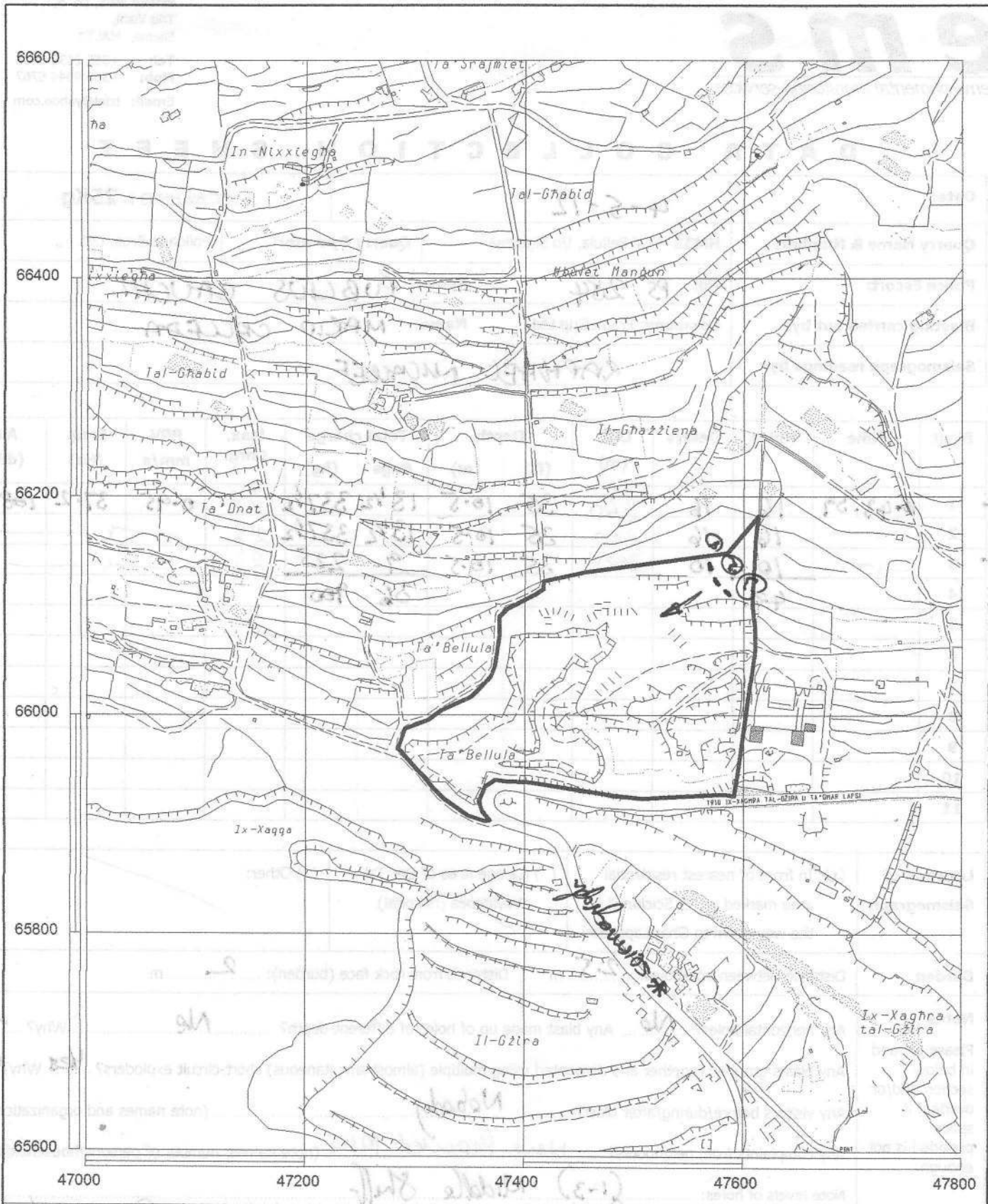
Weights in kilograms are rounded-up to the nearest unit, and depths in metres are rounded to the nearest ½ unit. Distance between holes and seismograph is accurate to the nearest 10 metres.

Observations:

There was no flyrock outside the quarry boundaries. From a brief visual inspection after the blast, no damage to the surroundings of the quarry was observed.



 Anthony Cini B.Sc.



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

Permitted Quarry Area :- 53851.47 sqm

Scale :- 1:5000

Permitted Quarry Depth :- 40 m amsl

4-5-12
[Handwritten signature]

Part of Survey Sheet(s): 4665 4666

Date :- 6/5/03

DATA COLLECTION SHEET


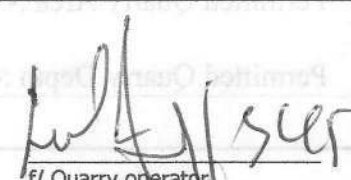
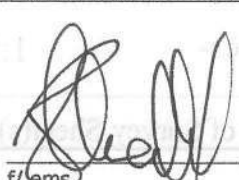
Date:	4-5-12		MIC for HM33 is 25Kg
Quarry Name & Number:	HM33 - Ta' Bellula, l/o Siggiewi	Quarry Operator:	Polidano Bros. Ltd.
Police Escort:	No: PS 284	Name:	PUBLIUS CAUCHI.
Blasting carried out by:	Company: FrameGrip Ltd.	Name:	MARIO CALLEDA
Seismograph readings by:	RAPHAEL NICOLEF		

Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
					(ft)	(m)	Bags	(kg)				
1	11:43-39	16	16	360	35	10.5	13 1/2	337 1/2	22	0.95	37.2	108.8
2	—	16	16	360	35	10.5	13 1/2	337 1/2	22	—	—	—
3	—	10	10	360	35	10.5	9	225	23	—	—	—
4		42					36	900				
5												
6												
7												
8												
9												
10												
11												

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 Dar 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? No Any blast made up of holes of different-depth? No Why? <input checked="" type="checkbox"/> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? Yes Why? <input checked="" type="checkbox"/> Any visitors before/during/after blast? Nobody (note names and organizations) Any complaints from neighbours? None Reported to us (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	* To minimize the possibility of damaging second blast after first one is detonated. * Cloud Cover - Clear.		

(use overleaf if more space is required)

Signatures

 Police escort
 f/ Quarry operator
 f/ ems

Date/Time Vert at 11:43:39 May 4, 2012
Trigger Source Geo: 0.510 mm/s
 Mic: 113 dB(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
Calibration September 9, 2011 by Datum Monitoring
File Name K488E9NN.8R0

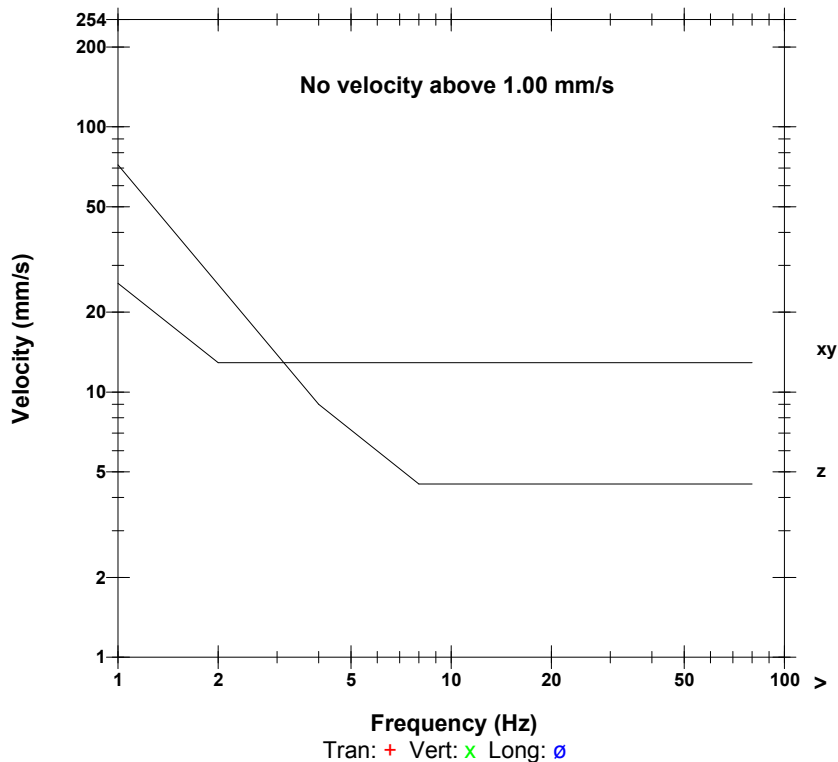
Notes
 Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Post Event Notes

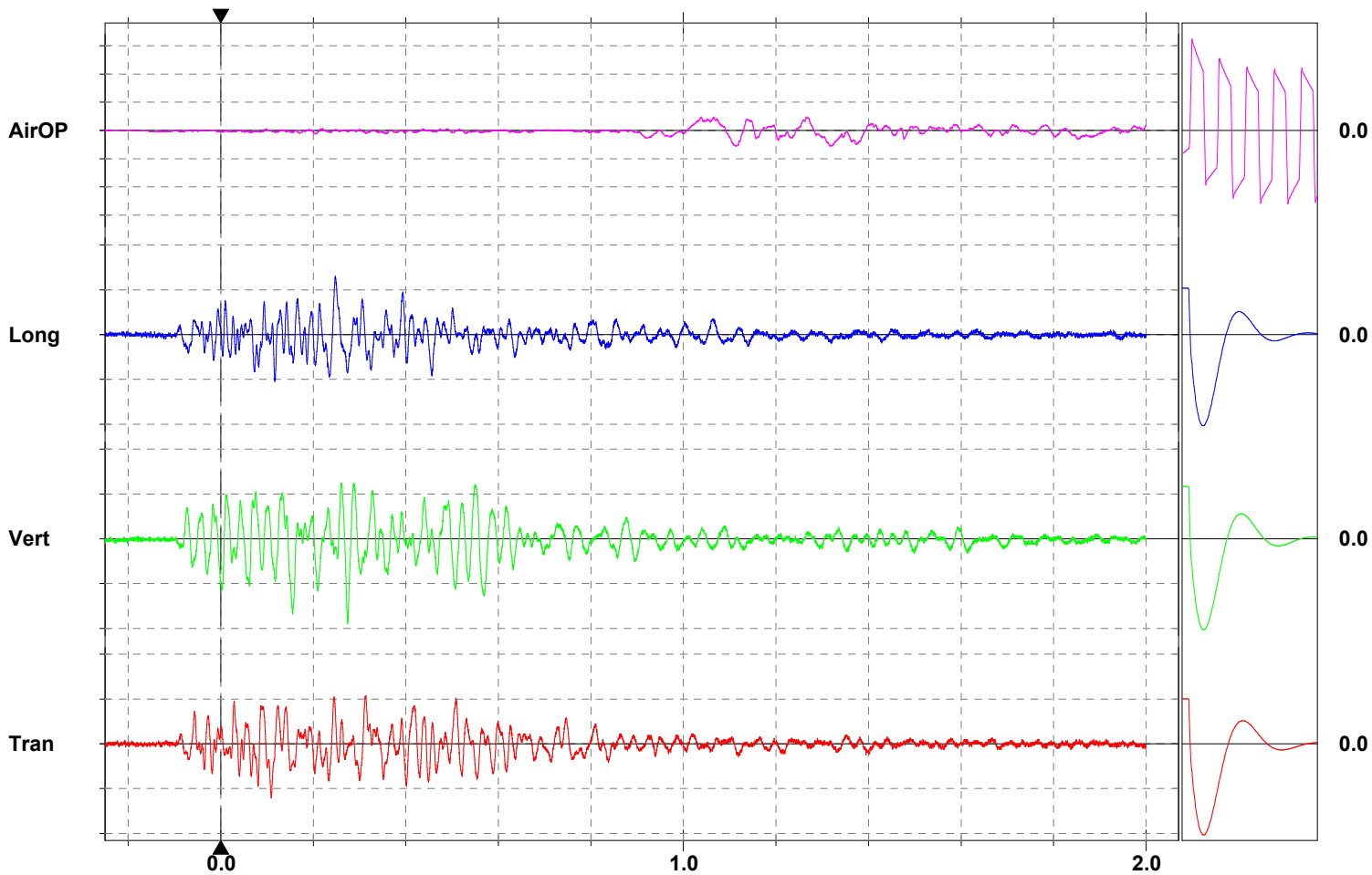
Microphone Linear Weighting
PSPL 108.8 dB(L) 5.50 pa.(L) at 1.111 sec
ZC Freq 13.4 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 538 mv)

	Tran	Vert	Long	
PPV	0.603	0.952	0.651	mm/s
ZC Freq	24.4	37.2	28.4	Hz
Time (Rel. to Trig)	0.109	0.274	0.248	sec
Peak Acceleration	0.0331	0.0331	0.0331	g
Peak Displacement	0.00290	0.00425	0.00315	mm
Sensorcheck	Passed	Passed	Passed	
Frequency	7.2	7.4	7.6	Hz
Overswing Ratio	4.0	3.7	4.0	

BS 6472:1992 CURVE 32



Peak Vector Sum 1.05 mm/s at 0.274 sec



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

Sensorcheck