



METROMIX PTY LIMITED

Lower Level Management Plan

Prepared in conjunction with:

MINING OPERATION SERVICES

SEPTEMBER 2016

Authorised By: Manager Quarries
Location: Divisional Resources
Division / Site: Quarries/Teralba/Management Plans
Reference / Name: TER SHE 4.8 – 012 Lower Level Management Plan

Issue Date: SEPTEMBER 2016
Approval Date:
Review Date: January 2017

CONTENTS

Page

COMMONLY USED ACRONYMS	4
1 INTRODUCTION	5
2 APPROVED ACTIVITIES	7
3 CONSULTATION	10
3.1 CONSULTATION.....	10
4 LEGAL AND OTHER REQUIREMENTS	10
4.1 PROJECT APPROVAL PA10_0183.....	10
4.2 STATUTORY REQUIREMENTS	13
5 OBJECTIVES AND OUTCOMES	13
6 PERSONNEL MANAGEMENT	14
6.1 ROLES AND RESPONSIBILITY.....	14
6.2 COMPETENCE TRAINING AND AWARENESS.....	14
7 CORRECTIVE AND PREVENTATIVE ACTIONS	14
8 COMPLAINTS HANDLING AND RESPONSE	15
9 INCIDENT REPORTING	17
10 PLAN REVIEW	17
11 APPENDIX ONE	18

FIGURES

Figure 1.1 Locality Plan.....	6
Figure 2.1 Approved Quarry Layout.....	8

TABLES

Table 2.1: Approved Hours of Operation	10
Table 4.1: Blast-related Project Approval Conditions – Operations	11
Table 5.1: Objectives and Key Performance Outcomes.....	13
Table 6.1: Roles and Responsibilities for Lower Level Management Management.....	14

COMMONLY USED ACRONYMS

AHD	Australian Height Datum
AS	Australian Standard
BS	British Standard
CCC	Community Consultation Committee
DP&E	Department of Planning and Environment
ENCM	Environmental Noise Control Manual
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPL	Environment Protection Licence
PA	Project Approval
DRE	Division of Resources and Energy

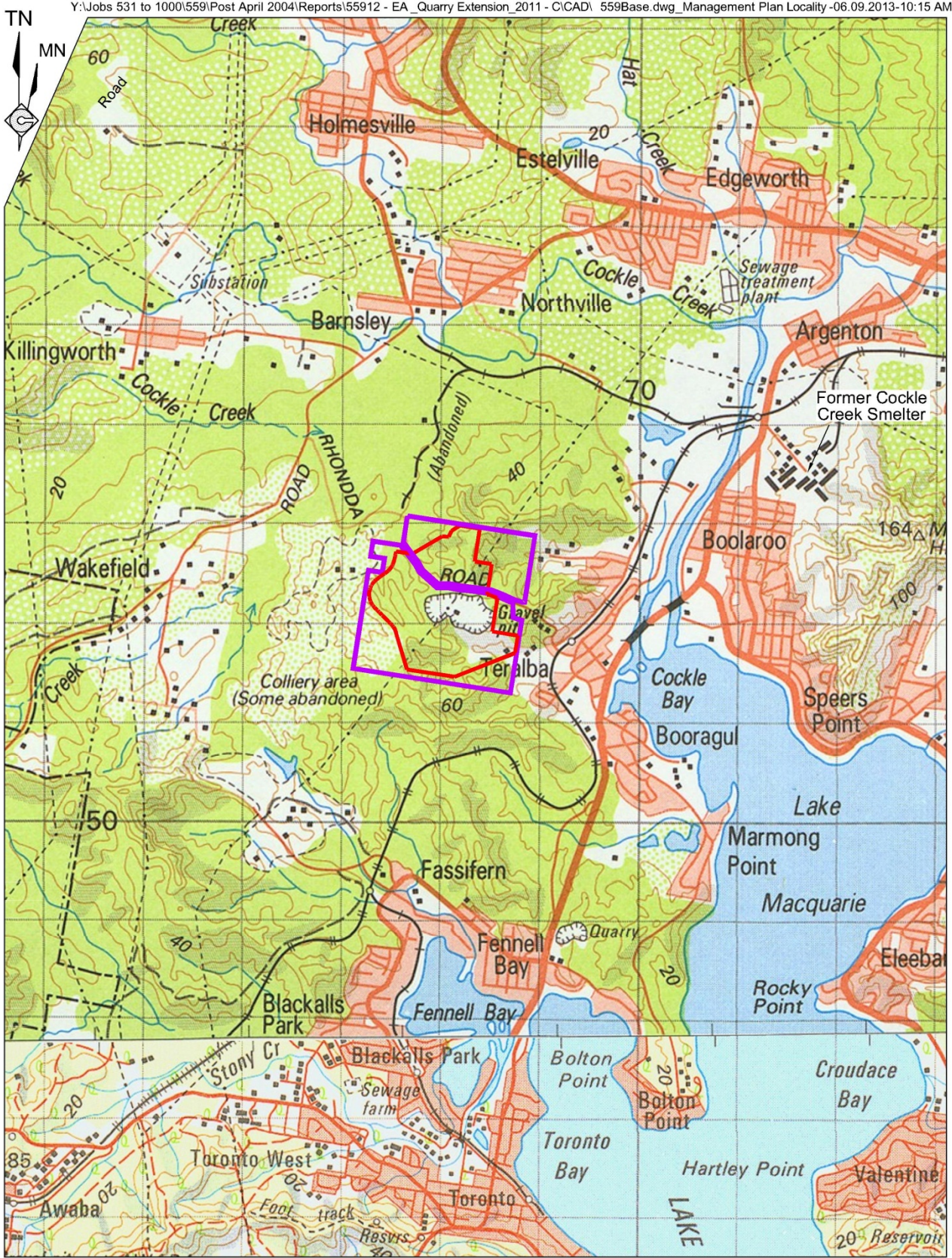
1 INTRODUCTION

This *Lower Level Management Plan* (the Plan) has been prepared by Metromix Pty Ltd (Metromix) in conjunction with the approved suitably qualified person, Ian Pankhurst from Mining Operation Services for the Teralba Quarry (the Quarry). The Quarry is located west of the suburb of Teralba, beyond the western shores of Lake Macquarie. The Plan has been prepared in satisfaction of *PA Condition 3(4)* of Project Approval (PA) 10_0183 (approved on 22 February 2013). The bulk of the Lower Level Management Plan consists of the Underground Workings Collapse and Spontaneous Combustion Management Plan (UWCSCMP)

PA Condition 3(4): Lower Level Management Plan

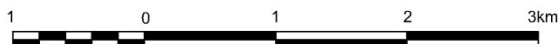
“The Proponent shall prepare and implement a Lower Level Extraction Plan for all extraction activities within 17.5 vertical metres of historical coal workings within the Great Northern coal seam, to the satisfaction of the Director-General. This plan must:

- (a) be submitted to the Director-General for approval prior to undertaking any such quarrying operations and within 12 months of the date of this approval;*
- (b) be prepared by suitably qualified persons approved by the Director-General;*
- (c) provide for the achievement of the measures set out in condition 3(3)*
- (d) describe the measures that would be implemented to ensure:*
 - best management practice quarrying operations are being employed on site;*
 - individual responsibilities of workers, contractors and management and understood; and*
 - compliance with relevant conditions of this approval;*
- (e) include a Spontaneous Combustion Management Plan, which has been prepared in consultation with DRE and Oceanic Coal Pty Ltd, to manage the potential risks and impacts of spontaneous combustion or heating of coal and which;*
 - includes a detailed assessment of the risks of spontaneous combustion and subsurface heating for each of the existing and proposed Extraction Areas;*
 - clearly identifies responsibilities to address management of spontaneous combustion and subsurface heating risks, for both day to day operations and long term management; and*
 - includes appropriate short and long term contingency plans.*



REFERENCE
 ——— Property Boundary
 ——— Quarry Site Boundary

SCALE 1:60 000 (A4)



Base Map Source: Newcastle (1983) & Lake Macquarie (1977) 1:100 000 Topographic Maps

Figure 1.1
 LOCALITY PLAN

- Competence training and awareness for Metromix's personnel and contractors.
- Blast management measures that will be implemented during the ongoing operation of the Quarry.
- Corrective and preventative actions that will be implemented should exceedance(s) of the relevant criteria be identified.
- Complaints handling and response procedures that will be implemented.
- Incident reporting procedures.
- Plan review.

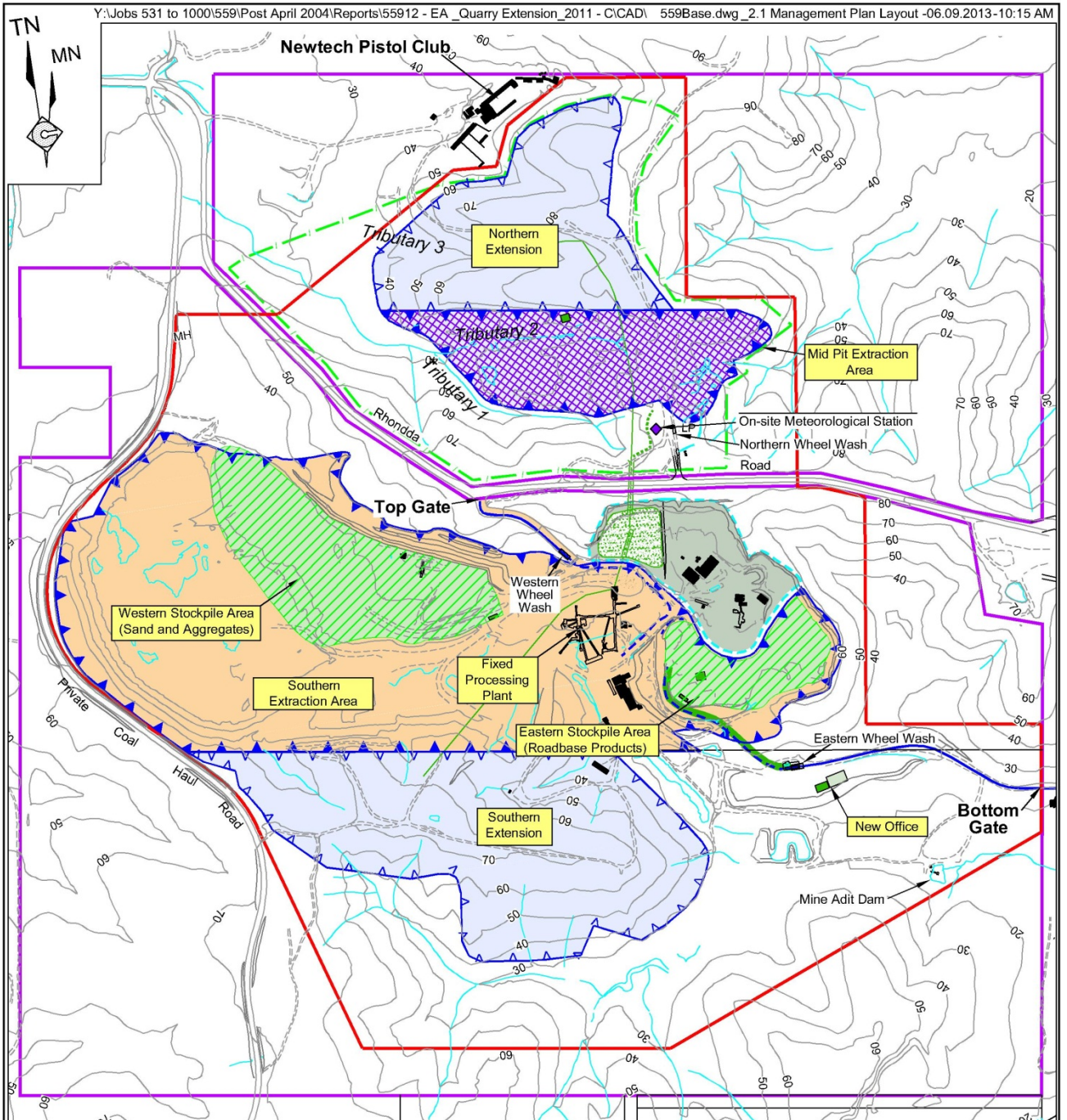
The above elements reflect each of the relevant specific issues outlined in *PA Condition 3(4)*, where relevant.

Blasting has been undertaken at Teralba Quarry for in excess of 50 years, 30 years of which has been undertaken by Metromix. Hence, this Plan reflects the considerable experience gained and documentation retained over those years.

2 APPROVED ACTIVITIES

The approved activities within the Teralba Quarry comprise the full range of activities undertaken prior to 22 February 2013 and the extension of extraction operations to the north and south of the previously approved extraction areas. The approved activities on site comprise the following, the locations of which are displayed on **Figure 2.1**.

- Conglomerate extraction (blasting and excavation).
 - Southern Extraction Area.
 - Mid Pit Extraction Area.
 - Southern Extension.
 - Northern Extension.
- Processing Operations (size reduction, screening and blending).
 - Existing processing plant and pug mill.
 - Proposed in-pit crushing (in the Southern and Northern Extensions).



REFERENCE

- Property Boundary
- Quarry Site Boundary
- Southern Extraction Area
- Mid Pit Extraction Area
- Extension Area
- Surge Stockpile Area
- Area Occupied by Downer EDI (long term activity)
- Proposed Security Fence
- Contour (m AHD)(Interval =10m)
- Drainage Line
- Sealed Road
- Unsealed Road / Track

SCALE 1:10 000 (A4)

100 0 100 200 300 400 500 m



Base Map Source: Geo-Spectrum (Australia) Pty Ltd

Figure 2.1
APPROVED QUARRY LAYOUT

- On-site Load and Haul Operations.
 - Off-road trucks on the on-site road network.
 - Proposed conveying primary-crushed rock from the Southern and Northern Extensions to processing plant (including conveyor beneath Rhondda Road).
- Off-site Transportation of Products.
- Vehicle/equipment maintenance and ancillary activities and stores.
- Administration and product despatch.
- Progressive rehabilitation and maintenance.

The sequence of extraction throughout the life of the quarry will reflect the need to suspend operations in the western side of the Southern Extension whilst bench vegetation grows to visually shield the western extraction faces. The current sequence plan for extraction is as follows.

- Year 1 - Suspend extraction in Mid Pit Extraction Area.
- Years 2 to 9 - Southern Extension (Western Area to 20mAHD).
- Years 10 to 22 - Complete extraction in Mid Pit Extraction Area and Northern Extension.
- Years 23 to 30 - Southern Extension (Eastern Area to 20mAHD).

During the next 6 to 9 years, extraction will only take place in the Southern Extension. Subject to sales, extraction activities will be progressively transferred beyond this period to the extraction areas north of Rhondda Road. The relevant limitations upon the approved activities nominated in Conditions within Project Approval 10_0183 are as follows.

- “The Proponent shall not carry out quarrying operations below 20 AHD in the Southern Extension and 24m AHD in the Mid Pit Extraction Area and Northern Extension” *PA Condition 2(6)*.
- “The Proponent shall not extract more than 1.2 million tonnes of extractive materials from the site in any calendar year” *PA Condition 2(7)*.

“The Proponent shall not:

- a) transport more than 1 million tonnes of quarry products from the site in any calendar year; or
- b) despatch more than 326 laden trucks from the site on any day; or
- c) despatch more than 241 laden trucks per day or 20 per hour westwards along Rhondda Road;

- d) despatch more than 85 laden trucks per day or 8 per hour eastwards through Teralba;
- e) despatch laden trucks for travel through Teralba between 6:00pm and 6:00am; or
- f) receive unladen trucks via the Railway St entrance between 6:00pm and 7:00am”
PA Condition 2(8).

The approved quarry life is until 31 December 2038 *PA Condition 2(5)* and the approved hours of operation are set out in **Table 2.1** *PA Condition 3(6)*.

Table 2.1: Approved Hours of Operation

Day	Receipt of Concrete or VENM	Loading and Despatch of Quarry Trucks	Extraction and Processing Operations
Monday to Friday	7:00am to 5:00pm	4:00am Monday to midnight Friday	7:00am to 7:00pm
Saturdays	7:00am to 2:00pm	midnight Friday to 6:00pm Saturday	7:00am to 2:00pm
Sundays and Public Holidays	None	None	None

Note: Maintenance activities may occur at any time provided they are inaudible at privately owned residences.

The approved hours of operations of blasting are between 10:00am and 4:00pm Monday to Friday, i.e. in accordance with *PA Condition 3(10)*.

3 CONSULTATION

3.1 CONSULTATION

PA Condition 3(4) requires this Plan to be prepared in consultation with DRE and Oceanic Coal Pty Ltd, to manage the potential risks and impacts of spontaneous combustion or heating of coal. The final document reflects the comments provided by DRE. Oceanic Coal Pty Ltd declined to review the document.

4 LEGAL AND OTHER REQUIREMENTS

4.1 PROJECT APPROVAL PA10_0183

Metromix was granted *Project Approval (PA) 10_0183* by the Director-General, as delegate of the Minister for Planning and Environment of the DP&E on 22 February 2013 pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approval includes a comprehensive set of conditional requires that Metromix must comply with during the life of the Quarry and sets out the core requirements of this Plan in *PA Condition 5(3)*. Extraction Management and Blast-related conditions relevant to operations within the Quarry within this approval are reproduced in **Table 4.1**.

Table 4.1: Blast-related Project Approval Conditions – Operations

Condition	Requirement											
(3)(3)	<p>The Proponent must ensure that;</p> <p>(a) <i>The underlying historical coal workings within the great Northern coal seam pose not a greater than negligible risk to safety of the quarry workers, including risks from sudden unplanned collapse, release of noxious gases or explosion of flammable gases; and</i></p> <p>(b) <i>quarrying operations pose not a greater than negligible risk of heating or combustion of the underlying historical coal workings within the Great Northern coal seam</i></p>											
3(9)	<p>Blasting Criteria</p> <p>The Proponent shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 4.</p> <p><i>Table 4: Blasting Criteria</i></p> <table border="1" data-bbox="363 913 1353 1144"> <thead> <tr> <th data-bbox="363 913 679 1010">Location</th> <th data-bbox="679 913 887 1010">Airblast overpressure (dB(Lin Peak))</th> <th data-bbox="887 913 1078 1010">Ground vibration (mm/s)</th> <th data-bbox="1078 913 1353 1010">Allowable exceedance</th> </tr> </thead> <tbody> <tr> <td data-bbox="363 1010 679 1144" rowspan="2">Any residence on privately owned land, or any public infrastructure</td> <td data-bbox="679 1010 887 1055">120</td> <td data-bbox="887 1010 1078 1055">10</td> <td data-bbox="1078 1010 1353 1055">0%</td> </tr> <tr> <td data-bbox="679 1055 887 1144">115</td> <td data-bbox="887 1055 1078 1144">5</td> <td data-bbox="1078 1055 1353 1144">5% of the total number of blasts over a period of 12 months</td> </tr> </tbody> </table> <p>However, these criteria do not apply if the Proponent has a written agreement with the relevant owner or infrastructure provider/owner, and the Proponent has advised the Department in writing of the terms of this agreement.</p>	Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	Any residence on privately owned land, or any public infrastructure	120	10	0%	115	5	5% of the total number of blasts over a period of 12 months
Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance									
Any residence on privately owned land, or any public infrastructure	120	10	0%									
	115	5	5% of the total number of blasts over a period of 12 months									
3(10)	<p>Blasting Hours</p> <p>The Proponent shall only carry out blasting onsite between 10:00am and 4:00pm Monday to Friday inclusive. No blasting is allowed on weekends or public holidays, or at any time without the written approval of the Director-General.</p>											
3(11)	<p>Blasting Frequency</p> <p>The Proponent shall not carry out more than one blast a day on site, unless an additional blast is required following a misfire.</p>											
3(12)	<p>Property Inspections</p> <p>If the Proponent receives a written request from the owner of any privately-owned land within 500 meters of proposed blasting for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:</p> <p>a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:</p> <ul style="list-style-type: none"> - establish the baseline condition of any buildings and/or structures on the land, or update the previous property inspection report; and - identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and <p>b) give the landowner a copy of the new or updated property inspection report.</p>											

Table 4.1: Blast-related Project Approval Conditions – Operations (Cont'd)

Condition	Requirement
3(13)	<p>Property Investigations</p> <p>If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim in writing from the landowner the Proponent shall:</p> <ul style="list-style-type: none"> a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and b) give the landowner a copy of the property investigation report. <p>If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.</p> <p>If the proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.</p>
3(14)	<p>Operating Conditions</p> <p>During blasting operations, the Proponent shall:</p> <ul style="list-style-type: none"> a) implement best management practice to: <ul style="list-style-type: none"> - protect the safety of people and livestock in the surrounding area; - protect public or private infrastructure/property in the surrounding area from any damage; and - minimise the dust and fume emissions of any blasting;; and b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, <p>to the satisfaction of the Director-General.</p>
3(15)	<p>The Proponent shall not undertake blasting within 500 metres of:</p> <ul style="list-style-type: none"> a) any public road without the approval of Council; or b) any land outside the site not owned by the Proponent, unless: <ul style="list-style-type: none"> - the Proponent has an agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement, or - the Proponent has: <ul style="list-style-type: none"> ▪ demonstrated to the satisfaction of the Director-General that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and ▪ updated the Blast Management Plan to include the specific measures that will be implemented while blasting is being carried out within 500 meters of the land.

4.2 STATUTORY REQUIREMENTS

Extraction at the Teralba Quarry is conducted in accordance with the following statutes:

- Work Health and Safety (Mines and Petroleum) Act 2013.
- Work Health and Safety (Mines and Petroleum) Regulation 2014.
- Work Health and Safety Act 2011.
- Work Health and Safety Regulation 2011.
- Explosives Act 2003.
- Explosives Regulation 2013.

5 OBJECTIVES AND OUTCOMES

Table 5.1 presents the objectives and key performance outcomes relating to blasting at Teralba Quarry.

Table 5.1: Objectives and Key Performance Outcomes

Objectives	Key Performance Outcomes
Lower Level Extraction	
(a) To ensure compliance with all relevant Project approval and Environment Protection Licence conditions, commitments and reasonable community expectations.	(i) Compliance is achieved with all relevant criteria nominated in Table 4.1 and reasonable community expectations.
(b) To implement appropriate gas and temperature monitoring, blast management, extraction management and mitigation measures throughout the life of the Quarry.	(ii) All identified blast management and mitigation measures are implemented to the extent required.
(c) To implement an appropriate monitoring program to establish compliance or otherwise with relevant criteria throughout the life of the Quarry.	(iii) All nominated monitoring is undertaken in accordance with the relevant procedures for all blasts.
(d) To implement an appropriate complaints handling and response protocol	(iv) Complaints (if any) are handled and responded to in an appropriate and timely manner.
(e) To implement continual improvement for investigating, implementing and reporting on reasonable and feasible measures to reduce blasting impacts.	(v) An appropriate continual improvement program will be implemented throughout the life of the Quarry.
(f) To implement an appropriate incident reporting program, if required.	(vi) Incidents (if any) are reported in an appropriate and timely manner.

6 PERSONNEL MANAGEMENT

6.1 ROLES AND RESPONSIBILITY

Table 6.1 presents the roles and responsibilities for the implementation of this Plan.

Table 6.1: Roles and Responsibilities for Lower Level Management Management

Role	Responsibility
Operations Manager – Quarries	Ensure that adequate resources are available to implement the requirements of this Plan. <ul style="list-style-type: none">• Ensure that the plan is relevant to current operations.
Quarry Manager	Oversee the implementation of the Lower Level Management Plan. <ul style="list-style-type: none">• Coordinate gas and temperature monitoring in accordance with this Plan.• Report notifiable incidents regulatory authorities• Coordinate periodic reviews of this Plan.

The Quarry Manager will also be responsible for ensuring the appropriate lower level extraction training is included in the induction for the relevant personnel.

6.2 COMPETENCE TRAINING AND AWARENESS

Metromix personnel and contractors involved in the extraction of the lower level, be it, supervising, gas and temperature monitoring, blast design, drilling, shot firing, water cart as well as load and haul must be trained in the Underground Workings Collapse and Spontaneous Combustion Management Plan.

7 CORRECTIVE AND PREVENTATIVE ACTIONS

In the event that blast monitoring identifies an exceedance of the blast criteria identified in *PA Conditions 3(8)* and *3(9)*, the exceedance will be investigated to determine the likely cause. All corrective and preventative actions are entered into the Rapid Online Reporting Database. An investigation will then follow to determine:

- what immediate action(s) shall be taken to fix the problem in the short term, if applicable;
- the root causes of the problem (i.e. management system, human factors/behaviour, work environment, training);
- corrective actions required to eliminate the root cause(s);
- action(s) taken to verify effectiveness of corrective action(s) (i.e. what measures and checks are taken to ensure the corrective actions that are in place are effective to prevent any further exceedance).

On completion of the investigation, an electronic copy will be forwarded to Metromix's Risk Manager for review/approval of corrective and preventative actions.

In accordance with Metromix's SHE procedures, if an event or activity occurs within the Quarry Site that has caused, is causing, or is likely to cause harm to the environment, whether the harm occurs on or off the premises, Metromix will report the event to the EPA after it becomes known to any employee or contractor. The reporting will be undertaken in accordance with the Company's Pollution Incident Response Management Plan, i.e. DP&I and EPA will be notified by Metromix as soon as practicable after the incident and a report will be prepared and submitted to the DP&I and EPA within 7 days of the exceedance in accordance with *PA Condition 5(7)*.

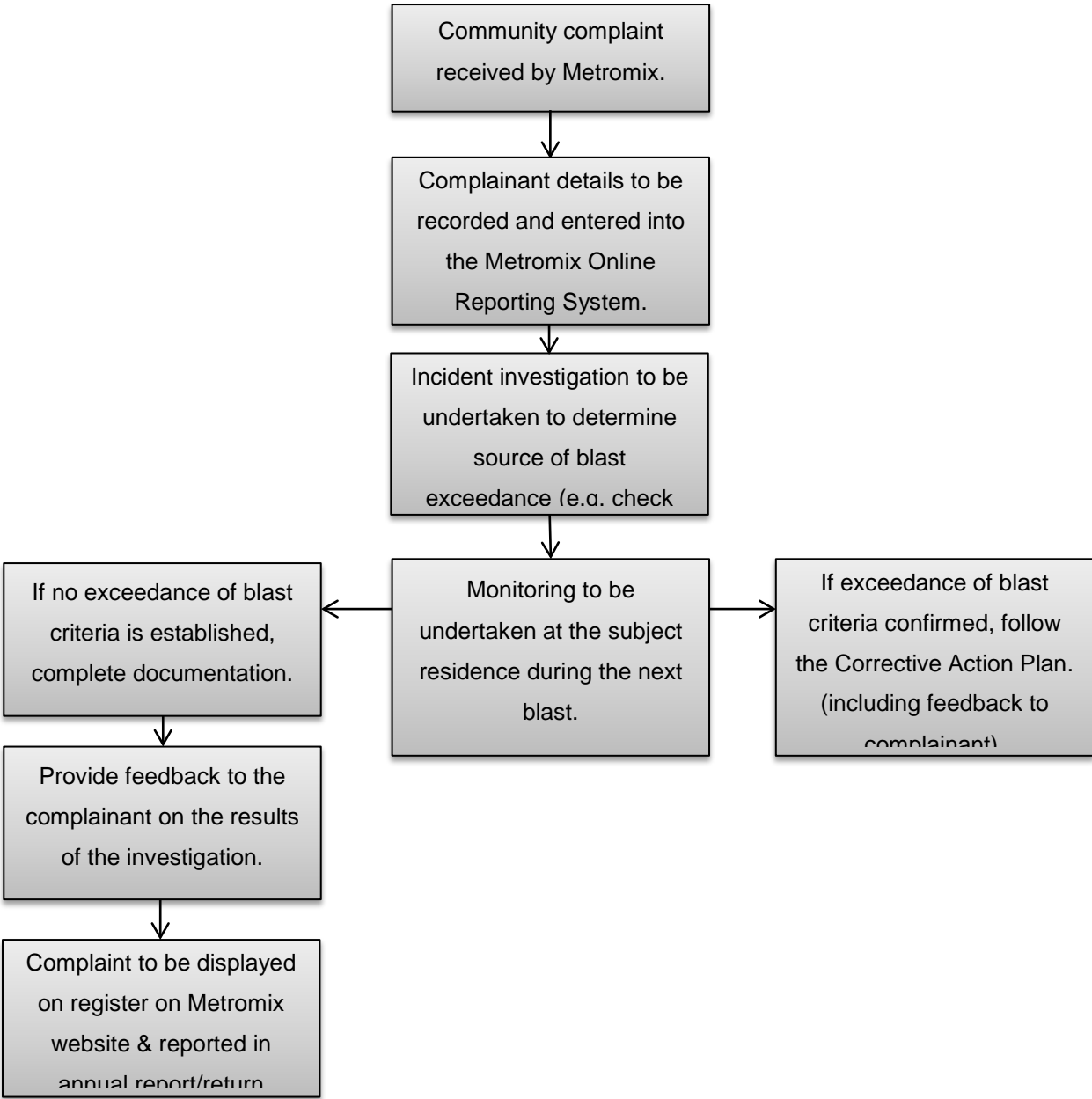
Corrective and/or preventative actions will be assigned to relevant Metromix personnel. Actions will be communicated internally through planning meetings and toolbox talks and outstanding actions will be monitored for their effectiveness upon completion.

8 COMPLAINTS HANDLING AND RESPONSE

Metromix will advertise the community inquires/complaints line 02 4950 6640 as a minimum in the local phone directory and may also consider advertising the number through local media or on newsletters.

Metromix will respond to any registered community inquiries or complaints received by this number as described in the Rapid Online Reporting System.

The following flowchart shows the process that Metromix will follow in the event a noise complaint is received.



All complaints will be recorded using a proforma complaints record sheet and the nature and outcome of the complaint and subsequent investigation provided in summary form to the Community Consultative Committee and in the Annual Review.

9 INCIDENT REPORTING

Metromix will report on the performance of the Lower Level Management Plan in each Annual Review and provide regular updates to members of the Community Consultative Committee (CCC). Each Annual Review will include:

- Any complaints or issues rising from the Lower Level Management Plan and management/mitigation measures undertaken;
- Review of the performance of management/mitigation measures and the monitoring program.

All Annual Reviews will be provided to the CCC and published regularly on the Metromix website.

10 PLAN REVIEW

In accordance with *PA Condition 3(4)*, this *Lower Level Management Plan* will be reviewed and, if required, revised within 3 months of an:

- a) annual review;
- b) incident report;
- c) independent audit report; or
- d) any modification Project Approval 10_0183.

The Quarry Manager will be responsible for the review of this Plan.

11 APPENDIX ONE

**UNDERGROUND WORKINGS COLLAPSE AND SPONTANEOUS
COMBUSTION MANAGEMENT PLAN**

Authorised By: Manager Quarries
Location: Divisional Resources
Division / Site: Quarries/Teralba/Management Plans
Reference / Name: TER SHE 4.8 – 012 Lower Level Management Plan

Issue Date: SEPTEMBER 2016
Approval Date:
Review Date: January 2017