

BLAST MONITORING REPORT

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

27th October 2010

Details

Date	27-10-2010
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	PC1127 – F Bonello

Location and time of blasting

Four blasts were carried out at 13:45 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.

Comments

All holes are at the middle shelf of the quarry.

Blasts 1 to 4 were grouped as one group and detonated by means of four short-circuit-exploders, in a very quick sequence. Multiple-explosions are used at this site to minimise the risk of one blast damaging the wiring of the other, but also to speed up the process.

Notes

Seismograph was placed in front of the nearest residential area marked as "Ta' Skallec" 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
Time	13:35			
No. of holes	14	14	15	15
No. of delays	14	14	15	15
Depth of holes (m)	12	12	12	12
Max. Charge per delay (kg)	25	25	25	25
Total charge (kg)	350	350	375	375
Dist. from seismograph (m)	360	360	360	360
PPV (mm/s)	2.64			
Frequency (Hz)	11.8			
Air Overpressure (dB)	91.5			
Scaled Distance (m kg ^{-1/2})	72.0	72.0	72.0	72.0

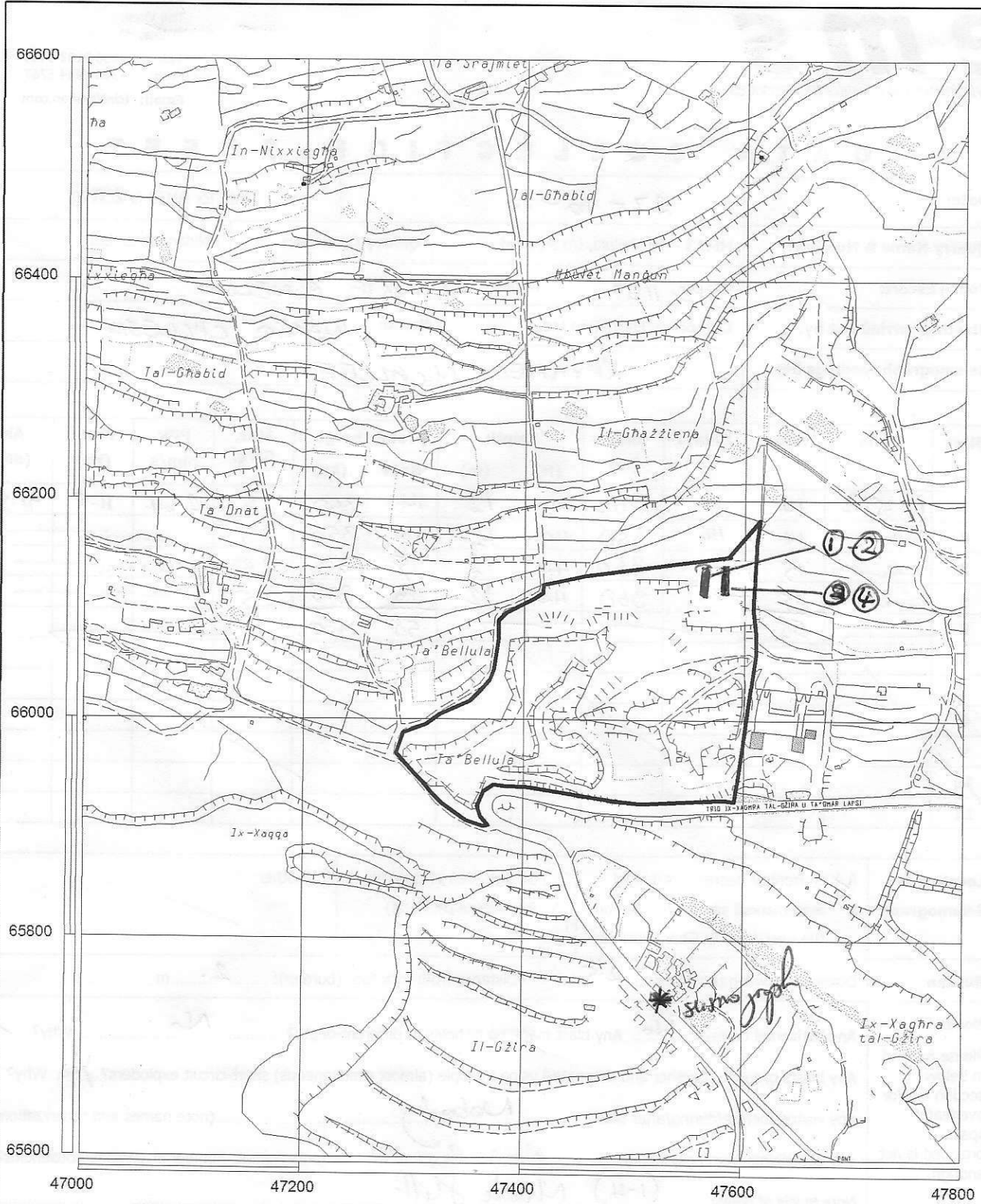
Burden is an average of 2 metres, and distance between bore-holes is an average of 2.5 metres.

Weights in kilograms are rounded-up to the nearest unit, and 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

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

Handwritten signature and date: 27-10-03

DATA COLLECTION SHEET

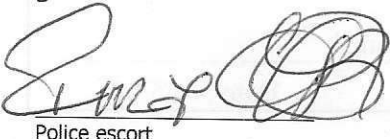
Date:	27-10-10		MIC for HM33 is 25Kg
Quarry Name & Number:	HM33 - Ta' Bellula, l/o Siggiewi	Quarry Operator:	Polidano Bros. Ltd.
Police Escort:	No: <u>PC 1127</u> Name: <u>FRANKIE BONELLO</u>		
Blasting carried out by:	Company: <u>FrameGrip Ltd.</u> Name: <u>MARIO CALLEJA</u>		
Seismograph readings by:	<u>RAMONEL MICHALLEF</u>		

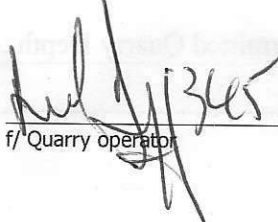
Blast	Time	Holes	Delays	Dist.		Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
				(m)	(ft)	(m)	(kg)	Bags					
1	13:35-52	14	14	360	40	12	14	350	25	2.64	11.8	91.5	
2	—	14	14	360	40	12	14	350	25	—	—	—	
3	—	15	15	360	40	12	15	375	25	—	—	—	
4	—	15	15	360	40	12	15	375	25	—	—	—	
5		58					58	1450					
6													
7													
8													
9													
10													
11													

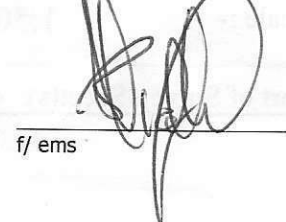
Location of Seismograph	<input checked="" type="checkbox"/> In front of nearest residential area marked as "E. Scicluna" on the way down to Ghar Lapsi Bay	<input type="checkbox"/> Garage Area of Dar, Tal-Providenza (hospital)	<input type="checkbox"/> Other: _____
Burden	Distance between boreholes: <u>2.5</u> m Distance from rock face (burden): <u>2</u> 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>(1-4) Middle Shelf</u> Flyrock observation: <u>None Outside</u> Any damage to quarry surroundings? <u>None Observed</u>		
Further Comments	<u>* To minimize the possibility of damaging second blast after first one is detonated.</u>		

(use overleaf if more space is required)

Signatures


Police escort


f/ Quarry operator


f/ ems

Date/Time Vert at 12:35:52 October 27, 2010
Trigger Source Geo: 0.500 mm/s
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 5.8 Volts (Battery Low)
Calibration September 9, 2010 by Datum Monitoring
File Name K488DH3X.NSO

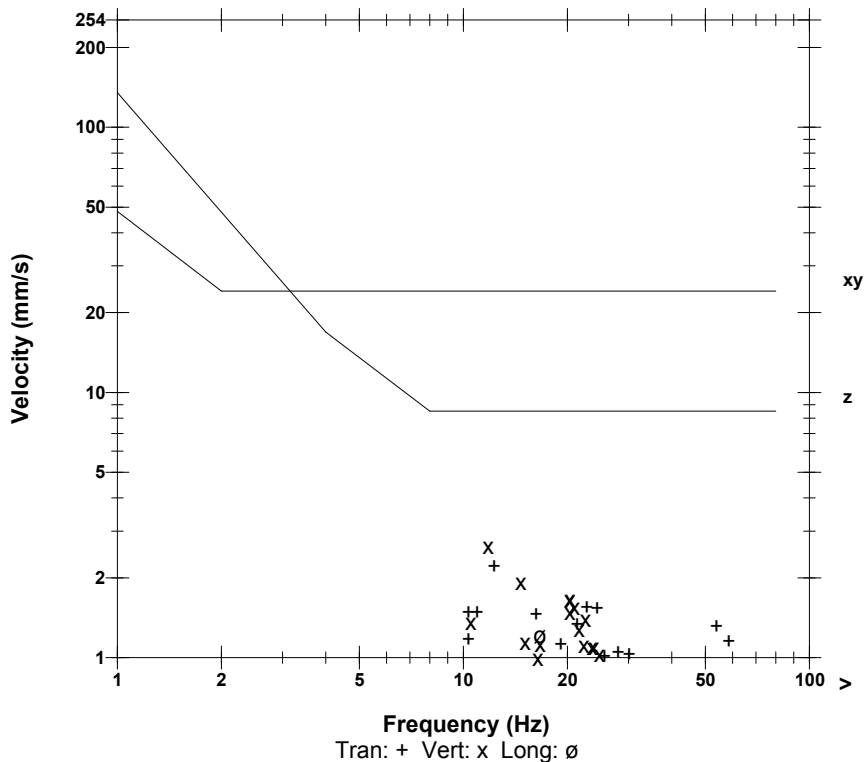
Notes
 Location: Quarry Blasting
 Client:
 User Name: ems
 General:

BS 6472:1992 CURVE 60

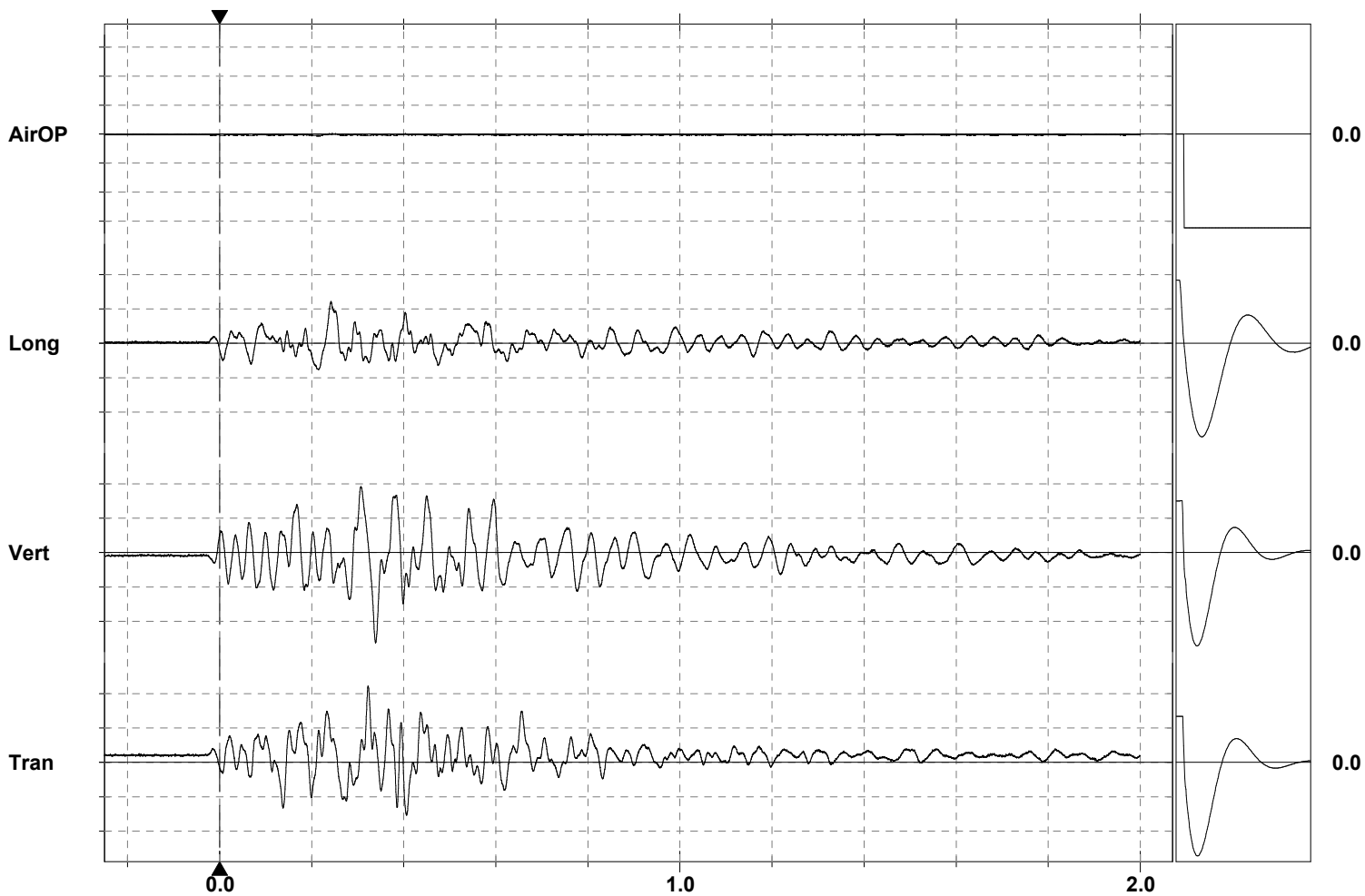
Post Event Notes

Microphone Linear Weighting
PSPL 91.5 dB(L) at 0.211 sec
ZC Freq 25.3 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	2.22	2.64	1.22	mm/s
ZC Freq	12.3	11.8	16.7	Hz
Time (Rel. to Trig)	0.322	0.338	0.242	sec
Peak Acceleration	0.0530	0.0398	0.0265	g
Peak Displacement	0.0268	0.0208	0.0114	mm
Sensorcheck	Passed	Passed	Check	
Frequency	7.2	7.4	5.9	Hz
Overswing Ratio	4.0	3.8	3.3	



Peak Vector Sum 2.75 mm/s at 0.338 sec



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

Sensorcheck