

**BLAST MONITORING REPORT**  
**HM9C Hard Stone Quarry at Ta' Qaduma, l/o Mosta**  
**10th December 2012**

**Details**

Date	10-12-2012
Quarry number	HM9C – Ix-Xagħra Ta' Qaduma, l/o Mosta
Quarry operator	Carmel Vella Ltd.
ANFO Supplier	Framegrip Ltd.
Police escort	PC450 – C Bartolo

**Location and Time of Blasting**

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

**Summary of Blasting Conditions**

Maximum charge per delay: 50Kg

Vibration limit: <4 mm/s (20 to 40Hz) at the nearest residential areas.

Air overpressure limit: 120 dB (L).

**Site Specific Permit**

Holes were within quarry boundaries and within the permitted depths.

Blasts were carried out according to the site specifications.

**Weather Conditions**

Humidity <sup>[1]</sup>	Wind <sup>[1]</sup>	Temperature <sup>[1]</sup>	Atm. Pressure <sup>[1]</sup>	Cloud Cover <sup>[2]</sup>
54%	13 Knots NNW	13C	1019hPa	50% high-cloud cover

[1] As reported by weather.maltairport.com on 10 December 2012 at 09:20 at Luqa Airport [2] Our observation

**Comments**

All holes are at the middle shelves of the quarry in their respective locations.

**Notes**

Seismograph was placed at the side of the road adjacent to the back of Ta' Randa farmhouse as indicated on the attached site diagram. This is in front of the gate to the field very close to the quarry.

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

**Readings**

Blast Number	1	2
Time	10:06	
No. of Holes	10	11
No. of delays	10	11
Depth of Holes (m)	9	9
Max. Charge per Delay (Kg)	28	28
Total Charge (Kg)	275	300
Dist. from Seismograph (m)	390	390
PPV (mm/s)	0.98	
Frequency (Hz)	21.1	
Air Overpressure (dB L)	111.5	
Scaled Distance ( $m^{-1/2}$ )	73.7	73.7

Burden is an average of 2 metres and distance between 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 1/2 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 1/2 meter.*

**Observations**

There was no flyrock outside quarry boundaries. No damage to the surroundings was observed after the blast. The ground vibration and air overpressure measured for all blasts are within the limits.

  
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Anthony Cini B.Sc.

## DATA COLLECTION SHEET

Date:	10-12-12	MIC for HM9C is <b>50Kg</b>	
Quarry Name & Number:	<b>HM9C</b> - Ix-Xaghra ta' Qaduma, l/o Mosta	Quarry Operator:	Carmel Vella Ltd.
Police Escort:	No: <i>PC 450</i>	Name:	<i>CHRIS BARTOLO</i>
Blasting carried out by:	Company: FrameGrip Ltd.	Name:	MARIO CALLEJA
Seismograph readings by:	RAPHAEL MICALLEF		

Blast	Time	Holes	Delays	Dist.		Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
				(m)	(ft)	(m)	(ft)	Bags	(kg)				
1	10-06-29	10	10	390	30	9	11	275	28	0.98	21.1	111.5	
2	<i>4</i>	11	11	390	30	9	12	300	28				
3		21					23	575					
4													
5													
6													
7													
8													
9													

Location of Seismograph	<input checked="" type="checkbox"/> On the road, adjacent to the back of Ta' Randa Farmhouse (opposite gate to fields touching with quarry)	<input type="checkbox"/> Other location: 
Burden	Distance between boreholes: <i>2.5</i> m      Distance from rock face (burden): <i>2</i> m	
Notes <small>Please expand in below section and/or overleaf if space provided is not enough.</small>	Any horizontal holes? <i>No</i> Any blast made up of holes of different-depth? <i>No</i> Why? <i>!</i>	
	Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <i>Yes</i> Why? <i>*</i>	
	Any visitors before/during/after blast? <i>Nobody</i> (note names and organizations)	
	Any complaints from neighbours? <i>None</i> (note names, number of persons/households?)	
	Note levels of holes: <i>(1,2) Middle Shelf</i>	
	Flyrock observation: <i>None Outside</i> Any damage to quarry surroundings? <i>None Observed</i>	
Further Comments	* Yes as indicated, to reduce blasts and speed up work - * Closed Cover - 50% high clouds.	

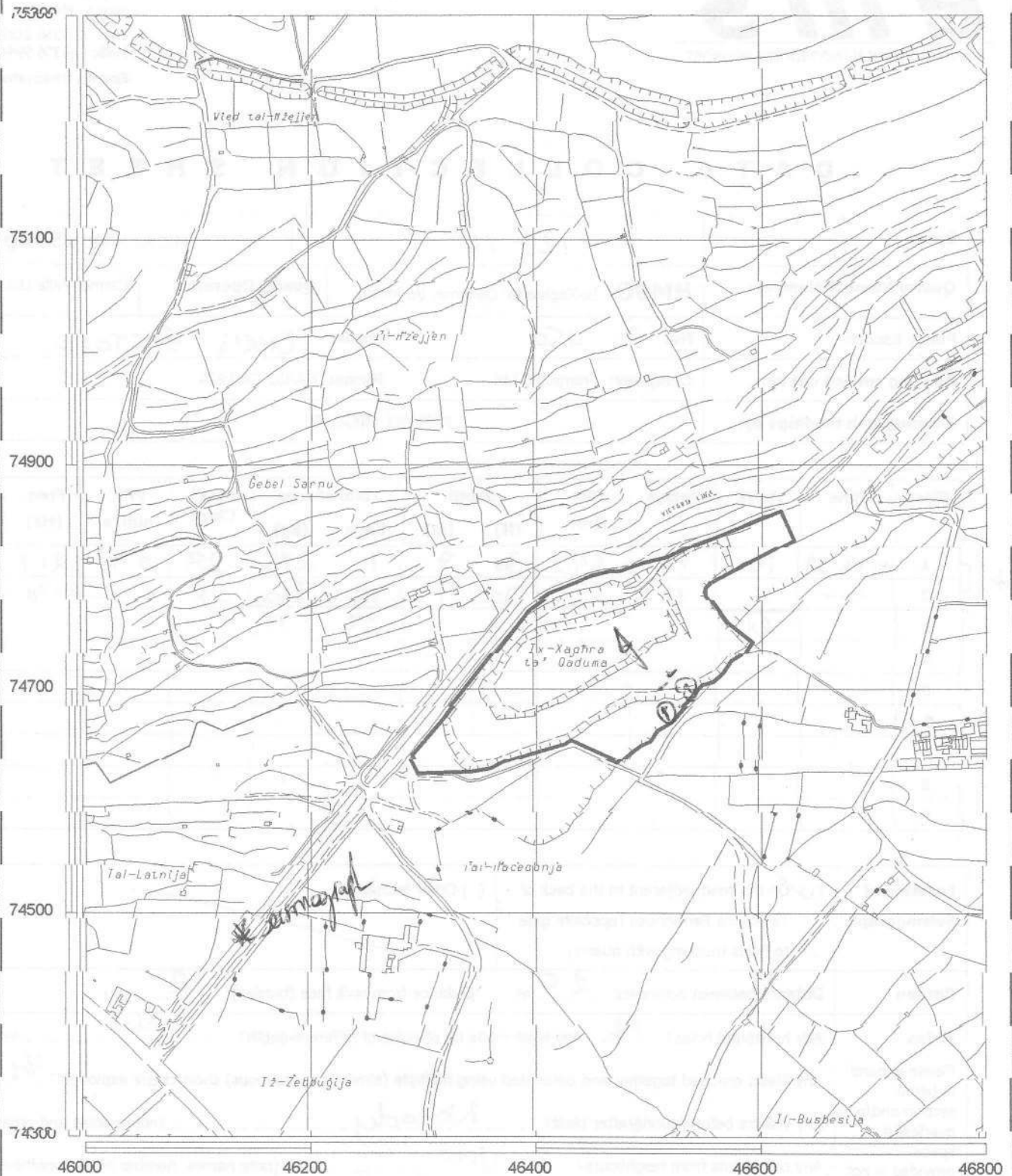
(use overleaf if more space is required)

Signatures

*PC 450*  
\_\_\_\_\_  
Police escort

*[Signature]*  
\_\_\_\_\_  
f/ Quarry operator

*[Signature]*  
\_\_\_\_\_  
f/ ems



**Malta Environment & Planning Authority**

**Hardstone (LC) Quarry Site Plan**

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



Quarry No. :- <b>HM 9C</b>	Location :- Xaghra ta' Qaduma Permitted Quarry Area :- 35537.46 sqm Permitted Quarry Depth :- 50 m amsl
Scale :- 1:5000	Part of Survey Sheet(s): 4674 4675

10 12-12  
*[Handwritten signature]*

Date :- 6/5/03

**Date/Time** Vert at 10:06:29 December 10, 2012  
**Trigger Source** Geo: 0.510 mm/s  
 Mic: 118 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** 6.0 Volts  
**Calibration** September 3, 2012 by Datum Monitoring  
**File Name** K488EKYX.ET0

**Notes**

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

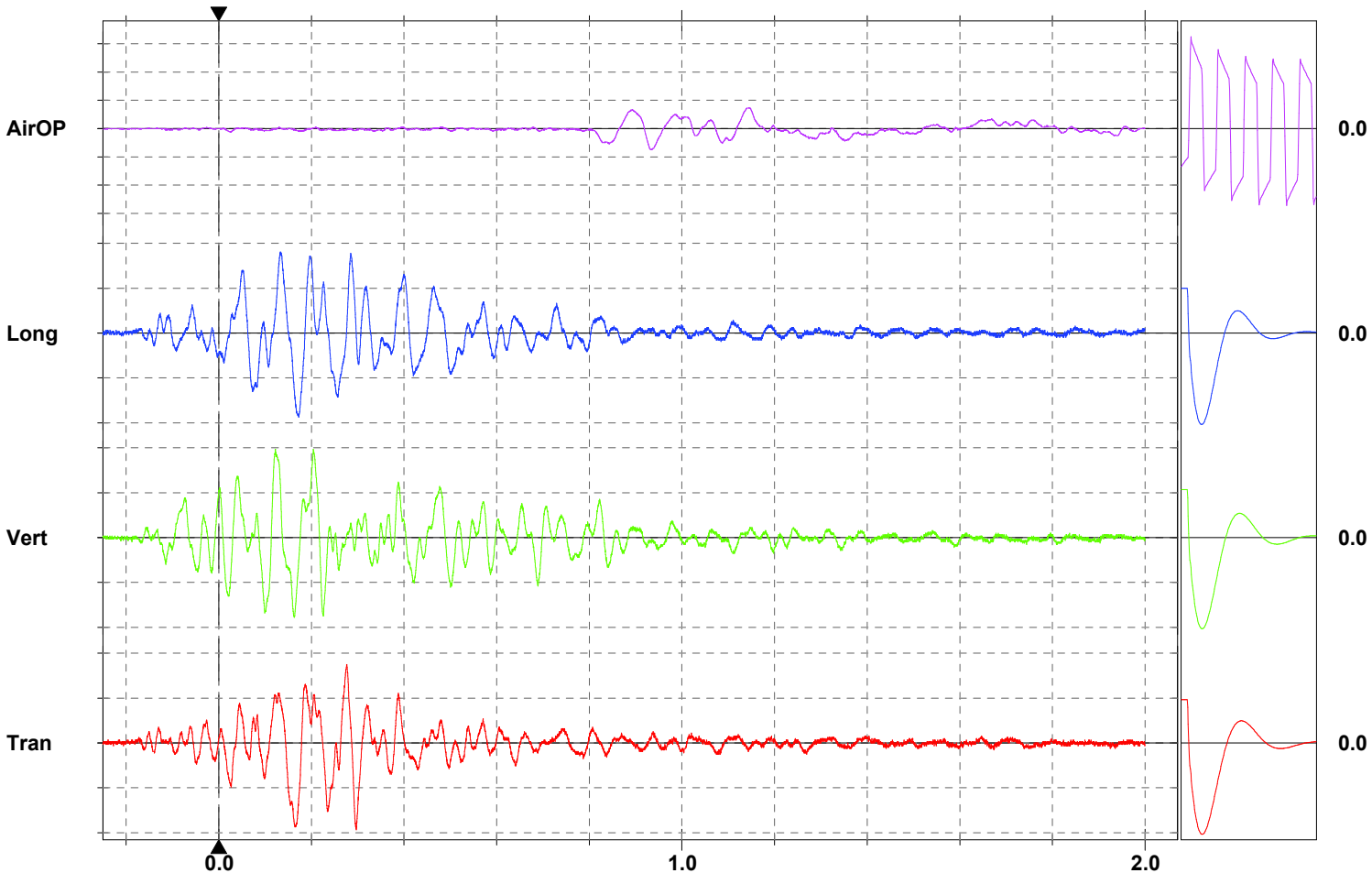
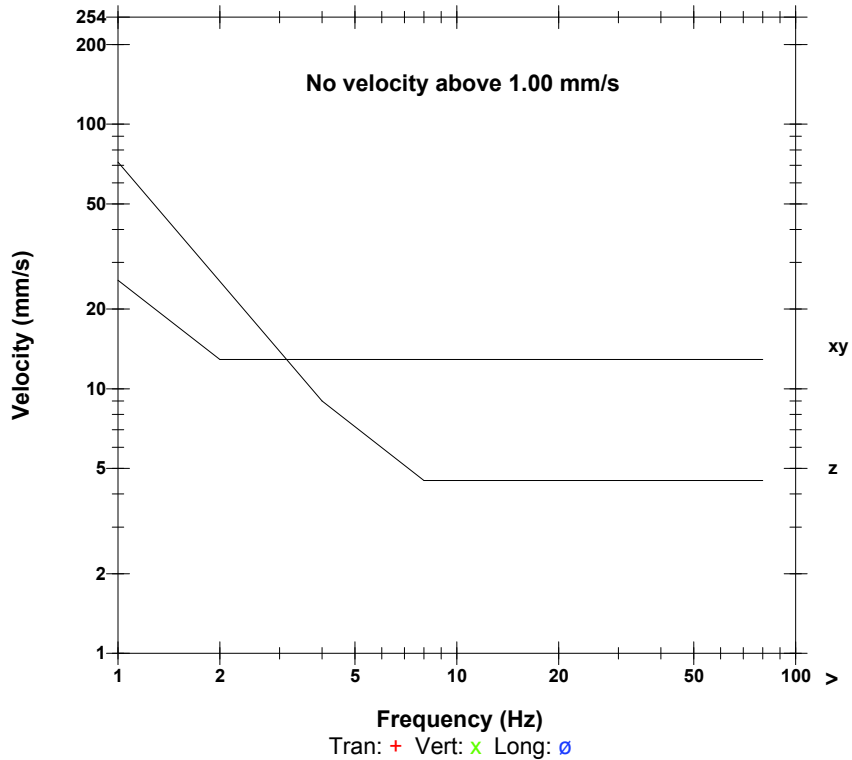
**Post Event Notes**

**Microphone** Linear Weighting  
**PSPL** 111.5 dB(L) 7.50 pa.(L) at 0.932 sec  
**ZC Freq** 12.5 Hz  
**Channel Test** Passed (Freq = 20.1 Hz Amp = 570 mv)

	Tran	Vert	Long	
<b>PPV</b>	0.968	0.984	0.937	mm/s
<b>ZC Freq</b>	22.5	21.1	14.3	Hz
<b>Time (Rel. to Trig)</b>	0.297	0.122	0.172	sec
<b>Peak Acceleration</b>	0.0265	0.0265	0.0265	g
<b>Peak Displacement</b>	0.0104	0.0101	0.00923	mm
<b>Sensorcheck</b>	Passed	Passed	Passed	
<b>Frequency</b>	7.2	7.5	7.7	Hz
<b>Overswing Ratio</b>	4.2	3.8	4.1	

**Peak Vector Sum** 1.46 mm/s at 0.164 sec

**BS 6472:1992 CURVE 32**



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

Sensorcheck