

**Appendix C Personnel List**

Contact details of people involved in this project. Note Mobiles do not work underground.

<b>BPUA</b>		
Project Engineer	Craig Gordon	[REDACTED]
<b>Orica</b>		
Area Business Manager	Les Pilkington	[REDACTED]
Principal Blast Engineer	Martin Adam	[REDACTED]
Blasting Engineer	Rohan Stevens	[REDACTED]
Ops Manager*	Rick Macmaster	[REDACTED]
Contract Manager	Ross Oldman	[REDACTED]
<b>Orica Emergency Number</b>	<b>24 / 7</b>	<b>1800 011 333</b>

\* - nominated contacts to be called immediately in the event of an incident

## **Appendix D      Site Specific Blast Clearance Procedure**

### **3 Days before Blast**

1.      Orica to prepare a site layout plan with clearance area marked
2.      BPUA to notify direct Neighbours.

### **Day of the First Blast**

3.      BPUA Site Foreman to notify all site personnel via prestart meeting;

### **30 minutes before the blast**

4.      Blast sentries meet at the blast for pre-blast meeting.

### **3 minutes before the blast**

5.      Blast guards in position;
6.      Shot Firer checks guards are in position and all is secure.

### **1 minute before the blast**

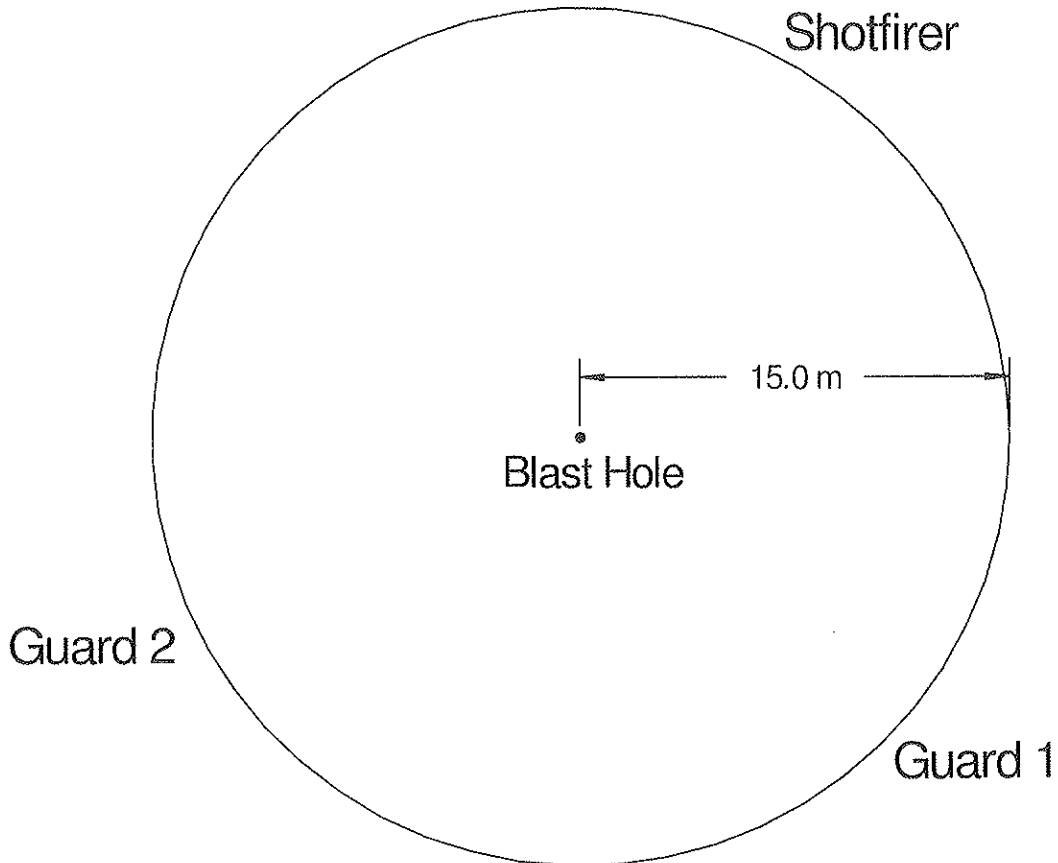
7.      Shotfirer sounds blast siren (10 sec duration/30 sec wait)
8.      Shotfirer makes 10 second call and fires shot.

### **Immediately after the blast**


9.      Shotfirer notifies Blast Guards "SHOT HAS BEEN FIRED" to remain in position until the "ALL CLEAR HAS BEEN GIVEN";
10.     Shotfirer announces "ALL CLEAR"
11.     Shotfirer signals 3 short blasts on siren;

Blast Clearance Plan

# Banora Point Blasting Assessment Blast Clearance Plan



Minimum Clearance Radius during firing 15.0m  
Shotfirer to have line of sight over whole clearance area

Scale DNS	Drawn :RSS	v1.0 18/06/10
Approved for Construction by MPA 06/05/10		
BPUA - Banora Point, NSW Blasting Assessment Clearance Plan		
		

## Appendix E      Instructions for Blast Sentries (Guards)

Shotfirer's Name:

Radio Channel:

Your Blast Guard Number:

Your Blast Guard Name:

Location:

Blast Time:

### Instructions

1. Be ready to take your assigned position 5 minutes before the blast. If you have been instructed to advise people of the impending blast, commence your clearance. Make sure machines are already moving out of the blast clearance area.
2. Block access at the 3 minute call (signaled by the shotfirer). Do not let anyone into the blast area. Contact the Shotfirer immediately if the blast area is breached or if you see anyone in the area. For example:

"Blast Guard John, to Shotfirer Dwayne. Stop the blast. The blast area has been breached"
3. Respond to the Shotfirer's radio calls. If your part of the blast area is secure, respond to the Shotfirer's final blast clearance call using the phrase:

***"This is Blast Guard (number) (name), I am at (location), this access is blocked and the area is secure."***

Always use your name. Do not use the words "ALL CLEAR"

## Appendix F      Definitions

Stemming	Backfill on top of explosive column to contain explosive energy
Burden	Distance between rows or distance from front row to free face
MMU	Mobile Manufacturing Unit (Bulk Explosives Truck)
IE / HE	Initiating Explosives / High Explosives (Detonators and Boosters)
MIC	Maximum Instantaneous Charge – Number of kg or holes firing at any instant during the blast
DME	Dept of Mines and Energy (Explosives Inspectorate)
PPV	Peak Particle Velocity (mm/s) – standard unit for measuring vibrations from blasting and other construction activities
Powder Factor	Weight of explosive loaded per cubic metre of rock (kg/bcm)
SWI	Orica Quarry Service Shotfirer's Work Instructions. This document contains the procedures to be used by Orica Shotfirers and their assistants for tasks common to all blasting operations.
SDS	Orica Site Data Sheet. This document lists the blast design parameters to be used for the site. The Orica Shotfirer is obliged by the SWI's to work within the range of values specified on the SDS.

## Appendix G Index Mapping to AS2187.2-2006 Appendix 2

The following table lists the recommended components of a Blast Management Plan as detailed in AS2187-2006 Appendix to and maps the Orica Document that contains the specified information.

A2.2 Contents	Source Document
(a) Location of the proposed blasting.	Blast Management Plan Section 1
(b) Description of the proposed blasting.	Blast Management Plan Section 1
(c) Permits/licenses required for the project.	Blast Management Plan Section 3
(d) Identification and position of the person responsible for the project including project safety and security	Blast Management Plan Section 3 and Appendix D
(e) Identification and position of person who has given approval to use explosives on the project	Blast Management Plan Appendix D
(f) Key appointments and responsibilities.	Blast Management Plan Section 3 and App D
(g) Shotfirer's details.	Blast Management Plan Section 3
(h) Details of the risk management assessment.	Blast Management Plan Appendix B
(i) Details of adjacent structures or services that influence the blast design.	Blast Management Plan Appendix B
(j) Details of reports, drawings and records consulted.	Blast Management Plan Section 6
(k) Layout plan of the blast including drilling pattern and hole depths.	Job Pack / SDS / SWI Section 2
(l) Detonation sequence/effective charge mass per delay (MIC)/powder factor.	Job Pack / SDS / SWI Section 3
(m) Type of explosive to be used and quantity required.	Job Pack / SDS / SWI Section 2
(n) Method of initiation.	Job Pack / SDS / SWI Section 3
(o) Type of firing equipment and procedures.	Job Pack / SDS / SWI Section 3 & 19
(p) Drilling procedures.	Client to Supply
(q) Explosive loading and charging procedures.	Job Pack / SDS / SWI Section 10,11,12
(r) Explosive storage and handling procedures.	SWI Section 4
(s) Security procedures for the site and the blast, including explosives.	SWI Section 4, 8, 5, 9
(t) Environmental consideration air blast overpressure, ground vibration.	Risk Assessment / Customer Site Safety Checklist / SDS
(u) Details of communication systems.	Blast Management Plan App D and E / Customer Site Safety Checklist
(v) Warning procedures.	Blast Management Plan App E / Customer Site Safety Checklist / SWI Section 17, 18, 19
(w) Traffic management plan.	Blast Management Plan App E / Customer Site Safety Checklist
(x) Proposed dates and times of blasting.	Job pack
(y) Details of the exclusion zone.	Blast Management Plan App E / Customer Site Safety Checklist / SWI Section 1, 18,19
(z) Method of notification to owners and occupiers of structures, and providers of services	Blast Management Plan App C
(aa) Influence of weather.	Risk Assessment / Customer Site Safety Checklist

(bb) Loading in poor light conditions or reduced visibility.	Risk Assessment / Customer Site Safety Checklist
(cc) Cessation of explosive-related activities during electrical storms.	SWI Section 5
(dd) Misfire management system.	SWI Section 21
(ee) Post blast assessment and inspection procedures.	SWI Section 22
(ff) Provision for post-blast comments.	SWI Section 22
(gg) Signature spaces for the plan author, shotfirer and person who approves the plan.	Blast Management Plan Front Cover, SDS, SWI Section 2
<b>A3 BLAST RECORDS</b>	
Details of the blast should be taken and maintained, including but not limited to the following :	
(a) Environmental conditions at the time of the blast.	SWI Section 22, Blast Evaluation Report in Job pack
(b) Monitoring equipment including type, serial number and location.	SWI Section 22, Job pack records
(c) Details of measurements recorded during the blast.	SWI Section 22, Job pack records
(d) Details of fly rock or fly.	SWI Section 22, Job pack records
(e) Details of incidents and complaints.	SWI Section 22, Job pack records
(f) Comment on the results of the blast.	SWI Section 22, Job pack records
(g) Proposed modification to the blast plan for future shots.	SWI Section 22, SDS





**BANORA POINT UPGRADE ALLIANCE  
BLAST MANAGEMENT PLAN**

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**APPENDIX G – SAFETY SWMS, PRE-START TOOLBOX, CHECKLIST**



**SAFETY INSPECTION REPORT (BLANK)**

PROJECT: BPUA		WORK AREA:		INSPECTION DATE:	
ITEM NO.	INSPECTION ITEM	ACTION REQUIRED & LOCATION	ACTION PRIORITY	PERSON RESPONSIBLE	CLOSED OUT DATE
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

Inspection By:	Print Name	Signature
Follow up Inspection:		
Follow up Date:		

**Priority Key: 1.Immediately**

**2. Same Day**

**3. Nominate Date**

**SAFETY OBSERVATION RECORD**

<b>Area:</b>				
<b>Names of Observers:</b>	1.	<b>Position:</b>	1.	<b>Date:</b>
	2.		2.	
	3.		3.	
	4.		4.	
<b>What is the activity being observed?</b>			<b>Does the activity involve High Risk Construction Work</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Where is the activity being carried out?</b>				
<b>Who is undertaking the activity?</b> <input type="checkbox"/> Alliance <input type="checkbox"/> Subcontractor		<b>Name of subcontractor (if applicable):</b>		
<b>Name and position of Supervisor:</b>				

<b>Brief description of activity;</b>
---------------------------------------

<b>Is there a Safe Work Method Statement (SWMS) available for the activity?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Has the Safe Work Method Statement (SWMS) been approved for use?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Name of personnel carrying out activity	Have these people been toolboxed?	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No

<u>Areas of Observation</u>	<u>Acceptable Behaviour</u>	<u>Comments</u>
<b>Is a copy of the SWMS present with the work crew?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Has a Job Hazard Analysis Card or equivalent been completed for the day?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Does the SWMS capture all hazards present at the time of the observation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Are those doing the task wearing the required personal protective equipment</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Are tools and equipment being used correctly?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**SAFETY OBSERVATION RECORD**

<b>Is the task done as per the SWMS? (If no list the differences)</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**Name and position of person(s) spoken to as part of the observation?**

Name	Position	Name	Position

<b>Are they aware of the potential hazards involved in the work activity? (What are they?)</b>	<input type="checkbox"/> Yes	
	<input type="checkbox"/> No	
<b>Are they aware of the control measures in place to eliminate or minimize the risk of harm?</b>	<input type="checkbox"/> Yes	
	<input type="checkbox"/> No	

**What could be done to improve safety for this task?**

**General Comments (document positive and/or safe behaviours observed)**

**Does the SWMS appear to be adequate?**  Yes  No

ACTION REQUIRED	NAME OF RESPONSIBLE PERSON	DATE DUE

**Signatures of observers**

<b>1.</b>	<b>2.</b>
<b>3.</b>	<b>4.</b>



## BPUA Site Inspection (Structures)

<b>Location/Structure:</b>			
<b>Subcontractor:</b> (if applicable)			
<b>( ✓ ) Adequate</b>	<b>( X ) Not Adequate</b>	<b>( n/a ) Not Applicable</b>	<b>Date;</b>

No	Check the Following	✓, X, n/a	Comments	Complete?
1	PPE available and being worn, shirts and pants worn properly?			
2	JHA cards completed for all activities and signed off by all?			
3	SWMS available on site for workers and being complied with?			
4	Plant inspection sheets available and completed by operators?			
5	Power tools & leads 'Test-n-Tagged, <b>RCD protection in place</b> & leads suspended?			
6	Harnesses appropriate for the application, with Trauma Straps fitted & lanyards attached to suitable anchor points?			
7	Para web and/or barriers are in place to define the work site?			
8	Hand rails are in place for work over 2m, top rails 900mm high & posts 2.4m apart?			
9	Generators isolated where fumes may build up or noise may be an issue?			
10	Cranes operating safely & certified dogger/rigger used for all crane lifts?			
11	Fuel kept away from operating/hot motors?			
12	Ladders tied off and 1m above work deck?			
13	Scaffold 'Scaff-tag' up-to-date, access is good & no materials stored on work decks?			
14	Compressor hoses clipped and no leakages from hoses or compressor?			
15	Worksite tidy with materials stacked safely and securely away from areas?			
16	Warning signs adequate for the work?			
17	Oxy/Acetylene bottles secure, fire exting. is present & flashback arrestors fitted?			
18	Access to and from work area is safe & is free of Slip, Trip and Fall hazards			
19	Re-Bar Caps in place?			

- Items identified as "X" are to be rectified immediately.

Name	Signature	Name	Signature



# BPUA Site Inspection (E'works)

<b>Area:</b>			
<b>Subcontractor:</b>			
<b>(✓) Adequate</b>	<b>(X) Not Adequate</b>	<b>( n/a ) Not Applicable</b>	<b>Date;</b>

No	Check the Following	✓, X, n/a	Comments	Complete?
1	PPE available and being worn			
2	Shirt Sleeves are below elbow height & long pants are being worn properly?			
3	Certificated Plant Operators being used			
4	Experienced and trained personnel operating general plant			
5	JHA cards in place for all activities and signed off by employees			
6	SWMS available on site for workers			
7	Seat belts fitted and worn where fitted			
8	Pre-shift plant inspection sheets available and completed by operators.			
9	Warning signs adequate for work being carried out including Subcontractors			
10	Road signs in place and visible to all operators and surveillance traffic.			
11	VMP &/or Traffic Control Plan in place			
12	Windrows &/or parawebbing in place to define batter edges, pits or trenches			
13	Pits are parawebbed or covered			
14	Trenches protected if greater then 1.5m in depth?			
15	Surveyors clearly identified/marked when working around plant & trucks?			
16	Mobile plant & vehicles have operating flashing lights and reverse alarms?			
17	Plant not operating above personnel without awareness from both parties			
18	Communication between plant & vehicles open & clear?			
19	Safe driving techniques demonstrated by all operators & drivers			
20	Safe means of access available for access and work on batters?			

- Items identified as "X" are to be rectified immediately.

Name	Signature	Name	Signature



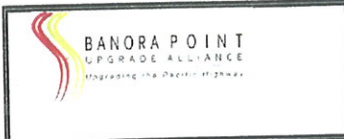
## BPUA Site Inspection (Excavation & Trench Checklist)

<b>Area/location:</b>		<b>PTE No.</b>	
<b>Subcontractor:</b>		<b>Date;</b>	
<b>Description:</b> (eg; sewer pit)			
	(✓) Adequate	(X) Not Adequate	( n/a ) Not Applicable

	Check the Following	✓, X, n/a	Comments &/or Action required	Complete?
1	<u>Permit &amp; Job Requirements</u> <ul style="list-style-type: none"> <li>▪ Is the PTE present and current?</li> <li>▪ Is a Powerline Permit required</li> <li>▪ Is the Safe Work Method Statement on site?</li> <li>▪ Is the PPE in use appropriate?</li> </ul>	- - - -		
2	<u>Geotechnical Site Inspection Report (SIR)</u> <ul style="list-style-type: none"> <li>▪ Does the excavation require a SIR?</li> </ul>	-		
4	<u>Surface &amp; Weather Conditions</u> <ul style="list-style-type: none"> <li>▪ Are there any significant surface cracks?</li> <li>▪ Is the spoil placed well clear of the edge and from protected vegetation?</li> <li>▪ Is it raining &amp;/or very hot, how will the weather affect the excavation?</li> </ul>	- - -		
5	<u>Benching, Battering or Shoring</u> <ul style="list-style-type: none"> <li>▪ Does the excavation comply with the design?</li> <li>▪ Is appropriate protection in place &amp; functioning?</li> <li>▪ Is there sign of any movement or deflection?</li> </ul>	- - -		
6	<u>Excavation</u> <ul style="list-style-type: none"> <li>▪ Is there suitable access for workers in and out of the excavation (stairs, ladders, ramps)</li> <li>▪ Is there an existing service in the excavation?</li> <li>▪ Does the excavation need dewatering?</li> <li>▪ Is equipment &amp; materials away from the edge?</li> <li>▪ Is it near a public road or pedestrian path?</li> <li>▪ Is lighting sufficient?</li> <li>▪ Is there a risk of falling objects (eg; rocks)?</li> <li>▪ Are walkways / bridges required / in place?</li> <li>▪ Is there a risk of a build up of gases (eg; Co<sup>2</sup>)?</li> </ul>	- - - - - - - - -		
Additional Comments:				

- Items identified as "Not Adequate" are to be rectified immediately.

Name	Signature	Name	Signature



## BPUA Site Inspection (Scaffold)

Location:		Scaffold Dimensions:	
Type of Scaffold:		No. of Working Decks	
Scaffold Installed by:			
Scaffold Rating (circle):	Light Duty	/	Medium Duty
		/	Heavy Duty
(✓) Adequate	(X) Not Adequate	( n/a ) Not Applicable	Date;

No	Check the Following	✓, X, n/a	Comments	Complete?
1	Sole-boards centred			
2	Sole-boards not undermined			
3	Base jacks have full bearing			
4	Base jacks wing-nut wound up tight to underside of standard			
5	Full scaffold framework every 2 metres			
6	Locking pins engaged and not loose			
7	Kickboards on all decks above 2 metres and secure			
8	Top-rail and mid-rail on all working decks			
9	Hop-ups positioned only one star up or down from the working deck			
10	Hop-ups located more than one star down must have a mid-rail installed			
11	Lap-boards secured from movement			
12	Gaps have protective coverings			
13	Decks fully planked out			
14	Suitable ties are used and correctly spaced			
15	End bracing in place			
16	Face bracing in place			
17	Couplings tightened			
18	Ladder access secured and penetrations have protective tubing in place			
19	Stairs in good order with landings no greater than 400mm from last step			
20	Scaffold not overloaded			
21	Scaffold components free of damage			
22	Scaff-tag system up to date			
23	Potential trip hazards protected			
24	Scaffold free of rubbish and stored materials			
25	Isolated or incomplete areas have access-prevention measures in place			

- Items identified as "X" are to be rectified immediately.

Name	Signature	Name	Signature



## BPUA Site Inspection (Survey)

NAME: ..... POSITION: .....

COMPANY: ..... AREA INSPECTED: .....

ITEM	Yes No or N/A	PROBLEM & REMEDIAL ACTION	CLOSE-OUT DATE
All workers under my supervision inducted (Check for site induction card)			
Daily JHA Cards correctly filled in with hazards identified before starting work			
All PPE being worn correctly eg: hard hat, vest and safety boots			
SWMS for task is available (for high risk activities)			
All workers under my control are toolboxed in appropriate SWMS			
Warning signs, or delineation, in place (where required) eg; around haulage traffic and live road			
Surveyors identified within the work zone & contact with surrounding equipment & personnel established (eg; Leading hand/Foreman)			
Harnesses & attachment points available & checked, for use where required for working at heights			
Ladders tied off and 1m above work deck			
Loose items in cab stowed correctly			
Certified operator operating boom lift			
Suitable access egress			
Check following specific hazards in my work area: <ul style="list-style-type: none"> <li>• Services marked where hazard present</li> <li>• VMP or TCP in place</li> <li>• Survey equipment calibrated</li> <li>• Manual handling options in place</li> </ul>			
List other safety, environmental or community items of concern			

*Note: Workers above includes Subcontract personnel you are responsible for*

SIGNATURE: ..... DATE: .....

SURVEY MANAGER SIGNATURE: ..... DATE: .....

All actions have been completed

SURVEY MANAGER SIGNATURE: ..... DATE: .....









**BANORA POINT UPGRADE ALLIANCE  
BLAST MANAGEMENT PLAN**

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**APPENDIX H – BLASTING WORKSITE PROFORMAS**







# SHEET B

**BPUA -Sexton Hill**

**Location Chainage** 371.8-362.8 MOF1

**Shot No:** BL57

**Suncon O/N** \_\_\_\_\_

## PROPOSAL

**Date to be Fired:** 17.07.08  
**Time to be Fired:** 12.30pm

## ACTUAL

**Date Fired:** 18.07.08  
**Time Fired:** 12.40pm

### DRILLING AND LOADING DETAILS

Type of Stone	Brisbane Tuff	
Density of Stone	2.7	
Burden	0.9	m
Spacing	1.1	m
Number of Holes	88	
Average Hole Depth	2.60	m
Total Lineal Metres Drilled	228.8	m
Total Volume of Stone	227	bcm
	612	tonnes
Subgrade Drilling Depth	0	m
Pattern Type	Square	
Nominal Blasthole Diameter	76	mm
Number of Rows	11	
Blasthole Inclination Angle	0	deg
Bench Height	2.60	m
Average Stemming Depth	2	m
Stemming Material	10mm aggregate	
Total Explosive Charge	114	kg
Heaviest Charge Detonated at any Instance (MIC)	1.3	kg
Powder Factor	0.503	kg/m stone

### DRILLING AND LOADING DETAILS:

Type of Stone	Brisbane Tuff	
Density of Stone		t/m
Burden	0.9	m
Spacing	1.1	m
Number of Holes	88	
Average Hole Depth	2.60	m
Total Lineal Metres Drilled	228.8	m
Total Volume of Stone	227	bcm
	0	tonnes
Subgrade Drilling Depth	0	m
Pattern Type	square	
Nominal Blasthole Diameter	76	mm
Number of Rows	11	
Blasthole Inclination Angle	0	deg
Bench Height	2.60	m
Average Stemming Depth	2	m
Stemming Material	10mm agg.	
Total Explosive Charge	98.56	kg
Heaviest Charge Detonated at any Instance (MIC)	1.12	kg
Powder Factor	0.44	kg/m stone

### EXPLOSIVES USED

TYPE	QUANTITY	
Premix ANFO	_____ kg bags	_____ bags
Bulk Type	_____ kg	_____ kg
Package Type	185 gram	102 kg
Package Type	_____ kg	_____ kg
ANFO	_____ kg bags	_____ kg
Boosters	150g	_____ kg
Boosters	400g	_____ kg
Delays/ Down line	3.6 m	425ms x 88
Delays/ Surface	3.6 m	42ms x 89
Delays/ Surface	6.1 m	25ms x 1
	3.6 m	17ms x 12
	100 m	LIL
	m	_____

### EXPLOSIVES USED

TYPE	QUANTITY	
Premix ANFO	_____ kg bags	_____ bags
Bulk Type	_____ kg	_____ kg
Package Type	640 g	98.56 kg
Package Type	_____ kg	_____ kg
ANFO	_____ kg bags	_____ kg
Boosters	150g	_____ kg
Boosters	400g	_____ kg
Delays	3.6 m	425ms x
	3.6 m	42ms x 89
	3.6 m	17ms x 12
	4.9 m	25ms x 1
	100 m	LIL
	m	_____

### REMARKS

Shot Loaded By (Names) \_\_\_\_\_

Shot Fired by \_\_\_\_\_

Foreman/Manager (sign) \_\_\_\_\_



# SHEET E



MARK UP DATE:	17.07.08	START DRILLING:	17.07.08	COMPLETED DRILLING:	17.07.08	SHOT NO.:	BL57	LOCATION:	371.8-362.8 MOFL
DRILLER:	Ian Irvine	DENSITY OF STONE:	2.7	SUBDRILL:	0	HOLE DIAMETER:	76	NO. OF HOLES:	76
TYPE OF STONE:		EXPLOSIVE CHARGE:	113.96	POWDER FACTOR:	0.503	BENCH HEIGHT:	2.6	ROWS:	2.6
TOTAL LINEAL:	238.8	BURDEN:	0.9	SPACING:	1.1	TOTAL TONNES:	63.2	TOTAL BOM:	227
AVG. HOLE DEPTH:	2.6								1.295
									KG
									CHARGE WEIGHT
									STEMMING HT
									BLASTHOLE ANGLE:
									2
									0

CH	TYPE	1	2	3	4	5	6	7	8	NO. OF HOLES	CHARGE WEIGHT	STEMMING HT	BLASTHOLE ANGLE
CH 371.8	A	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 370.9	B	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 370.0	C	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 369.1	D	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 368.2	E	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 367.3	F	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 366.4	G	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 365.5	H	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 364.6	I	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 363.7	J	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 362.8	K	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0
CH 361.9	L	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	76	1.1	2	0

ABNORMAL CONDITIONS:

**BANORA POINT UPGRADE ALLIANCE  
BLAST MANAGEMENT PLAN**

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**APPENDIX I – EXAMPLE EXCLUSION ZONES**



**BLASTING  
ZONE A**

Pedestrian Path Closure  
 Blasting Guard  
 Receiver



**Legend:**  
 — Traffic Flow  
 — Concrete Barriers  
 X Pedestrian Path Closure

Revision: Original  
 20/07/2010  
 Sheet 3 of 4

**BANORA POINT UPGRADE ALLIANCE  
 BLASTING PLAN - SOUTH**



**BLASTING  
ZONE B**

- Legend:**
- Traffic Flow
  - Concrete Barriers
  - Road Closure
  - Pedestrian Path Closure
  - Blasting Guard
  - Receiver

Revisions: Original  
20/07/2010  
Sheet 2 of 4

**BANORA POINT UPGRADE ALLIANCE  
BLASTING PLAN - SOUTH**



**BLASTING  
ZONE C**

**Legend:**

- Traffic Flow
- Concrete Barriers
- Road Closure
- Pedestrian Path Closure
- Blast Receiver
- Blast Receiver
- X

Revision: Original  
20/07/2010

Sheet 1 of 4

**BANORA POINT UPGRADE ALLIANCE  
BLASTING PLAN - SOUTH**



### BLASTING ZONE D

- Legend:
- Traffic Flow
  - Concrete Barriers
  - Road Closure
  - Pedestrian Path Closure
  - Blasting Guard
  - Receiver

Revision: Original  
20/07/2010

Sheet 4 of 4

## BANORA POINT UPGRADE ALLIANCE BLASTING PLAN - SOUTH

**BANORA POINT UPGRADE ALLIANCE  
BLAST MANAGEMENT PLAN**

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**APPENDIX J – PROCESS CONTROL PLAN**

## PROCESS CONTROL PLAN - INSPECTION CHECKLIST

Project: BANORA POINT UPGRADE ALLIANCE (BPUA)

PROCESS: DRILLING, CHARGING and FIRING BLAST

LOT No: \_\_\_\_\_ Location: \_\_\_\_\_

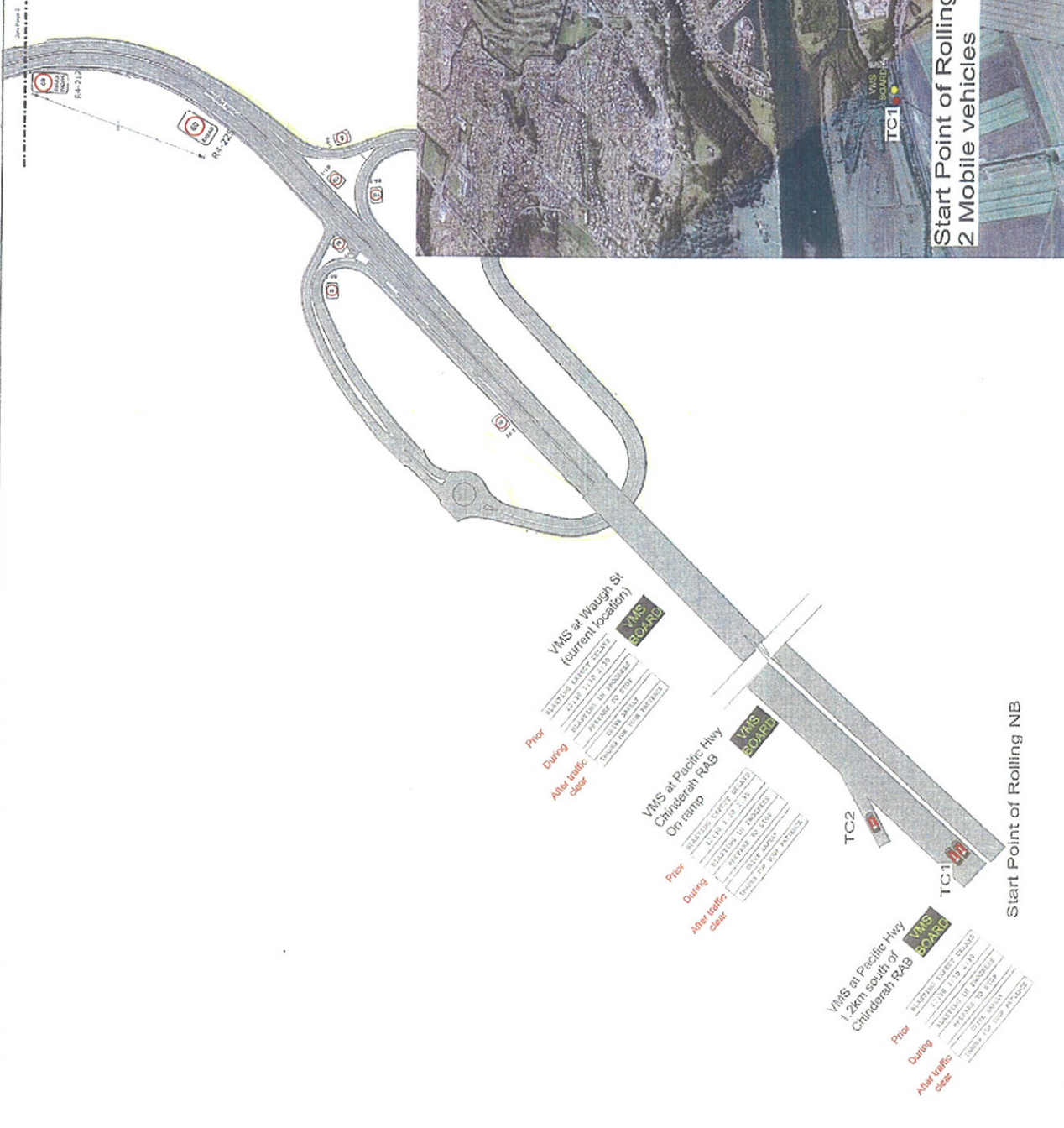
Time	No	ITEM	Verified By Subcontractor		Verified by BPUA		Hold/Witness Point Released		NCR	
			Initial	Date	Initial	Date	Initial	Date	NCR#	Date Closed
	1	HOLD POINT 1: Verify borehole used to protect batter prior to burden blast					(SE)			
	2	Verify there is NO rain event likely to occur within the loading and firing window			(SE)					
	3	HOLD POINT 2. Verify Proposed Blast Design and Explosives Loading Chart is completed by Subcontractor and submitted to BPUA for review.	Shot firer		(SE)					
	4	BPUA Survey to provide plan showing proposed blast area with distance to monitoring stations and important structures. Plan to include adjacent blasts and vibration results. And issued to community team			(Survey)					
	5	HOLD POINT 3: BPUA Blasting consultant to review and approve Proposed Blast Design the day before the planned blast.					(JH)			
	6	HOLD POINT 4: Verify the following Permits have been approved and tool boxed  Permit to Excavate  Blasting Permit  Traffic Control Permit.....	Shot firer				(SE)			
	7	HOLD POINT 5: Verify that the project engineer has approved explosives handling procedures and JSA's before explosives are brought onto the site.	Shot firer				(PE)			
	8	HOLD POINT 6: Verify all hole depths, burdens, spacing's, number of hole and lost holes, charge weights, stemming, detonator delays and sequencing are checked for conformance to approved Blast Design Blast Report Signed off by Subcontractors and submitted to BPUA for review. Verify all boreholes are clean and stemmed. Previous blast holes are identified stemming checked and re-stemmed required.	Shot firer				(SE)			
	9	HOLD POINT 7: Any changes to the design are to be approved by Blast Consultant prior to commencing past this point.					(PE)			
	10	HOLD POINT 9: Inspection and approval of overburden and matting, Bidum placed along line drill. 200mm Overburden & Double Matting to extend 1.5m either side of blast. Single matting to extend 10m either side of shot.	Shot firer				(FM)			
	11	HOLD POINT 11: Notify Community, Environmental, Structures and TMC (NSW) of blast.					(SE)			
	12	HOLD POINT 11: APPROVAL TO PROCEED TO BLASTING Notify Personnel of Blast Time and Location					(PE)			
	13	INSTALLATION OF SIGNAGE: TC to install signage as per TCP.								
	14	HOLD POINT 12: Verify Pre blast Meeting occurs 60 minutes prior to blast for any last minute instructions.					(BC)			
	15	TMC NOTIFICATION: 30min prior blasting Traffic Engineer to ring TMC on 02 8396 1686								
	16	RADIO CHECK: radio check to confirm all BG's TC's radios work and are on correct channel (UHF 31). Check that remote TC's have phones and are charged					(BC)			
	17	HOLD POINT 13: Verify ALL Plant and equipment if removed 20m from blast 20 minutes by TBC Subcontractor to confirm upon request. Confirm Video Camera is Set-up & Recording.					(BC)			
	18	HOLD POINT 14: Blast Controller to advise on the UHF "RADIO SILENCE UNTIL ALL CLEAR IS GIVEN"	Shot firer							
	19	WITNESS POINT: Blast Controller to advise Shot firer to sound warning siren for 30seconds."shotfirer, please sound warning siren"					(BC)			



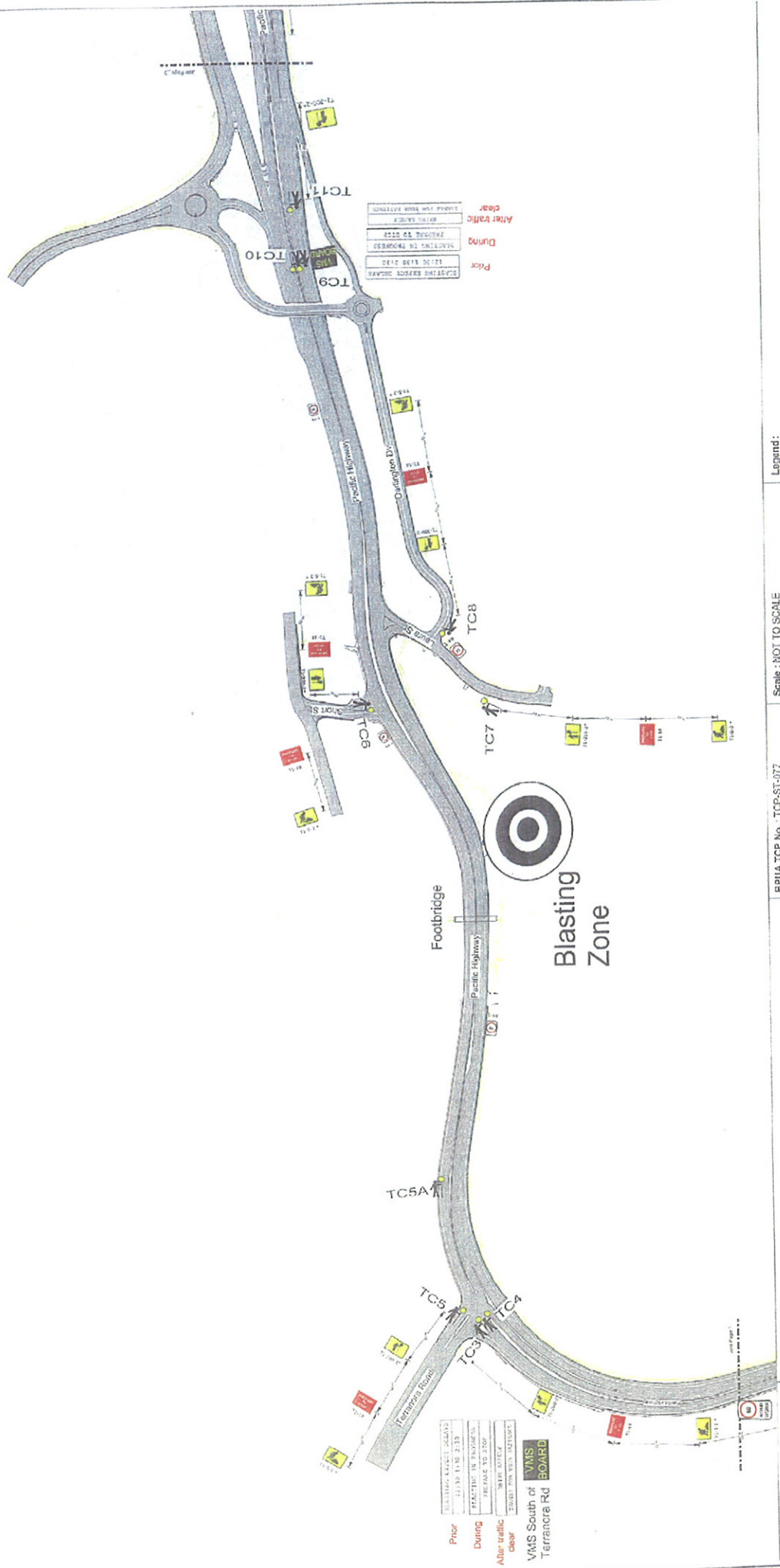
**BANORA POINT UPGRADE ALLIANCE  
BLAST MANAGEMENT PLAN**

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**APPENDIX K – TRAFFIC CONTROL PLANS**



	Job Details : ROLLING STOPPAGE - BLASTING WORKS		Scale : NOT TO SCALE	Legend :
	Drawn By : Angela Torres	License : 7282030734	Date : 28/07/2010	Sheet : 1 of 3
Approved by : Angela Torres	Signature : <i>[Signature]</i>	Date : 02/08/2010	Revision : Orig	Date : 28/07/2010
BFUA TCP No. : TCP-ST-077		RTA TCP Ref No. : 77,57,47		



**Prior**  
 STOPPING KEYS DEACTIVATED  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

**During**  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

**After traffic clear**  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

**Prior**  
 STOPPING KEYS DEACTIVATED  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

**During**  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

**After traffic clear**  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP  
 ALL SIGNS TO STOP

VMS South of Terranora Rd BOARD

Legend:

Scale: NOT TO SCALE

BPUA TCP No.: TCP-S1-077

Job Details: ROLLING STOPPAGE - BLASTING WORKS



License: 726030734 Date: 28/07/2010

RTA TCP Ref No: 77,57,47

Sheet: 2 of 3

Revision: Orig

Date: 28/07/2010

Signature: *[Handwritten Signature]*  
 Approved by: Angala Torres

