



Environment  
Specific



**ELEMENT 6: Environment  
PIRMP – Pollution Incident Response Management Plan  
Marrangaroo Quarry**



# Pollution Incident Response Management Plan Marrangaroo Quarry



## Version Control:

| Version | Date     | Comments           | Authority                |
|---------|----------|--------------------|--------------------------|
| 1       | 13.11.17 | Final              | Risk Manager             |
| 2       | 24.6.22  | Review of Document | Risk Manager             |
| 3       | 28.8.22  | Final Document     | Risk Manager             |
| 3       | 18.10.24 | Review of Document | Compliance Administrator |
| 4       | 31.10.24 | Final Document     | Risk Manager             |
|         |          |                    |                          |
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## Record of Testing:

(record table introduced as part of Version 4 review)

| Date Tested | Version Tested | Responsible Person | Review or Incident |
|-------------|----------------|--------------------|--------------------|
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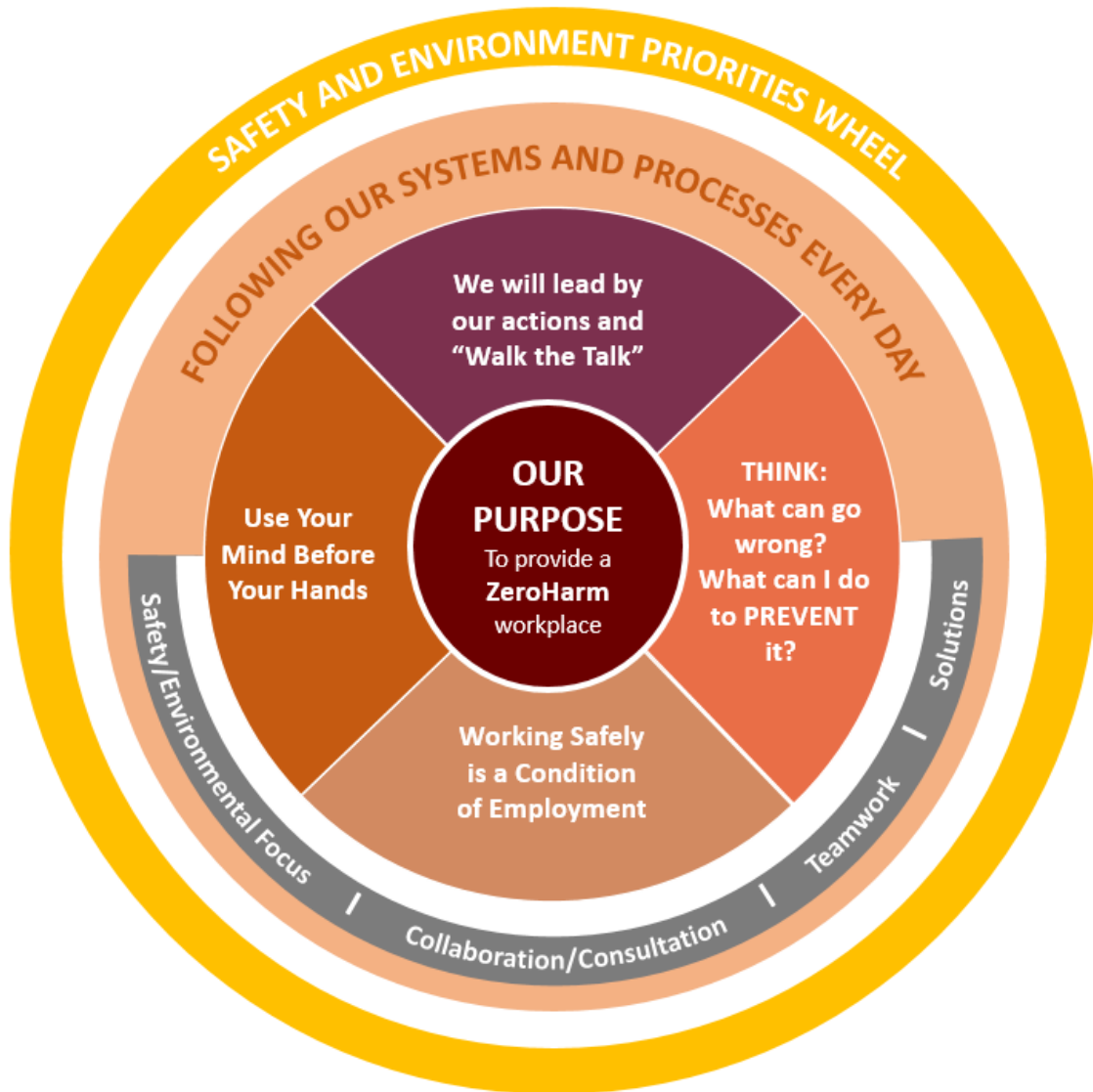
# Pollution Incident Response Management Plan Marrangaroo Quarry



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## Safety and Environment Priorities Wheel





# Pollution Incident Response Management Plan Marrangaroo Quarry



## 1. Purpose

The purpose of the Metromix Marrangaroo Quarry Pollution Incident Response Plan is to provide direction to all workers on the correct response actions to a pollution incident at the Quarry. It ensures timely communication with staff, relevant external authorities, and all other persons outside the operation who may be affected by a pollution incident.

The plan aims to minimise and control the risk of a pollution incident at the Quarry by identifying risks and planning actions to manage those risks. It also details training requirements, identifies the responsible persons to implement the plan, and ensures that the plan is tested yearly for accuracy, currency, and suitability.

## 2. Scope

A pollution Incident Response Management Plan (PIRMP) for potential environmental pollution generated at Marrangaroo Quarry

This PIRMP must be followed by employees, contractors and visitors of Marrangaroo Quarry, to assist in the early response to and reporting of a pollution incident.

## 3. References

- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2017
- Work Health and Safety (mines and petroleum sites) Act 2013
- Work Health and Safety (mines and petroleum sites) Regulation 2022
- Protection of the Environmental Operations Act 1997
- EPA Guideline to Pollution Incident Response Management Plans 2022

## 4. Definition of Pollution Incident

A pollution incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur.

It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.



# Pollution Incident Response Management Plan Marrangaroo Quarry



## 5. Response Actions

|                    |   |
|--------------------|---|
| <b>1. ASSESS</b>   | <p>Identify the severity, risk &amp; extent of the incident.</p> <ul style="list-style-type: none"> <li>• What is the substance emitted?</li> <li>• Is there a risk to health &amp; safety?</li> <li>• What is the nature of the surrounding area?</li> <li>• What is the volume of the emission?</li> <li>• If the emission has the potential to cause material harm, execute the next phase of the PIRMP</li> </ul> |
| <b>2. ALERT</b>    | <ul style="list-style-type: none"> <li>• Emergency Co-ordinator/Warden to take control.</li> <li>• Call emergency services on <b>000</b>, if the incident presents an immediate threat to human health or property.</li> <li>• Notify other person(s) within the vicinity if the incident is likely to affect them.</li> </ul>  |
| <b>3. STOP</b>     | <ul style="list-style-type: none"> <li>• Stop the source of the emission (e.g. close open valve causing spill)</li> <li>• Ensure that necessary emergency material is on hand to control larger emissions;</li> </ul>   |
| <b>4. CONTAIN</b>  | <ul style="list-style-type: none"> <li>• Utilise barriers (absorbent booms, banks of sand) or spill absorbent to prevent the emission from spreading</li> <li>• The main priority is to prevent the emitted material from discharging off site</li> </ul>   |
| <b>5. MITIGATE</b> | <ul style="list-style-type: none"> <li>• Implement environmental controls downstream of pollution to prevent/minimise further impact to receiving environment.</li> </ul>   |
| <b>6. NOTIFY</b>   | <p>Notify relevant authorities in the following order:</p> <ul style="list-style-type: none"> <li>• EPA on 131 555</li> <li>• Ministry of Health on 02 6883 5330</li> <li>• Mines Inspector on 02 6391 3100</li> <li>• Council (LGA) on 02 6354 9999</li> <li>• Fire &amp; Rescue NSW on 000</li> </ul>   |
| <b>7. CLEAN UP</b> | <ul style="list-style-type: none"> <li>• Clean-up &amp; remedial actions to restore the environment.</li> <li>• Refer to Safety Data Sheet (SDS) for information around accidental release measures.</li> </ul>   |
| <b>8. REVIEW</b>   | <ul style="list-style-type: none"> <li>• Investigate the event and assist the EPA &amp; investigators with external enquires.</li> <li>• Enter pollution incident into Online Event Reporting System then conduct and complete and internal investigation.</li> </ul>   |



## 6. Notification Requirements of a Pollution Incident

A pollution incident is required to be notified if there is a risk of 'material harm to the environment', which is defined in section 147 of the POEO Act as:

- (a) harm to the environment is material if:
  - (i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
  - (ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and
- (b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment

Notification is required even where 'harm to the environment is caused only in the premises where the pollution incident occurs', as specified in section 147(2).

Marrangaroo Quarry is required to report pollution incidents immediately to the EPA, NSW Health, Fire and Rescue NSW, Department of Primary Industries – Resource Regulator and Lithgow City Council.

## 7. Notification and Communication

Any pollution incident satisfying the material harm threshold must be immediately reported to relevant statutory authorities.

The individuals in the table in the table presented in Clause 6.1 are;

- a) responsible for activating the PIRMP
- b) authorised to notify relevant authorities, including all relevant authorities under section 148 of the POEO Act
- c) responsible for managing the response to a pollution incident



# Pollution Incident Response Management Plan Marrangaroo Quarry



## 7.1. Internal Notification – Responsible Persons

| Name           | Position            | Phone Number | 24 Hour Contact? |
|----------------|---------------------|--------------|------------------|
| Rebecca Finlay | Quarry Manager      | 0439 272 809 | Yes              |
| Mo Yunusa      | Manager of Quarries | 0423 832 077 | Yes              |
| Janelle Caban  | Risk Manager        | 0439 154 686 | Yes              |
| Bill Williams  | Quarry Supervisor   | 0419 449 964 | Yes              |

In cases where “material harm” level cannot be immediately assessed or insufficient information comes to hand on the severity of the incident, the general advice is to err on the side of caution and notify the relevant authorities with a qualification that the situation could not yet be fully assessed.

## 7.2. External Notification - Notifying the Authorities

The following relevant authorities must be contacted by one of the above people responsible for activating the PIRMP.

| Relevant Authority                                    | Phone Number   |
|---|----------------|
| EPA – Environment Line                                | 131 555        |
| Fire and Rescue NSW (FRNSW)                           | 1300 729 579   |
| Lithgow City Council                                  | (02) 6354 9999 |
| Public Health Unit – Lithgow Hospital                 | (02) 6350 2300 |
| Department of Primary Industries – Resource Regulator | (02) 6391 3100 |





## 7.3. Notifying the Community

Communication should be fit-for-purpose and tailored to the;

- nature of the incident.
- phase of response (e.g. initial community notifications, update communications, clean-up/recovery)
- types of neighbours who need to receive information.

As appropriate to the circumstances, communication can make use of:

- Incident notifications on the licensee's website.
- Social media.
- Telephone calls, SMS or other messaging systems.
- Emails to community representatives (as agreed through a community consultation process).
- Letterbox drops.
- Doorknocking of affected community members.

## 7.4. Notifying the Community – During an Event

Metromix has established a protocol for communicating with neighbouring residences in the event of an emergency. This protocol includes direct communication through phone calls or door-to-door visits by a Metromix representative. In situations where additional support is needed, assistance from emergency services will be sought to ensure effective communication.

Appendix E outlines an area of potential immediate threat based around a proximity assessed risk.

A red, highlighted polygon indicating areas approximately < 500m from the current operation boundaries is shown.

Person(s) within the area are identified as “high risk” and deemed a priority for notification if the risk presents an immediate danger to the surrounding community.



# Pollution Incident Response Management Plan Marrangaroo Quarry



## 7.5. Notifying the Community – Post Event

All community stakeholders that may be affected by pollution harm will be notified.

If a spill presents a significant risk of causing “material harm” to persons, property and/or the environment to an area that is not trivial, any community stakeholder within these areas will be notified at the earliest convenience.

When it has been established that a community stakeholder is at risk from a spill that has the potential to cause harm the following process will be implemented:

(a) Community stakeholders will be contacted immediately after the relevant authorities have been contacted by telephone

(b) Stakeholders will be advised of recommended actions that can be taken to prevent or minimise material harm, e.g. evacuate area, shut doors and windows, cease drawing water for irrigation purposes.

(c) After the spill has been contained and managed by key personnel and authorities, subsequent communication will be undertaken by the Quarry Manager and/or Risk Manager. These may include:

- Follow up telephone calls and/or face to face contact.
- Meetings with stakeholders.
- Written correspondence containing updates in regards to safety and environmental concerns associated with the pollution incident.
- Information posted on the Metromix website or through social media avenues.



# Pollution Incident Response Management Plan Marrangaroo Quarry



## 8. Roles and Responsibilities

| Position                  | Responsibility  |
|---------------------------|---|
| Employees and Contractors | <ul style="list-style-type: none"> <li>• Following the procedures outlined in the PIRMP and related documents.</li> <li>• Immediately alerting Supervisor or Leading Hand of any environmental incidents or near-misses.</li> </ul>   |
| Emergency Coordinator     | <ul style="list-style-type: none"> <li>• Following the procedures outlined in the PIRMP and related documents.</li> <li>• Ensure life, personal safety and environment takes precedence over asset protection.</li> <li>• Ordering immediate assistance such as; first aid, spill kits, gate warden as deemed necessary.</li> <li>• Ringing <b>000</b> and providing information relevant to the situation if required.</li> <li>• Co-ordinating an evacuation of the site if deemed necessary</li> </ul> |
| Supervisors/Leading Hands | <ul style="list-style-type: none"> <li>• Following the procedures outlined in the PIRMP and related documents.</li> <li>• Immediately alerting Quarry Manager or, in case of their unavailability, Environmental Representative or Environment Manager of any potentially material environmental incidents or near-misses.</li> <li>• Conducting incident investigations.</li> </ul>  |
| Quarry Manager            | <ul style="list-style-type: none"> <li>• Authorisation of the PIRMP.</li> <li>• Administration, maintenance, implementation and testing of the PIRMP.</li> <li>• Assessing whether the incident has caused, or threatens “material environmental harm” and, if so, immediately notifying all Appropriate Regulatory Authorities.</li> <li>• Ensuring that investigations are undertaken to a level corresponding to the level of risk and impact.</li> </ul>  |

Should the emergency coordinator be absent from site, they shall appoint a suitably trained person(s) to assume their duties.



## 9. Testing

PIRMPs **must** be tested routinely at least once every 12 months and within one month of any pollution incident occurring that caused or threatened material harm to the environment.

PIRMPs may be updated following testing or a change to the contact details for the individuals who are to be contacted or who are responsible for contacting others in the case of a pollution incident, or as part of a general review of the PIRMP.

If significant changes are made to plant and equipment at the premises or the operation of the premises, it is recommended the PIRMP be reviewed to ensure it remains relevant. This may include when the site increases its production capacity, when significant new plant and equipment is installed or upgraded and when the layout of the plant is changed (e.g. a chemical storage area is moved).

A new risk assessment should be done to determine if the risks have changed (their nature and/or location), whether new preventative measures are needed to minimise the risks and potential impact of an incident, and to ensure the PIRMP is effective if it needs to be activated.

Records of all testing performed shall be stored at the location of the site relevant to the PIRMP and kept accessible.

## 10. Potential Polluting Substances

The following table lists the main hazards to human health and the environment at Marrangaroo

| Description | POTENTIAL POLLUTANTS AT MARRANGAROO QUARRY |                 |  |  |               |
|-------------|--|-----------------|--|--|---------------|
|             | Quantity Potentially Stored On-site (max)  | Location        | Potential Incident   | Existing Controls to Minimise Potential of Polluting   | Map Reference |
| Diesel      | 15000L                                     | Diesel Fuel Bay | <p>Spill in refuelling bay while refuelling bulk diesel storage tank, mobile equipment or vehicles.</p> <p>Spill in the refuelling bay due to diesel tank leaking into bund container.</p> <p>Spill on the haul road or in pits during travel around site.</p> <p>Spill from customer or contractor trucks and vehicles.</p> | <p>Bunding around storage area</p> <p>Spill kits.</p> <p>Inductions and training.</p> <p>Firefighting equipment.</p> <p>Water quality and discharge monitoring in place. These are recorded and placed on our website.</p> <p>SDS register.</p> <p>Spill response procedure 6.12B.</p> | Reference #3  |

| Description   | POTENTIAL POLLUTANTS AT MARRANGAROO QUARRY |                         |  |   |               |
|---|--|-------------------------|--|---|---------------|
|   | Quantity Potentially Stored On-site (max)  | Location                | Potential Incident   | Existing Controls to Minimise Potential of Polluting  | Map Reference |
| Oils  | 3000L                                      | Oil Bay                 | <p>Spill on the haul road or in pits during travel around site.</p> <p>Spill from customer or contractor trucks and vehicles.</p> <p>Spill in workshop during maintenance activities.</p> <p>Spill in the storage bay.</p> | <p>Bunding around storage area.</p> <p>Spill kits.</p> <p>Inductions and training.</p> <p>Fire Fighting Equipment</p> <p>Water quality and discharge monitoring in place. These are recorded and placed on our website.</p> <p>SDS register.</p> <p>Spill response procedure 6.12B.</p> | Reference #4  |
| <p>Hydrocarbon Products:</p> <p>Hydraulic Oil</p> <p>Engine Oil</p> <p>Lubricants</p> <p>Gear Oil</p> <p>Torque Oil</p> <p>Adblue</p> | 2000L                                      | Hydrocarbon Storage Bay | <p>Spill on the haul road or in pit during travel around site.</p> <p>Spill from customer or contractor trucks and vehicles.</p> <p>Spill in workshop during maintenance activities.</p> <p>Spill in the storage bay.</p>  | <p>Bunding around storage tanks</p> <p>Hazardous materials training.</p> <p>Spill kits.</p> <p>Firefighting equipment</p> <p>SDS register</p> <p>Spill response procedure 6.12B</p>   | Reference #4  |

| Description   | POTENTIAL POLLUTANTS AT MARRANGAROO QUARRY |                               |  |  |               |
|---|--|-------------------------------|--|--|---------------|
|   | Quantity Potentially Stored On-site (max)  | Location                      | Potential Incident   | Existing Controls to Minimise Potential of Polluting   | Map Reference |
| Airborne dust from stockpiles, plant or traffic areas | Variable                                   | Various – refer to Appendix B | <p>Dust from mechanical handling operations including crushing and grading process.</p> <p>Dust from planned blasting activities.</p> <p>Dust from vehicle movements around the quarry.</p> <p>Dust from plant and/or stockpiles during high winds.</p> <p>Regular air quality assessments</p> | <p>Water Cart used on roadways and traffic areas to minimise dust generated by vehicle movements.</p> <p>Dust suppression sprays on fixed plant.</p> <p>Wheel wash placed at top and bottom entrance leaving the quarry.</p> <p>Monthly dust monitoring and analysis.</p> <p>Directive MET-010 – Dust Management</p> | Reference #1  |
| Sediment laden water from storage dams                | Variable                                   | Various – refer to Appendix C | <p>Run off into Marrangaroo Creek or other neighbouring waterways.</p>   | <p>Silt containment fences around the potential runoff areas and waterways.</p> <p>Discharge monitoring and analysis.</p> <p>Ensure pumps are maintained.</p> <p>Use of a Retention Dam.</p>   | Reference #5  |

| Description  | POTENTIAL POLLUTANTS AT MARRANGAROO QUARRY |                |   |   |               |
|--|--|----------------|---|---|---------------|
|  | Quantity Potentially Stored On-site (max)  | Location       | Potential Incident  | Existing Controls to Minimise Potential of Polluting  | Map Reference |
| <p>Release of blast fumes and/or odour (NO<sub>x</sub>) from blasting</p> <p>Noise pollution associated with blasting activities</p> | N/A  | Production Pit | <p>Blast fume blowing in direction of person(s) or residences.</p> <p>Blasting dB readings outside of allowable project limits.</p> | <p>Blast Management Plan (Orica).</p> <p>Conduct bore tracking for each blast.</p> <p>Consultation with Orica regarding blast design.</p> | N/A           |



## Appendix A – Marrangaroo Quarry Location



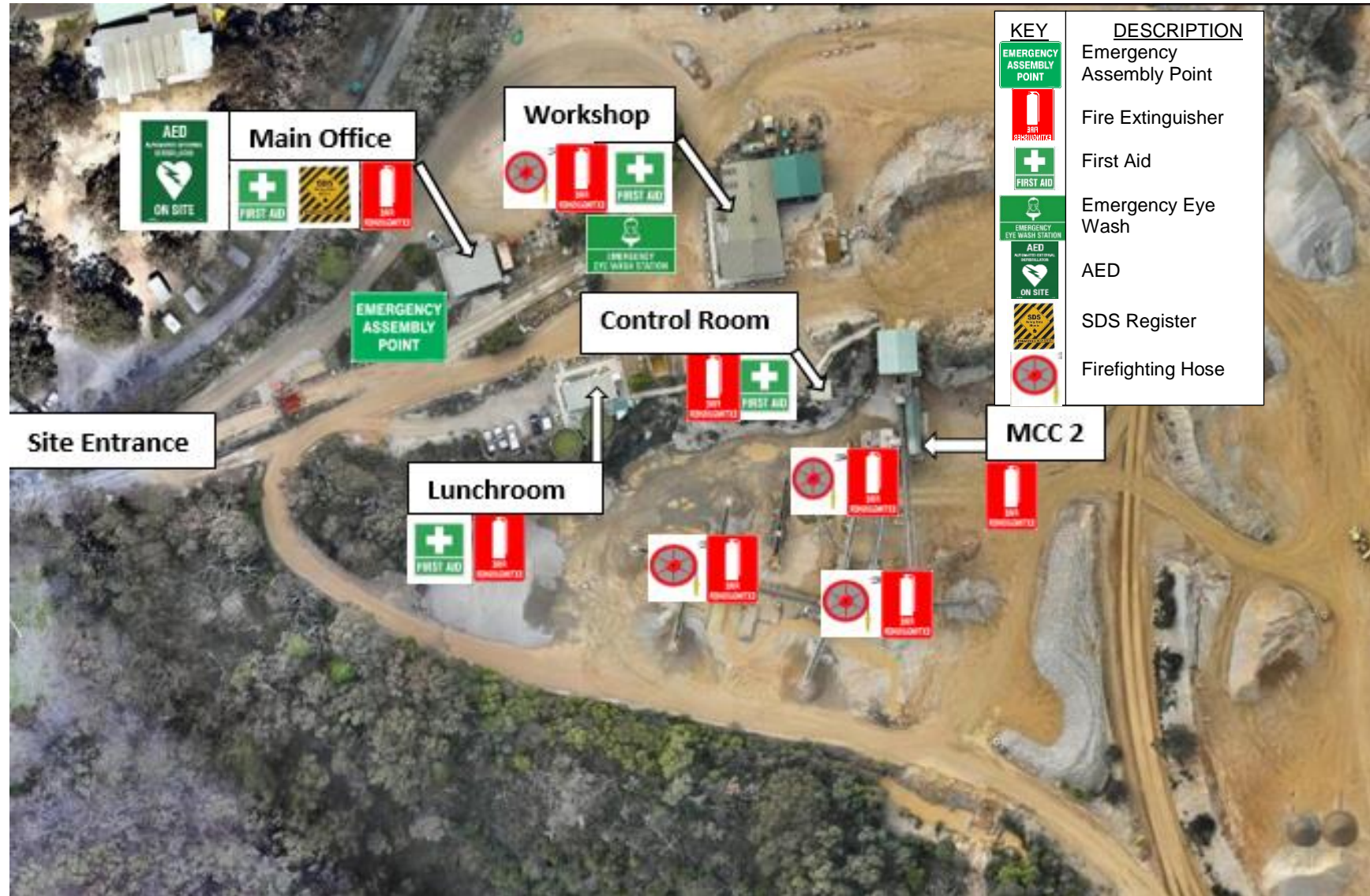
## Appendix B – Potential Pollutant Storage Locations



## Appendix C – Potential Water Discharge Storage Locations



## Appendix D – Safety and Emergency Equipment Locations



## Appendix E – Immediate Community Notification Risk Map





## Appendix F – Risk Assessment

## Task / Site / Workers Details

|   |             |  |                             |   |  |  |  |
|---|-------------|--|-----------------------------|---|--|--|--|
| <b>Type of Assessment Undertaken:</b>     |             | Risk Assessment (RA) <input checked="" type="checkbox"/> |                             | Job Safety & Environmental Analysis (JSEA) <input type="checkbox"/> |  | Safe Work Method Statement (SWMS) <input type="checkbox"/> |  |
| <b>Site:</b> Marrangaroo                  |             | <b>Authorised By:</b> Mo Yunusa                          |                             | <b>Position:</b> Manager Of Quarries                                |  |  |  |
| <b>Context/Scope of Assessment:</b>       |             | Pollution Incident                                       |                             | <b>Date of Assessment:</b> 31/10/24                                 |  |  |  |
| <b>Development and Consultation Team:</b> |             |  |                             | <b>Date of Review:</b> 31/10/25                                     |  |  |  |
| <b>Name:</b>                              | Renee Young | <b>Position:</b> Compliance Officer                      | <b>Name:</b> Rebecca Finlay | <b>Position:</b> Quarry Manager                                     |  |  |  |
| <b>Name:</b>                              | Adam Dwyer  | <b>Position:</b> Technical Manager                       | <b>Name:</b>                | <b>Position:</b>  |  |  |  |

| Mandatory PPE Requirements |   |                 |          |   |           | Area Specific                               | Hazardous Work Permits (Tick if Required) |                          |                          |                          |                          |                          | PERMITS                               |
|----------------------------|---|-----------------|----------|---|-----------|---|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------------|
|                            |   |                 |          |   |           |   |   |                          |                          |                          |                          |                          |                                       |
| LONG SLEEVED PANTS & SHIRT | ANKLE HIGH LACE UP & ZIPPERED STEEL CAP BOOTS | SAFFETY GLASSES | HARD HAT | HIGH VISIBILITY SAFETY VEST OR CLOTHING | SEAT BELT | HEARING PROTECTION (Only Where Sign Posted) | EXCAVATION                                | DE-DAGGING               | WORKING AT HEIGHTS       | HOT WORKS                | CONFINED SPACE ENTRY     | WORKING ALONE            | PERMITS ARE MANDATORY FOR THESE TASKS |
|                            |   |                 |          |   |           |   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                                       |

| LIST PLANT & EQUIPMENT TO BE USED FOR THIS TASK |          |                          |                    |                          |                        | SAFETY INSPECTIONS PERFORMED ON PLANT & EQUIPMENT |                       |                          |                                   |                          |             |                          |        |                          |         |                          |        |                          |         |                          |         |                          |        |
|---|----------|--------------------------|--------------------|--------------------------|------------------------|---|-----------------------|--------------------------|-----------------------------------|--------------------------|-------------|--------------------------|--------|--------------------------|---------|--------------------------|--------|--------------------------|---------|--------------------------|---------|--------------------------|--------|
| <input type="checkbox"/>                        | Forklift | <input type="checkbox"/> | FEL                | <input type="checkbox"/> | Welder (TIG / MIG/ARC) | <input type="checkbox"/>                          | Pre-operational check | <input type="checkbox"/> | Test and tag (on tools and leads) | <input type="checkbox"/> | Inspections |                          |        |                          |         |                          |        |                          |         |                          |         |                          |        |
| <input type="checkbox"/>                        | Crane    | <input type="checkbox"/> | Fall Arrest System | <input type="checkbox"/> | Lifting Equipment      | <input type="checkbox"/>                          | Scheduled Maintenance | <input type="checkbox"/> | Other:                            |                          |             |                          |        |                          |         |                          |        |                          |         |                          |         |                          |        |
| <input type="checkbox"/>                        | CAT 775  | <input type="checkbox"/> | HD405              | <input type="checkbox"/> | HD325                  | <input type="checkbox"/>                          | CAT 980               | <input type="checkbox"/> | PC700                             | <input type="checkbox"/> | HL 770      | <input type="checkbox"/> | WA 500 | <input type="checkbox"/> | CAT 740 | <input type="checkbox"/> | PC35-M | <input type="checkbox"/> | CAT 349 | <input type="checkbox"/> | CAT226D | <input type="checkbox"/> | CAT336 |

| LIST OF CHEMICALS USED DURING TASK   | CURRENT SDS AVAILABLE AND REVIEWED  |
|--|---|
| <p>Chemicals listed as "Dangerous Goods" are detailed in the accompanying SDS book kept in all RDB vehicles<br/>           Brake Clean, Electra Clean, WD 40, Degreaser. Personnel have been directed to use these in ventilated areas wearing required PPE including gloves and respirators</p> | <p><b>Hazardous Chemicals used for this work:</b><br/>           List any hazardous chemicals which will be used for the Work.<br/> <b>Note:</b> All person/s must be familiar with and have available all relevant Safety Data Sheets.<br/>           Poison Information Centre number: 13 11 26</p> |

**Have you considered information related to the following:-**

|  |  |   |  |
|--|--|---|--|
| <input checked="" type="checkbox"/> WHS Act 2011   | <input checked="" type="checkbox"/> WHS Regulations 2017           | <input checked="" type="checkbox"/> Work Health & Safety (Mines & Petroleum Sites) Reg 2022   | <input checked="" type="checkbox"/> Australian Standards       |
| <input checked="" type="checkbox"/> METROMIX SHEMS | <input checked="" type="checkbox"/> METROMIX Policies & Directives | <input checked="" type="checkbox"/> Health and Safety Rules   | <input checked="" type="checkbox"/> Industry Codes of Practice |
|  |  | <input checked="" type="checkbox"/> Safety Alerts   |  |
|  |  | <input checked="" type="checkbox"/> Operator Equipment Manual   |  |
| Other:   |  | Moving Plant on Construction Site, Noise Management and Protection of Hearing at Work, Risk Assessment, Work in Hot and Cold Environments, MDG 1010: Risk Management Handbook, MDG 25: Safe Cutting and Welding at mines, Utilities Working at Heights Resource, Safe Working at Heights: Guide, Preventing Slips Trips and Falls: Guide and Factsheet, Noise, Product Safety Data Sheets, Safety Line Systems, Workcover Guides: - Skin Cancer, Portable Ladders, Fall arrest systems, Workcover Position Paper on Measures used to control the risk associated with working at height, AS/NZ 189.4: 2009 - Industrial Fall Arrest Systems and devices |  |

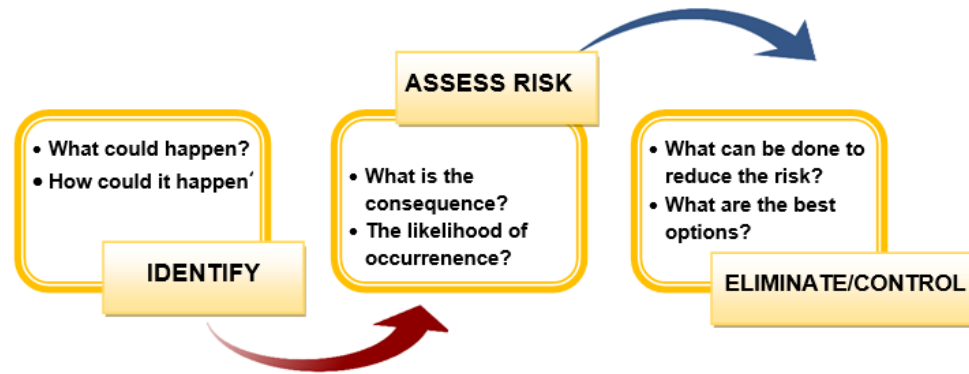
### PREPARATION FOR COMPLETING THIS FORM

|  |                                     |   |                                     |
|--|-------------------------------------|---|-------------------------------------|
| 1. Is the Development/Consultation Team familiar with the Risk Management process?       | <input checked="" type="checkbox"/> | 6. Is lockout and/or isolations required to perform this task? NO                     | <input type="checkbox"/>            |
| 2. Does the RA/JSEA/SWMS involve the Leader and people performing the job?               | <input checked="" type="checkbox"/> | 7. Can the job be moved to a safer/more appropriate location? NO                      | <input type="checkbox"/>            |
| 3. Is there an existing Work Procedure (WP) or similar RA/JSEA/SWMS for the Job?         | <input checked="" type="checkbox"/> | 8. Has the effect to others working nearby & surrounding environment been considered? | <input checked="" type="checkbox"/> |
| 4. Has all planning including organising for resources been completed prior to the task? | <input checked="" type="checkbox"/> | 9. Is additional PPE required? NO   | <input type="checkbox"/>            |
| 5. Are Chemicals involved? Review and include Safety Data Sheets (SDS). NO               | <input type="checkbox"/>            | 10. Other considerations? NO  | <input type="checkbox"/>            |

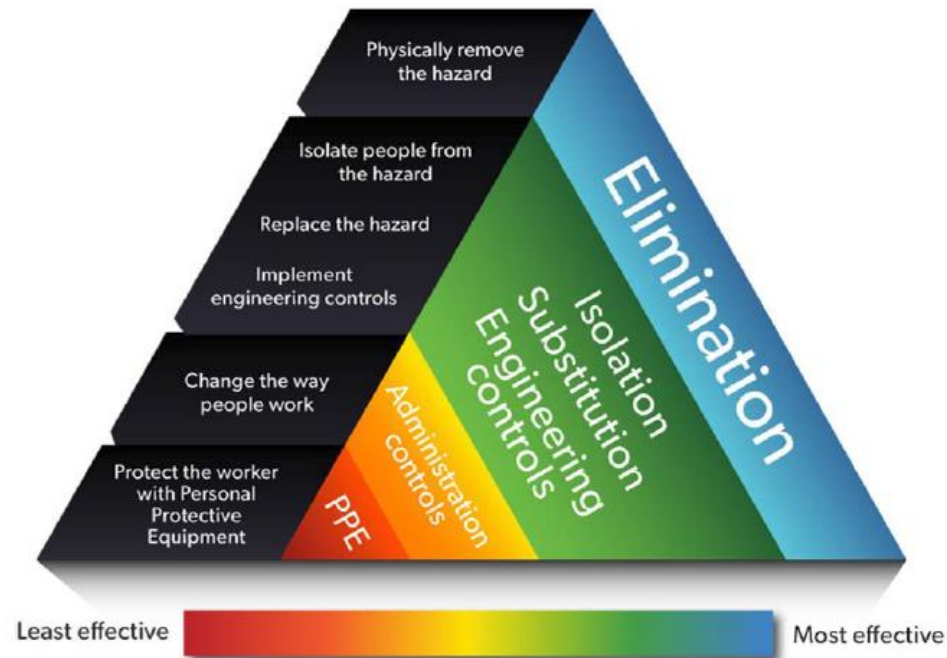
### COMPLETION OF A QUALITY JSEA/SWMS

|                                  |   |   |
|----------------------------------|---|---|
| 1. Identify each step of the job | 2. Identify the potential risks for each step | 3. Identify controls for each step to reduce the risks to As Low As Reasonably Practical (ALARP) always considering the <b>HIERARCHY OF CONTROLS</b> – starting with Elimination. |
|----------------------------------|---|---|





The **Hierarchy of Controls** showing the highest to lowest level of protection. This shall be applied when identifying controls:



### Hierarchy of Control – Legend:

- ▶ EI – Elimination
- ▶ S - Substitution
- ▶ Eng – Engineering
- ▶ A – Administration
- ▶ M – Monitoring
- ▶ Is – Isolation
- ▶ T – Training
- ▶ HM – Health Monitoring
- ▶ G - Guarding
- ▶ PPE
- ▶ In - Inspection

## Risk Assessment Matrix

### Risk Score Matrix

|            |            | CONSEQUENCE   |             |              |                  |            |
|------------|------------|---------------|-------------|--------------|------------------|------------|
|            |            | 5<br>Disaster | 4<br>Severe | 3<br>Serious | 2<br>Significant | 1<br>Minor |
| LIKELIHOOD | A Certain  | HIGH          | HIGH        | HIGH         | MED              | MED        |
|            | B Likely   | HIGH          | HIGH        | MED          | MED              | LOW        |
|            | C Possible | HIGH          | MED         | MED          | LOW              | LOW        |
|            | D Unlikely | MED           | MED         | LOW          | LOW              | LOW        |
|            | E Rare     | MED           | LOW         | LOW          | LOW              | LOW        |

### Personal Consequence Categories

|               |  |
|---------------|--|
| 5 Disaster    | Injuries that result in a fatality or multiple fatalities.     |
| 4 Severe      | Severe injury resulting in lost time.                          |
| 3 Serious     | Serious injury resulting in restricted work without lost time. |
| 2 Significant | Significant injury resulting in medical treatment.             |
| 1 Minor       | Minor injury requiring first aid treatment.                    |

## HAZARD ANALYSIS

| EI – Elimination S-Substitution Is-Isolation Eng-Engineering A-Admin PPE T-Training G-Guarding HM-Health Monitoring M-Monitoring Ins-Inspection |   |  |                 |               |   |   |  |                                      |                 |            |  |
|---|---|--|-----------------|---------------|---|---|--|--------------------------------------|-----------------|------------|--|
| Job Steps/Area Assessed   | Hazard (What could cause harm?)   | Current Risk Ranking (What is the risk now?) |                 |               | Existing Controls (What is currently in place to manage the risk? Reduce risk to ALARP)   | Proposed Controls (What else could be done to reduce the risk?)   | Check the applicable box/es  | Risk Ranking After Proposed Controls |                 |            | Person Responsible                                 |
|   |   | Consequence                                  | Likelihood      | Risk Rank     |   |   |  | Hierarchy of Controls                | Consequence     | Likelihood |  |
| Crushing Plant, Roads, Stockpiles   | Excessive dust from plant, high traffic areas and quarry material stockpiles has potential to cause harm to human health or the environment | <b>Serious</b>                               | <b>Possible</b> | <b>Medium</b> | PPE – P2 dust mask, eye protection.<br><br>Watercart wetting down roads/Stockpiles/Rom Pad.<br><br>Inductions and training.<br><br>Window up policy for all vehicles.<br><br>Dust suppression sprays on fixed plant.<br><br>Yearly Air Quality Assessment.<br><br>Respirator Fit Test.<br><br>Wheel wash top and bottom gate. | Monitor weather conditions, wind direction and speed<br><br>iTake2 personal risk assessments<br><br>Cease production in extreme weather | <input type="checkbox"/> EI<br><input type="checkbox"/> S<br><input type="checkbox"/> Is<br><input type="checkbox"/> Eng<br><input type="checkbox"/> G<br><input checked="" type="checkbox"/> A<br><input checked="" type="checkbox"/> PPE<br><input checked="" type="checkbox"/> T<br><input checked="" type="checkbox"/> In<br><input checked="" type="checkbox"/> M<br><input checked="" type="checkbox"/> HM | <b>Significant</b>                   | <b>Unlikely</b> | <b>Low</b> | <b>All Quarry Operators Management Contractors</b> |

| EI – Elimination S-Substitution Is-Isolation Eng-Engineering A-Admin PPE T-Training G-Guarding HM-Health Monitoring M-Monitoring Ins-Inspection |  |  |                 |               |   |  |                             |                                      |            |  |                    |
|---|--|--|-----------------|---------------|---|--|-----------------------------|--------------------------------------|------------|--|--------------------|
| Job Steps/Area Assessed   | Hazard (What could cause harm?)  | Current Risk Ranking (What is the risk now?) |                 |               | Existing Controls (What is currently in place to manage the risk? Reduce risk to ALARP)   | Proposed Controls (What else could be done to reduce the risk?)  | Check the applicable box/es | Risk Ranking After Proposed Controls |            |  | Person Responsible |
|   |  | Consequence                                  | Likelihood      | Risk Rank     |   |  | Hierarchy of Controls       | Consequence                          | Likelihood | Risk Rank  |                    |
| Crushing Plant, Roads, Stockpiles Cont'd  | Excessive dust from plant, high traffic areas and quarry material stockpiles has potential to cause harm to human health or the environment cont'd | <b>Serious</b>                               | <b>Possible</b> | <b>Medium</b> | iTake2 personal risk assessments.<br><br>Cease production in extreme weather.<br><br>Silica Management Plan.<br><br>Air Quality or Dust or other Airborne Contaminants Control Plan.<br><br>Health Control Plan.<br><br>Monthly Dust Monitoring.<br><br>Roads & Other Vehicles Operating Areas Control Plan.<br><br>Principal Mining Hazards Management Plan. | <input type="checkbox"/> EI<br><input type="checkbox"/> S<br><input type="checkbox"/> Is<br><input type="checkbox"/> Eng<br><input type="checkbox"/> G<br><input checked="" type="checkbox"/> A<br><input checked="" type="checkbox"/> PPE<br><input checked="" type="checkbox"/> T<br><input checked="" type="checkbox"/> In<br><input checked="" type="checkbox"/> M<br><input checked="" type="checkbox"/> HM | <b>Significant</b>          | <b>Unlikely</b>                      | <b>Low</b> | <b>All Quarry Operators Management Contractors</b> |                    |

| EI – Elimination S-Substitution Is-Isolation Eng-Engineering A-Admin PPE T-Training G-Guarding HM-Health Monitoring M-Monitoring Ins-Inspection |  |  |            |           |   |  |                             |                                      |             |   |                    |
|---|--|--|------------|-----------|---|--|-----------------------------|--------------------------------------|-------------|---|--------------------|
| Job Steps/Area Assessed   | Hazard (What could cause harm?)  | Current Risk Ranking (What is the risk now?) |            |           | Existing Controls (What is currently in place to manage the risk? Reduce risk to ALARP)   | Proposed Controls (What else could be done to reduce the risk?)  | Check the applicable box/es | Risk Ranking After Proposed Controls |             |   | Person Responsible |
|   |  | Consequence                                  | Likelihood | Risk Rank |   |  |                             | Hierarchy of Controls                | Consequence | Likelihood  |                    |
| Diesel and other Hydrocarbons   | Uncontrolled loss of Diesel or other hydrocarbon based products that could result in harm to the environment or human health | Significant                                  | Likely     | Medium    | Bunding around storage tanks.<br>Training & Inductions.<br>Spill Kits.<br>Fire Fighting Equipment.<br>SDS Register.<br>Spill response Procedure 6.12B.<br>Emergency Control Plan. | <input type="checkbox"/> EI<br><input type="checkbox"/> S<br><input type="checkbox"/> Is<br><input type="checkbox"/> Eng<br><input type="checkbox"/> G<br><input checked="" type="checkbox"/> A<br><input checked="" type="checkbox"/> PPE<br><input checked="" type="checkbox"/> T<br><input checked="" type="checkbox"/> In<br><input checked="" type="checkbox"/> M<br><input checked="" type="checkbox"/> HM | Significant                 | Unlikely                             | Low         | All Quarry Operators<br>Management<br>Contractors |                    |

| EI – Elimination S-Substitution Is-Isolation Eng-Engineering A-Admin PPE T-Training G-Guarding HM-Health Monitoring M-Monitoring Ins-Inspection |   |  |            |           |   |  |                             |                                      |            |  |                    |
|---|---|--|------------|-----------|---|--|-----------------------------|--------------------------------------|------------|--|--------------------|
| Job Steps/Area Assessed   | Hazard (What could cause harm?)   | Current Risk Ranking (What is the risk now?) |            |           | Existing Controls (What is currently in place to manage the risk? Reduce risk to ALARP)   | Proposed Controls (What else could be done to reduce the risk?)  | Check the applicable box/es | Risk Ranking After Proposed Controls |            |  | Person Responsible |
|   |   | Consequence                                  | Likelihood | Risk Rank |   |  | Hierarchy of Controls       | Consequence                          | Likelihood | Risk Rank                                      |                    |
| Dams  | Uncontrolled release of sediment laden water causing material harm to the environment | Significant                                  | Likely     | Medium    | Silt fences around the pit areas and waterways.<br><br>Discharge Monitoring.<br><br>Ensure pumps are maintained.<br><br>Utilisation of a catch dam.<br><br>Daily dam inspections by competent person.<br><br>Annual Assessment – Geotechnical inspection.<br><br>Inundation or Inrush Principal Hazard Management Plan. | <input type="checkbox"/> EI<br><input type="checkbox"/> S<br><input type="checkbox"/> Is<br><input type="checkbox"/> Eng<br><input type="checkbox"/> G<br><input checked="" type="checkbox"/> A<br><input checked="" type="checkbox"/> PPE<br><input checked="" type="checkbox"/> T<br><input checked="" type="checkbox"/> In<br><input checked="" type="checkbox"/> M<br><input checked="" type="checkbox"/> HM | Significant                 | Unlikely                             | Low        | All Quarry Operators<br>Management Contractors |                    |

| EI – Elimination S-Substitution Is-Isolation Eng-Engineering A-Admin PPE T-Training G-Guarding HM-Health Monitoring M-Monitoring Ins-Inspection |  |  |            |           |  |  |                             |                                      |             |   |                    |
|---|--|--|------------|-----------|--|--|-----------------------------|--------------------------------------|-------------|---|--------------------|
| Job Steps/Area Assessed   | Hazard (What could cause harm?)  | Current Risk Ranking (What is the risk now?) |            |           | Existing Controls (What is currently in place to manage the risk? Reduce risk to ALARP)  | Proposed Controls (What else could be done to reduce the risk?)  | Check the applicable box/es | Risk Ranking After Proposed Controls |             |   | Person Responsible |
|   |  | Consequence                                  | Likelihood | Risk Rank |  |  |                             | Hierarchy of Controls                | Consequence | Likelihood  |                    |
| Blast Fumes   | Uncontrolled release of blast fumes from blast practices causing significant impact to the surrounding community | Serious                                      | Likely     | Medium    | <p>SDS readily available.</p> <p>Follow the Blast Management Plan and Exposives Control Plan.</p> <p>Control of explosive type and optimum/correct fuel content for damp and wet holes, i.e. use of a heavy ANFO-based explosive.</p> <p>Soft overburden is removed by use of mobile plant.</p> <p>Utilising free face blasts whenever possible.</p> <p>Reduce the number of fully confined blasts.</p> <p>Holes loaded and fired on the same day where possible.</p> <p>NOx Exposure Form – Information for Medical Staff</p> | <input type="checkbox"/> EI<br><input type="checkbox"/> S<br><input type="checkbox"/> Is<br><input type="checkbox"/> Eng<br><input type="checkbox"/> G<br><input checked="" type="checkbox"/> A<br><input checked="" type="checkbox"/> PPE<br><input checked="" type="checkbox"/> T<br><input checked="" type="checkbox"/> In<br><input checked="" type="checkbox"/> M<br><input checked="" type="checkbox"/> HM | Significant                 | Unlikely                             | Low         | All Quarry Operators<br>Management<br>Contractors |                    |