

# Pollution Incident Response Management Plan (PIRMP)

## Dunbogan Quarry

Revision:	Date:	Status:	Prepared/Reviewed by:
7	07.05.2022	Issued for use	D Thiedeke
8	23.12.2022	Issued for use	D Thiedeke

# Concrete & Aggregates

HTA-E-SOP-001

Hy-Tec Industries

Safety Management System

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## Pollution Incident Response Management Plan (PIRMP)

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## 21. ENVIRONMENTAL INCIDENT RESPONSE – POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

### 21.1 PURPOSE

C&A Hy-Tec Quarries have systems in place to ensure all environmental/pollution incidents and hazards are controlled and monitored in line with the relevant state legislation.

### 21.2 SCOPE

This element applies to all C&A Hy-Tec Quarry employees, contractors, sub-contractors and visitors to ensure that all individuals are aware of requirements with regards to environmental incident issues. This element is used in conjunction with ABL-HSE-GSS-11 for reporting. If a pollution incident occurs in the course of an activity, so that material harm to the environment (within the meaning of **Part 5.7 – Duty to notify pollution incidents** - section 147 – NSW POEO Act) is caused or threatened, the person carrying on the activity must immediately implement the site's pollution incident response management plan in relation to the activity required by this Part and report any incident / incidents that cause or threaten material harm **Immediately** after becoming aware of the incident.

### 21.3 PROCEDURE

All hazards relating to human health or the environment will be described in the Environmental Hazard Management Matrix (**Appendix 8G**). The details of the pre-emptive action to be taken to minimize or prevent any risk of harm to human health or the environment arising out of the relevant activity will be recorded in a JHA (**Appendix 7C**) and/or a Risk Assessment (**Appendix 7D**). Risks will be minimised using the Risk Management Process (**Appendix 7K**).

An inventory of potential pollutants on the premises will be recorded in a Hazardous Substance Register (**Appendix 17B**). This register will also include the quantity and location of the pollutant.

A description of the safety equipment or other devices that are used to minimize the risks to human health or the environment and to contain or control a pollution incident are listed in the PPE Equipment Matrix (**Appendix 19B**) and Hazard Register (**Appendix 7F**).

The names, positions and contact details of key individuals at the quarry are kept in the Management Structure Register (**Appendix 4B**).

The contact details of each relevant authority are required to be available and displayed. Examples of required authorities are below:

- (a) EPA/OEH
- (b) Local Council
- (c) Local DPI office
- (d) Safe Work
- (e) Fire and Rescue
- (f) Water Catchment Authority
- (g) Ministry of Health
- (h) Department of Agriculture, Water and the Environment

A neighbourhood contact list will be maintained at the site. In an emergency incident, the appropriate neighbours will be contacted by the Quarry Manager or delegate and will be updated as required by the Quarry Manager / delegate. Constant communication such as 2-way radios, mobile phones and Business Communication (Toolbox) Meetings etc. (**Appendix 6B**) will be used as early warning mechanisms to communicate with site staff and management throughout the incident or other times.

# Concrete & Aggregates

An Environmental Incident Definition and Response Flow Chart (**Appendix 21A**) has been produced for guidance on the process of dealing with a pollution incident. "Pollution" means:

- (a) water pollution, or
- (b) air pollution, or
- (c) noise pollution, or
- (d) land pollution.

**Definition - "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.

The mine plan (**Appendix 3B**) will show the location of the premises with the property boundary and any other relevant detail.

The qualifications and training competencies of all employees will be recorded as required in the Training Register (**Appendix 11F**).

It is a legislative requirement for this plan to be tested and updated on an annual basis and within one month of an incident. To complete this requirement a Pollution Incident Response Drill Report (**Appendix 21B**) has been prepared. The checklist includes the major elements of the plan that require testing. This PIRMP is to be reviewed and updated as required at least annually to ensure that incident response systems are fully functioning and are ready to be implemented if an incident occurs. This requirement shall be listed as an action item and scheduled on the environmental compliance planner. Training records should be stored on site and in the Hy-Tec Intranet data base.

The plan will be controlled and reviewed in accordance with Element 5. Any changes will be recorded along with the date in the SMS Amendment Sheet (**Appendix 1A**).

## 21.4 REFERENCES

- [Environmental Protection Act 1994](#)
- [Protection of the Environment Operations Act 1997](#)
- [Protection of the Environment Operations \(General\) Amendment \(Pollution Incident Response Management Plans\) Regulation 2012](#)

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**"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.

### **Meaning of material harm to the environment**

(1) For the purposes of this Part:

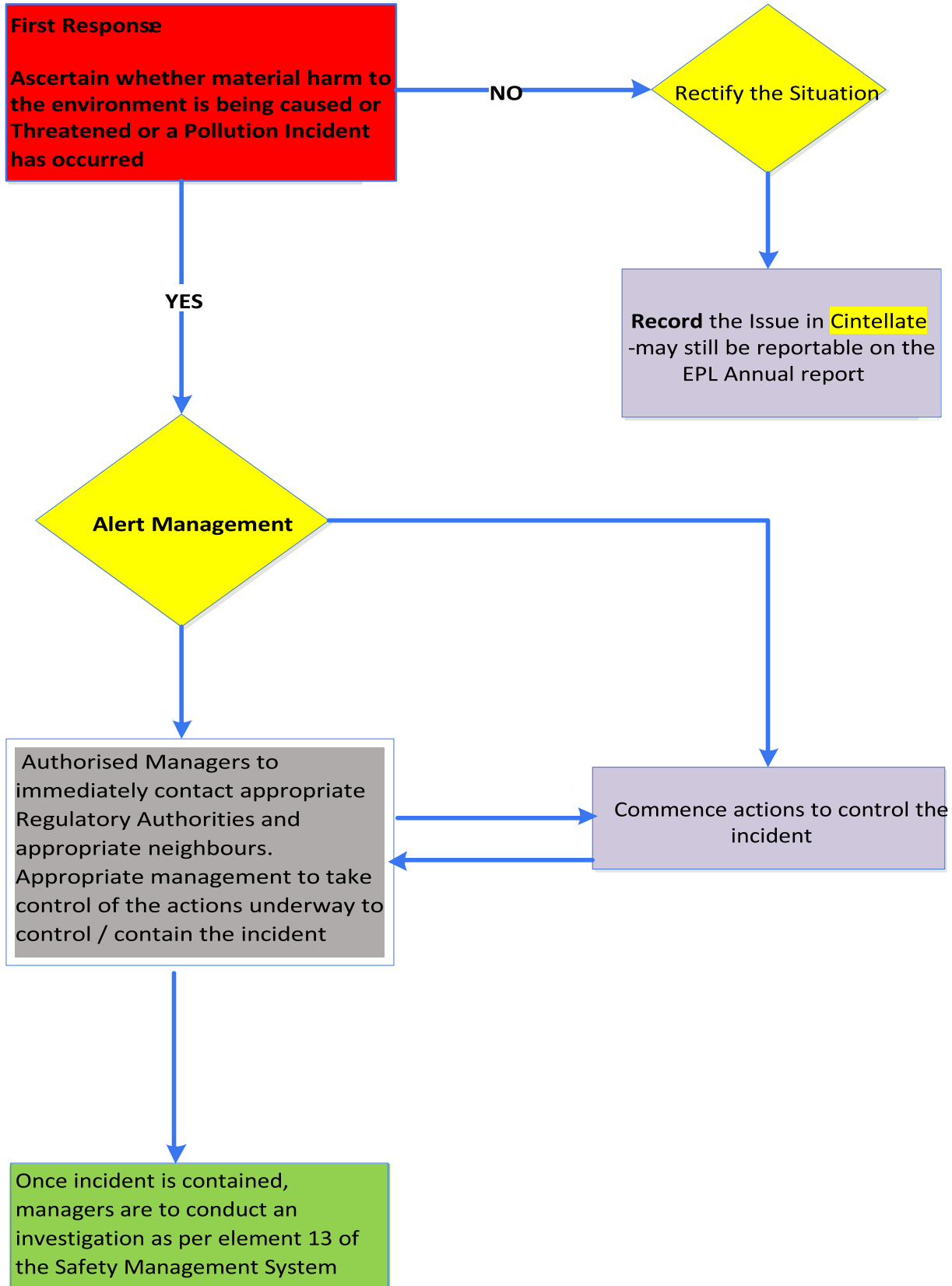
(a) harm to the environment is material if:

(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.

(2) For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.





HTQY-E-SFT-024

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Appendix 21B

Environmental Response Plan Drill Report

<b>Site/Location:</b>		<b>Date of Drill / Environmental Issue</b>	
<b>Method Used for initiating response:</b>			
<b>Time of Environmental incident:</b>		<b>Was Management contacted?</b>	
<b>Was Incident contained?</b>		<b>Method/equipment used?</b>	
<b>Was regulatory Authority notified?</b>		<b>Name of reporting person?</b>	
<b>Name of regulatory authority reported to</b>		<b>Contact person at Reg. Authority?</b>	
<b>Was incident adequately cleaned up?</b>		<b>Was waste disposed of correctly?</b>	
<b>Comments on the Drill / Environmental Emergency:</b>			
<b>Corrective actions to be adopted as a result of this Drill / Environmental Emergency</b>		<b>By whom</b>	<b>By Date</b>
<b>Report Compiled by</b>			<b>Date</b>



ABL-HSE-GSS-12-03

EMERGENCY RESPONSE CONTACT – DUNBOGAN QUARRY

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EXTERNAL EMERGENCY RESPONSE ORGANISATIONS			
Service	Emergency Contact	General Enquiry	Address
Ambulance	<b>000</b>		
Department of Industry – <b>Water</b>	<b>02 93386600</b>	0293386600	<a href="http://www.industry.nsw.gov.au/water">www.industry.nsw.gov.au/water</a>
Department Planning & Environment	<b>1300 305695</b>		<a href="http://www.planning.nsw.gov.au">www.planning.nsw.gov.au</a>
Department Primary Industries	<b>1300 814609</b>		<a href="http://www.resourcesregulator.nsw.gov.au">www.resourcesregulator.nsw.gov.au</a>
Doctor		(02) 5525 1111	152 Greenmeadows Drive Port Macquaire 2444
E.P.A	<b>131555</b>		
Fire Brigade	<b>000</b>	(02) 6559 9127	33 Castle St, Laurieton NSW 2443
Hospital	000	(02) 5524 2000	Wrights Rd, Port Macquarie NSW 2444
Port Macquarie Hastings Council	<b>(02) 6581 8111</b>		<a href="mailto:council@pmhc.nsw.gov.au">council@pmhc.nsw.gov.au</a>
Ministry of Health		02 93919000	<a href="http://www.health.nsw.gov.au">www.health.nsw.gov.au</a>
Poisons Information Centre	N/A	13 11 26	<a href="http://www.poisonsinfo.nsw.gov.au">www.poisonsinfo.nsw.gov.au</a>
Police	<b>000</b>	(02) 6559 9044	101 Bold St, Laurieton NSW 2443
SafeWork	<b>13 10 50</b>	13 10 50	<a href="mailto:contact@safework.nsw.gov.au">contact@safework.nsw.gov.au</a>
State Emergency Service	<b>13 25 00</b>	N/A	<a href="http://www.ses.nsw.gov.au">www.ses.nsw.gov.au</a>

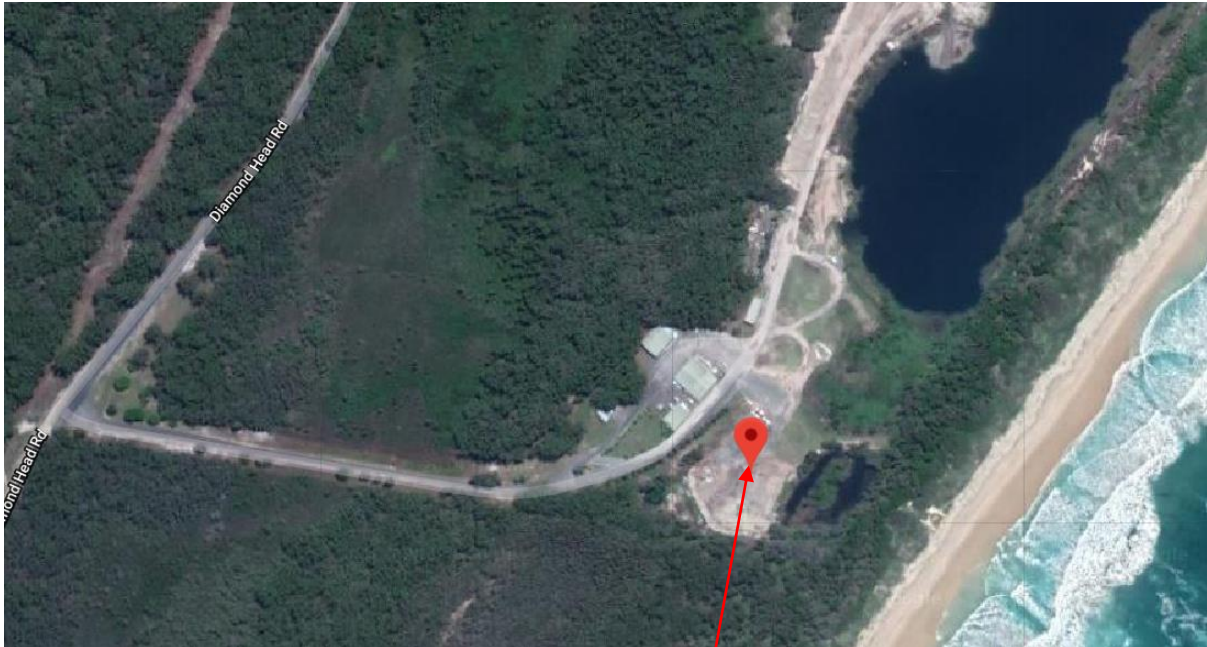
If any emergency service (**Police, Fire or Ambulance**) is called to site, a nominated employee must meet the response team at the front gate (Lot 142 Diamond Head Rd, Dunbogan) to the Quarry and escort them to the required location.

List of Neighbourhood contacts to be maintained at the Quarry – **For privacy reasons, this list is not to be published.**

Status: FINAL	Department: Group HSE	Doc: ABL-HSE-GSS-12-03	Rev: 1.0	Issued:	Page 1 of 2
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Date printed:





### Helicopter Directions For emergency purposes

**Latitude & Longitude 31° 40' 35.3" South — 152° 48' 24.1" East**

Being 31 degrees, 40 minutes and 35.3 seconds south / 152 degrees, 48 minutes and 24.1 seconds East



HTQY-S-HSE-072

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Appendix 4B

Register of persons occupying positions in the Management Structure

Position	Name	Start Date	Responsible for activating Incident Response Plan (Y/N)	Authority to Notify (Y/N)	Responsible to Manage Pollution Incident (Y/N)	Finish Date
Chief Operating Officer Concrete/Aggregate	Andrew Dell (02 9751 7130 / 0417 607450)		N	Y	N	
National Planning & Development Manager	Darryl Thiedeke (02 9751 7130 / 0409 652 022)		N	Y	N	
General Manager HSE Adelaide Brighton Ltd	Kellie Collins (0427 315 100)		N	Y	N	
General Manger NSW & NNSW	David Cilento (0418 162 498)		N	Y	N	
Hy-Tec HSE Advisor	Joe Perulero (0479 188 381)		N	Y	N	
Area Manager NNSW	Paul O'Connor (0438 599 834)		Y	Y	N	
Sales Manager NNSW Quarries	Rick Gleeson (0447 697 122)		Y	N	Y	
Quarry Manager	Glenn Blair (0438 854 202)		Y	N	Y	
Logistics & Maintenance Manager NNSW	Roger Narine (0408 261 722)		Y	N	Y	
Production Supervisor – Dunbogan	Peter Cavanaugh (02 6559 9834)		Y	N	Y	
Quarry Worker	James Robb		Y	N	N	
Quarry Worker	Rick Courtney		Y	N	N	
Transport Supervisor	Dan Jenkins (0429 654 411)		Y	N	Y	



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Appendix 4B











Register of persons occupying positions in the Management Structure

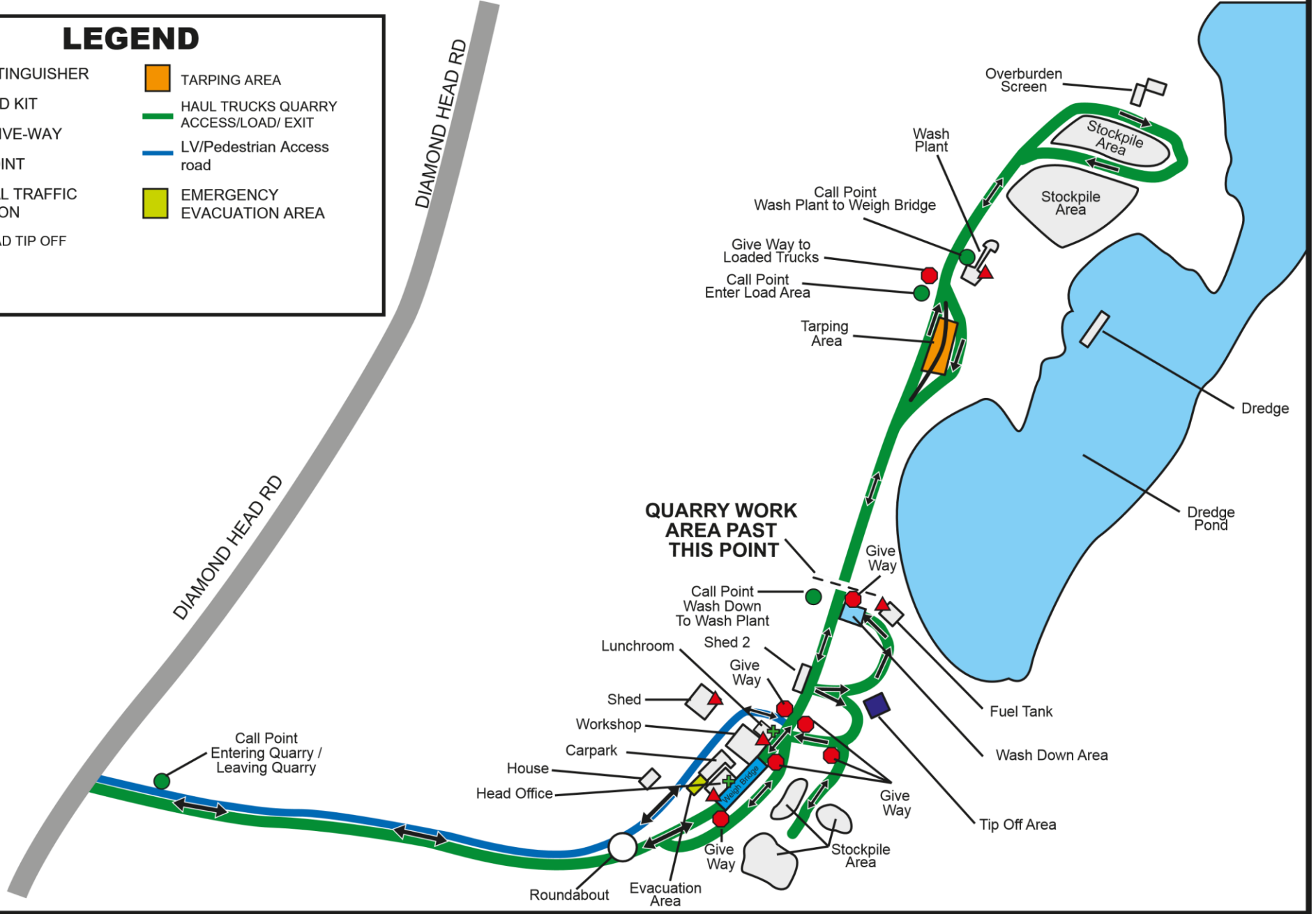
Administration	Tracy Ross (6559 9834)		Y	N	N	
Concrete Sales Manager	Torie Bartlett (0408 654 201)		Y	N	N	

# DUNBOGAN QUARRY

LOT 132 DIAMOND HEAD ROAD

## LEGEND

- |   |                           |   |                                      |
|---|---------------------------|---|--------------------------------------|
|  | FIRE EXTINGUISHER         |  | TARPING AREA                         |
|  | FIRST AID KIT             |  | HAUL TRUCKS QUARRY ACCESS/LOAD/ EXIT |
|  | STOP/ GIVE-WAY            |  | LV/Pedestrian Access road            |
|  | CALL POINT                |  | EMERGENCY EVACUATION AREA            |
|  | GENERAL TRAFFIC DIRECTION |   |                                      |
|  | OVERLOAD TIP OFF AREA     |   |                                      |



# HAZARDOUS SUBSTANCES



HTA S-SFT -055

Hy-tec Industries - DUNBOGAN

**APPENDIX 17B**

**Hazardous Substance Register**

Number	Name	Supplier Company	Substance description	Container	Location	Stock Capacity	Current Stock	MSDS
1	Acetylene	BOC	Fuel Industrial Applications	Gas Cylinder	Workshop			Yes
2	Handigas	BOC	Fuel	Gas Cylinder	Workshop			Yes
3	Oxygen, Compressed	BOC	Chemical Reagent, Combustion Aid	Gas Cylinder	Workshop			Yes
4	Caltex Long Life 50-50 Coolant	Caltex Aust Petroleum Pty Ltd	Engine Coolant	20L Drum	Workshop			Yes
5	Meropa 220	Caltex Aust Petroleum Pty Ltd	Industrial extreme pressure gear lubricant	20L Drum	Workshop			Yes
6	Mine grease premium 2	Caltex Aust Petroleum Pty Ltd	Heavy duty lithium soap based grease	20kg Tub	Workshop			Yes
7	Safe Degreaser	Caltex Aust Petroleum Pty Ltd	Degreaser	20L Drum	Workshop			Yes
8	Textran TDH premium	Caltex Aust Petroleum Pty Ltd	Tractor hydraulic fluid	205L Drum	Workshop			Yes
9	Torque fluid 434	Caltex Aust Petroleum Pty Ltd	Heavy Duty trans fluid	205L Drum	Workshop			Yes
10	Truckwash	Caltex Aust Petroleum Pty Ltd	Cleaning Agent	20L Drum	Workshop			Yes
11	Inox mx8 Premium Spray grease	Candan Industries Pty Ltd	Spray lubricant	350gm spray	Workshop			Yes
12	Superwash truckwash	Chemrite Pty Ltd	General Purpose detergent	20L Drum	Workshop			Yes
13	Ajax Spray N Wipe Kitchen clea	Colgate	All Purpose Cleaner	Spray Bottle	Office			Yes
14	Multi-Thinner	Concept Paints	Automotive refinish thinner	20L Drum	Workshop			Yes
15	Max Fill Expanding Foam	H.B. Fuller	Sealing wall cavaties	350hm tub	Workshop			Yes
16	Moretein Barrier	Reckitt Benchiser	Domestic insecticide spray	450gm	Workshop			Yes
17	Low Odour Turpentine	Recochem Inc	Solvent, paint thinner	4L tin	Workshop			Yes
18	Shell Unleaded E10	The Shell Company of Aus Pty Ltd	Gasoline	40L drum	Workshop			Yes
19	Delo 400 Mutli-Grade SAE 15w-40	caltex Aust Petroleum Pty Ltd	Engine Oil	205L Drum	Workshop			Yes

## HAZARDOUS SUBSTANCES



Number	Name	Supplier Company	Substance description	Container	Location	Stock Capacity	Current Stock	MSDS
20	Delo Torqforce SAE 30w 10w	Caltex Aust Petroleum Pty Ltd	Transmission and HYD oil	205L Drum	Workshop			Yes
21	Caltex Two Stroke oil	Caltex Aust Petroleum Pty Ltd	Engine oil	2-5l Drum	Workshop			Yes
22	Caltex four stroke oil	Caltex Aust Petroleum Pty Ltd	Engine Oil	2-5l Drum	Workshop			Yes
23	Caltex Diesel	Caltex Aust Petroleum Pty Ltd	Diesel	10,000L	Site Fuel Tanks			Yes
24	Textamatic 1888	Caltex Aust Petroleum Pty Ltd	Transmission Fluid	20L Drum	Workshop			Yes
25	Delo Syn ATF HD	Caltex Aust Petroleum Pty Ltd	Transmission Fluid	20L Drum	Workshop			Yes
26	Deb Marine Marinol	DEB Marine	Marine safe Degreasser	20L Drum	Workshop			Yes
27	Hydrated Lime	ABL	Hydrated Lime	20Kg Bags	Workshop			Yes
28	Aluminium Sulphate Solid		Aluminium Sulphate Solid	20Kg Bags	Workshop			Yes
29	Flame stop ABE Extinguisher	FlameStop	Fire Extinguisher	9kg Bottles	Designated site areas			Yes
30	Weedmaster Herbicide	Weedmaster	Herbicide	20L Drum	Workshop			Yes
31								
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SAFETY MANAGEMENT SYSTEM

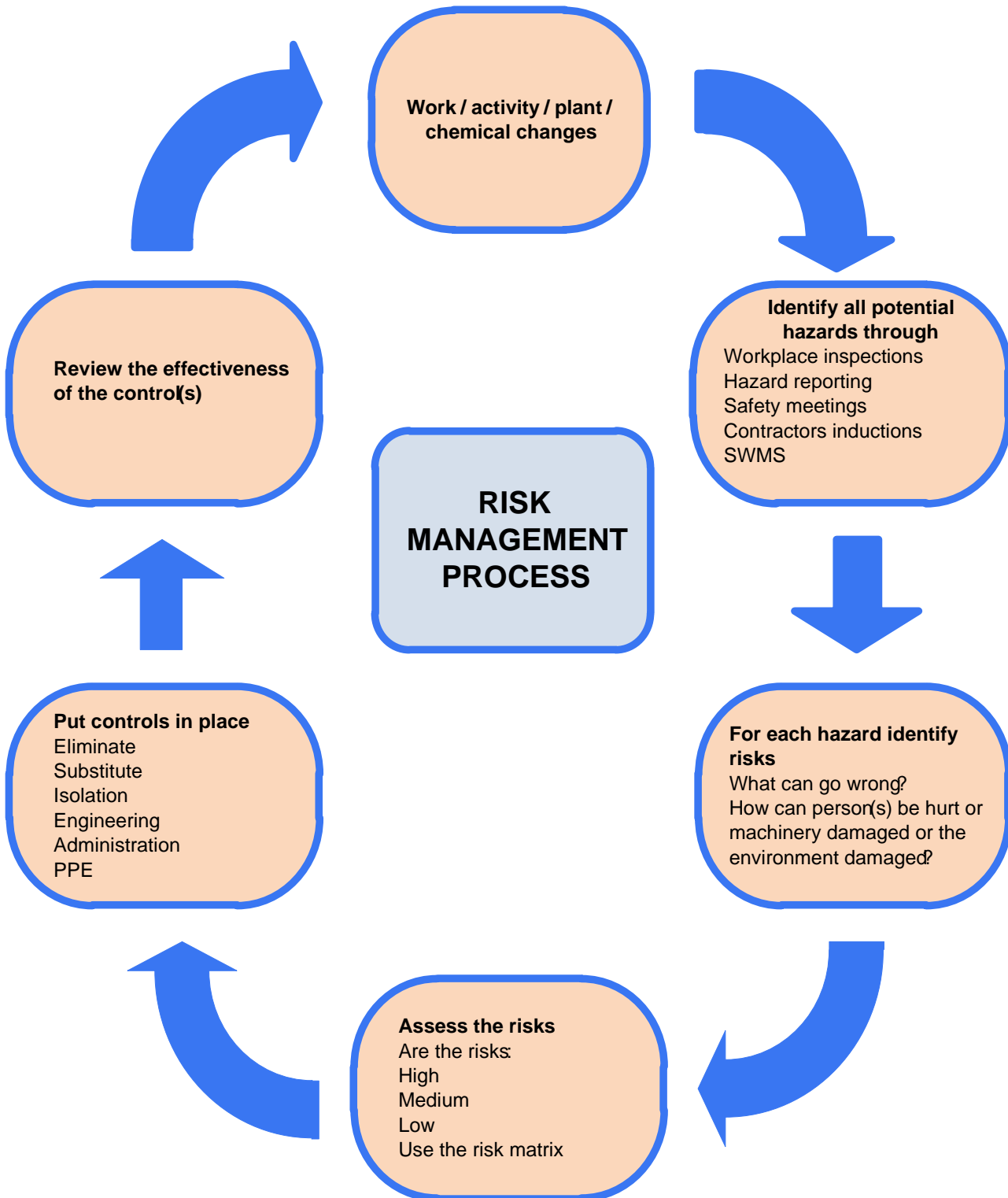
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Appendix 7K

Risk Management Process





ABL-HSE-GSS-07-01

## RISK ASSESSMENT TOOL

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**Risk Assessment Guidance**

Refer to consequence table in "ABL-HSE-GSS-07-04 HSE Risk Assessment Process". Only Safety examples are provided below.

**CONSEQUENCE** (the extent of the harm or damage with current controls in place)

Negligible	- Minor Injuries requiring First aid Treatment.
Minor	- Single or multiple injuries requiring medical treatment.
Serious	- Single or multiple injuries requiring hospitalisation and incurred a loss of more than one full shift.
Significant	- Single severe injury causing irreversible permanent disability or impairment or single fatality.
Catastrophic	- Incident with short or long term effects causing multiple fatalities.

**LIKELIHOOD** (the chance of the situation occurring with current controls in place)

Rare	- The consequence may only occur in exceptional circumstances or 'the probability is close to zero'.
Unlikely	- The consequence is not likely to occur. There is confidence that it will not occur although it is conceivable.
Possible	- The consequence could occur sometime or 'I've heard of it happening'.
Probable	- The consequence is likely to occur. It is known to occur, or not surprised as it has happened' several times.
Very Likely	- It is almost certain that the consequence will occur. Common or frequent occurrence.

CONSEQUENCE	LIKELIHOOD				
	Rare	Unlikely	Possible	Probable	Very Likely
Negligible	1	2	4	7	11
Minor	3	5	8	12	16
Serious	6	9	13	17	20
Significant	10	14	18	21	23
Catastrophic	15	19	22	24	25



	Negligible	Minor	Serious	Significant	Catastrophic
Health & Safety	Minor Injuries requiring First aid Treatment. No ongoing health effects. Near Miss with the potential consequence for the injuries above	Single or multiple injuries requiring medical treatment No ongoing health effects. Near Miss with the potential consequence for the injuries above.	Single or multiple injuries requiring hospitalisation and incurred a loss of more than one full shift. Near Miss with the potential consequence for the injuries above.	Single severe injury causing irreversible permanent disability or impairment or single fatality. Near Miss with the potential consequence for the injuries above.	Incident with short or long term effects causing multiple fatalities. Near Miss with the potential consequence for the injuries above.
Environmental Impact	Minor incident with minimal or no lasting effects. Onsite uncontrolled release immediately contained. Clean-up completed within 12 hours. Less than 5 litre spill	Incident with minor effects on the environment. Onsite uncontrolled release not immediately contained or minor off site release. Clean-up completed within 72 hours. 10 to 20 litre spill.	Incident with medium term effects on the environment. Offsite uncontrolled release with an effect on the environment for one year.	Incident with serious environmental effects. Offsite uncontrolled release not contained causing of up to 10 years impact duration.	Catastrophic incident with impairment of the ecosystem function. Significant and identifiable risk to humans, animals and plant species.
Community	Low level incident  Public concern restricted to one local complaint	Minor- medium impact issue Public concern with a small local group  Potential for local media attentions	Medium impact issue Ongoing public concern with a local group or community Involvement of non-government organisation - Local media	Serious social incident Ongoing local and/or state issue. Involvement of government department/s and non-government organisations. National Media	Very Serious Incident Ongoing state or national issue. Involvement of federal government department/s and non-government organisations. National media
Cost or Damages	< \$10K	\$10K - \$50K	\$50K - \$150K	\$150K - \$1M	> \$1M
Investigation Team	Local Supervisor or Manager OHS representative or member of the OHS committee	Plant Manager Team Leader / Supervisor OHS Representative or Member of the OHS committee	Plant Manager (Investigation leader) HSE Manager Manager external to site OHS Representative or member of the OHS committee	Manager External to site or discipline (Investigation Manager) HSE Manager Site Manager OHS Representative External resources or assistance as required	Manager External to site or discipline (Investigation Manager) HSE Manager Site Manager OHS Representative External resources or assistance as required
Investigation Outcomes	Completion of incident report form including: Brief report covering: <ul style="list-style-type: none"> <li>Description of incident</li> <li>Contributing factors</li> <li>Prevention Measures</li> </ul>	Completion of incident form: Brief report covering the following: <ul style="list-style-type: none"> <li>Brief statement from person's involved and witnesses</li> <li>Description of incident</li> <li>Contributing factors</li> <li>Prevention measures</li> </ul>	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: <ul style="list-style-type: none"> <li>Detailed statement for person's involved and witnesses</li> <li>Description of incident</li> <li>Contributing factors</li> <li>Recommendations and prevention measures</li> </ul>	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: <ul style="list-style-type: none"> <li>Detailed statement for person's involved and witnesses</li> <li>Description of incident</li> <li>Contributing factors</li> <li>Recommendations and prevention measures</li> </ul>	Completion of incident form: Investigator Terms of Reference. Incident timeline. Detailed report covering the following: <ul style="list-style-type: none"> <li>Detailed statement for person's involved and witnesses</li> <li>Description of incident</li> <li>Contributing factors</li> <li>Recommendations and prevention measures</li> </ul>

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Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Dust	Traffic	<b>Worker Health Issues;</b>  Eye injuries/infection.				Haul road is sand with a water truck used, when required during operating hours to minimise dust production from vehicles.  All haul roads fitted with suitable erosion control, including drainage and sediment traps.  Diamond Head Road is sealed therefore does not act as a source of dust production.		
	Plant	Respiratory problems due to inhalation.  Skin allergic reactions due to contaminated dust.	Dust and water monitoring not required by EPL as operation effects were determined negligible.	<b>Worker Health Measurement;</b>  Workers Health examinations conducted.		Dredging, processing and the return of silt and clay to the dredge pond are all wet processes with negligible potential for dust generation.  Employees instructed on correct house-keeping to prevent dust/debris build up.		
	Dredging	<b>Environmental Issues;</b>  Silt and contaminants washed into waterways and neighbouring land.	Ecological Monitoring not required by EPL as operations do not impact surrounding Ecology.	<b>Environmental Measurement;</b>  Dams tested for quality of water.  Environmental survey to monitor flora and fauna.	<b>Worker 13</b> <b>Environment 17</b>	Workers trained in the selection and use off appropriate eye protection.  Policies in place regarding mandatory use of eye protection i.e. double eye protection when grinding.  Confined space to be cleared of all atmospheric hazards and air quality monitored.  Air monitoring must be conducted by a competent person before and during confined space activity.  Suitable PPE ie respirator or dust mask to be available and used.  Ensure sufficient ventilation is available before entry proceeds. (Extraction fans must be used if welding is being carried out)  Implementation of Closed Water Management System containing all dust and silt byproducts produced from production.  Overburden produced silts used in rehabilitation of site.	<b>Worker 9</b> <b>Environment 13</b>	All
	Cleaning	Dust contamination affecting local ecosystem biodiversity.						

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Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Heat	Sun	<b>Worker Health Issues;</b> Dehydration. Exhaustion. Skin Damage.		<b>Worker Health Measures;</b> Incident and near miss reports.	<b>Worker 13</b> <b>Environment 1</b>	Drinking water and sunscreen located in crib rooms, dredge and offices.  Employees to partake in safe work methods with regard to heat, including adequate PPE.  Employees educated on the dangers of heat stress and methods to combat the problem.	<b>Worker 9</b> <b>Environment 1</b>	All
	Plant/Machinery					Working in heat and dehydration educational posters displayed in crib rooms.  First aid officer on site during working hours.  Adequate first aid equipment available.		
	Hot Work					Long sleeves and trousers worn during work activities and a hat when outdoors.  Drivers to be instructed in Fatigue Management requirements.  Ensure compliance with work/rest requirements as outlined in ABL-HSE GOS-29-02 Fatigue Management Requirements.		
	Tools					Mobile equipment to have functioning air conditioning system installed, when necessary windows tinted to protect drivers from sun exposure.  Ensure hot work is conducted in a designated hot work area otherwise a Hot Work Permit/JSA/SWMS to be completed and filed.  Only competent/trained personnel to carry out hot work.  Screens in place to segregate hot work area.		

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Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Noise	Traffic	<b>Worker Health Issues;</b>  Industrial Deafness.	Noise monitoring not required by EPL due to the low operating noise of dredging.	<b>Worker Health Measurements;</b>  Worker Health Examinations.  Worker Noise Exposure survey undertaken by external company.	<b>Worker 14</b> <b>Environment 1</b>	Hours of work restricted. Transport - Monday-Friday 6:00-17:00, Saturday 6:00-13:00. Extractive – Monday-Friday 06:00-17:00, Saturday 06:00-13:00 Maintenance	<b>Worker 10</b> <b>Environment 1</b>	All
	Plant		Quarry located a reasonable distance from non-quarry residential properties.	Worker noise PPE and knowledge examined to determine adequacy.		Regular maintenance carried out on equipment to minimise noise production.  Sound proofing on mobile plant engine compartments.  Instruction on selection and use of suitable hearing protection.		
	Dredging					Workers health examinations conducted.  Hearing protection worn as required.  PPE signage displayed in appropriate locations.		

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Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
Hazardous Substances	Chemicals	<b>Worker Health Issues;</b> Chemical burns.	Groundwater monitoring has determined dredging activities has had a minimal effect on groundwater quality.	<b>Worker Health Monitoring;</b> Incident and Near miss reports. Workers health examination conducted.	<b>Worker 13</b> <b>Environment 21</b>	Employees trained in the safe handling and use of hazardous substances.	<b>Worker 9</b> <b>Environment 14</b>	GB/PC
	Fuels	<b>Environmental Issues;</b> Hazardous substances leeching into groundwater/waterways.				<b>Environmental Measures;</b> Groundwater monitoring carried out regularly		

HTQY-S-HSE-084

Hy-Tec Industries – DUNBOGAN

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Appendix 8G

Environmental Hazard Management Matrix

HAZARD	SOURCE	HEALTH EFFECTS	INFO	MEASUREMENT	ASSESS RISK	CONTROLS	REVIEW	RESPONSIBLE
	Waste Oil (plant/machinery)					<p>diatomaceous earth and place into a container according to local legislation.</p> <p>8) Determine flammability and if required use spark-proof tools and explosive proof equipment. Dispose of via a licensed waste disposal contractor</p> <p>9) Contaminated absorbent material may pose the same hazard as the spilt product</p> <p>10) In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment.</p> <p>11) Recover product from the surface</p> <p>12) Dispose of via an appropriately licensed waste disposal</p> <p><u>Small Spill</u></p> <p>1) Stop leak without risk.</p> <p>2) Move containers from spill area</p> <p>3) Absorb with an inert material and place in appropriate waste disposal container.</p> <p>4) Determine flammability and if required use spark-proof tools and explosion-proof equipment.</p> <p>5) Dispose of via an appropriately licensed waste disposal</p> <p>Oils and hydraulic fluids to be disposed of in accordance with Environmental legislation.</p> <p>Long sleeved shirt and trousers worn during work activities.</p> <p>First aid officer on site during working hours.</p> <p>Adequate first aid equipment available.</p> <p>Employees trained in Environmental incident Response.</p>		

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Water	Dams	<b>Worker Health Issues;</b>  Drowning.	Operations were concluded to have a negligible effect on groundwater flow into surrounding areas of the quarry.	<b>Environmental Measures;</b>  Groundwater level monitoring program implemented, to involve monitoring regularly in accordance with the EMP.	<b>Worker 14</b> <b>Environment 21</b>	Water from undisturbed areas is diverted around the quarry, whilst water within the quarry extraction area is used in the closed water management system.  In the event of a water breach Contingency Plans ready to be implemented.  All external batters of ponds to be established with a slope no steeper than 1V:3H	<b>Worker 10</b> <b>Environment 10</b>	GB/RC
	Catchments	<b>Environmental Issues;</b>  Surrounding E2 environmental lands contamination.  Ground water level depletion.	Ecological Monitoring Program found quarry is not adversely impacting on the E2 land ecology.	If any adverse readings found during regular monitoring, then additional groundwater quality monitoring to be carried every 6 months.		Diversion drains surrounding dredge pond used to divert surface flows around pond and maintain flow into surrounding quarry area.  Water management system employs regular maintenance to ensure effectiveness.  Drainage designed to maximize flow volume diverted around quarry whilst providing short term detention to minimize effects on channel stability and downstream velocities.		
	River System	Localized Dunbogan region Ecology destruction.	Environmental report found quarry had little or no impact on Camden Haven River and Inlet net water flows.	Groundwater monitoring to be conducted regularly and should be tested for the following: pH; conductivity; nitrate; ammonia; Total Petroleum Hydrocarbons (TPH)  Silt fences and water management system in place.  Runoff from all disturbance areas directed to silt dams, dredge ponds and sedimentation dams where required.				

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	Rainfall					If groundwater results show drop in water level a contingency plan is to be implemented, and groundwater model will be revised.  During maintenance and works near bodies of water, two person work teams required for safety.  Adequate PFD's available on dredge and in dingy.  Man over board procedures in place.		
	Groundwater							

Waste Material	Production	<b>Environmental Issues;</b>	Sand extraction operation generates no waste with all extracted materials being sold, returned to the dredge pond or used in rehabilitation program.			Recyclable material is stored on site and periodically collected and taken off site for processing.  Office waste or non-recyclables are also collected and disposed of off site in an approved manner.	<b>Worker 1</b> <b>Environment 5</b>	<b>Worker 1</b> <b>Environment 5</b>	GB/RC
	Office	Site Waste leaving quarry into local catchments.							



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Fire	Plant/Mobile Plant.	<p><b>Worker Health Issues;</b></p> <p>Burns to employees.</p> <p>Smoke inhalation</p> <p><b>Environmental Issues;</b></p> <p>Flora and Fauna destruction.</p> <p>Bushfire.</p>		<p><b>Worker Health Measurement;</b></p> <p>Incident and Near Miss reports.</p> <p><b>Environmental Measures;</b></p> <p>Fire department fire hazard monitoring.</p>	<p><b>Worker 22</b></p> <p><b>Environment 22</b></p>	<p>Ensure hot work is conducted in a designated hot work area otherwise a Hot Work Permit/JSA/SWMS to be completed and filed.</p> <p>Only competent/trained personnel to carry out hot work.</p> <p>Screens in place to segregate work area and hot work signs to be erected.</p> <p>Equipment to be in good condition and suitable for the task.</p> <p>Electrical equipment must be tagged and tested in accordance with AS3760.</p>	<p><b>Worker 15</b></p> <p><b>Environment 19</b></p>	<p>All</p> <p>Fire Warden;</p>
	Bushfires.					<p>Firefighting equipment fitted to all mobile plant.</p> <p>All employees trained in first attack firefighting.</p>		
	Electrical Fires.					<p>Use of flame retardant material where possible to cover susceptible equipment.</p> <p>Adequate fire extinguishers located throughout site.</p> <p>Use of correct PPE for the task/job.</p>		
	Power Tools					<p>Ensure that periodic testing of Fire extinguishers is conducted by an external service provider.</p> <p>First aid officer on site during working hours.</p>		
	Hot Work					<p>Fire Warden officer present on site during work hours.</p> <p>Adequate first aid equipment available.</p> <p>Bush fire emergency procedure in place.</p>		

### DUNBOGAN Quarry - Risk Register

This contents of this risk assessment will be reviewed when new risk identified, procedural review and/or risk / controls not adequate

Risk Identification		Risk Score Without Controls (Inherent Risk)			Control		Risk Score with Controls (Residual Risk)			Further Action Required		
Work Activity	Risk relating to activity	Causes (What can cause the hazard to occur)	Consequence (Catastrophic = Principal Hazard)	Likelihood	Inherent Risk Score	Principal Hazard (if Applicable) Control / Management Plan	Control Description	Highest Control Level Achieved (Hierarchy of Controls)	Consequence (Catastrophic = Principal Hazard)	Likelihood	Residual Risk Score	Action Required to achieve Desired Residual Risk (to be managed in Cintillate)
Dredging Operations - Emergency Situation	> Fire on Dredge.	> Engine fire. > Winch or rope friction heating.	Significant	Possible	18	Not Applicable	> Dredge is fitted with fire extinguishers and inspected 6 monthly. > Dredge operator training in fire fighting. > Workers can swim and regular testing of swimming ability completed. > Life jacket (PFD) whilst accessing and operating the dredge. > Man down alarm system in place. > Engine bay access is located at furthestest point away from operator and suitable escape points (engine bay is most likely point for fire). > Minimal storage of chemicals on board the dredge. > Engine bay kept clean and potential sources of fuel. > Back up boat available shall incident occur on dredge.	Engineering / Redesign	Significant	Rare	10	
Dredging Operations - Emergency Situation	> Operator on Dredge requiring emergency assistance.	> Injury or health issue.	Significant	Possible	18	Not Applicable	> Man down alarm system in place. > Plant operator maintaining visual on dredge operator, checking for abnormalities. > Radio communication maintained throughout dredging operations. > Emergency evacuation drills completed annually. > Back up boat available shall incident occur on dredge.	Administrative	Significant	Rare	10	
Dredging Operations - Emergency Situation	> Dredge stability and potential sinking.	> Poor maintenance / design of dredge.	Significant	Possible	18	Not Applicable	> Dredge designed for stability on water. > Body of water not large enough to significant water turbulence. > Dredge has 4 individually sealed compartments per hull, to prevent sinking should hull	Engineering / Redesign	Significant	Rare	10	
Dredging Operations - Maintenance of Dredge.	> Falling into the water, with possibly of drowning.	> Cleaning / maintenance of Dredge cutting head.	Significant	Possible	18	Not Applicable	> Dredge maintenance to only be completed at the bank. > Two people to complete dredge maintenance and responded to possible incident. > All maintenance work to be completed under clearance to work process.	Isolation	Minor	Unlikely	5	
Dredging Operations - The normal operation of the Dredge onsite.	> Collision with other vehicles onsite.	> Travelling to fast in access boat. > Other vehicles in incorrect position. > Loss of control by land operating vehicle	Serious	Possible	13	Not Applicable	> Only trained and competent operators to use the dredge and tender (boat). > Operator has a valid boat licence. > Dredge is the only equipment that operates on dam. > No public access to dam in which dredge operates. > UHF radio in place and clearance to work process in place should additional	Isolation	Minor	Unlikely	5	
Dredging Operations - The normal operation of the Dredge onsite.	> Falling into the water, with possibly of drowning.	> Transitioning from the tender boat to the dredge. > Transitioning from the dredge to the tender boat	Significant	Possible	18	Not Applicable	> Only trained and competent operators to use the dredge and tender (boat). > Workers can swim and regular testing of swimming ability completed. > Life jacket (PFD) whilst accessing and operating the dredge. > Man down alarm system in place	Engineering / Redesign	Significant	Rare	10	
Dredging Operations - The normal operation of the Dredge onsite.	> Falling into the water, with possibly of drowning.	> Person falling from Dredge.	Significant	Possible	18	Not Applicable	> Only trained and competent operators to use the dredge. > Workers can swim and regular testing of swimming ability completed. > Life jacket (PFD) whilst accessing and operating the dredge. > Man down alarm system in place. > Barriers and handrails to prevent falling into water. > Rescue rings in place on the shore and dredge. > Plant operator maintaining visual on dredge operator, checking for abnormalities. > Access gates closed once operator is on Dredge.	Engineering / Redesign	Significant	Rare	10	
Dredging Operations - The normal operation of the Dredge onsite.	> Crush to body part / limb.	> Entanglement with engine components. > Entanglement with winch. > Lacerations with ropes and pulleys	Serious	Possible	13	Not Applicable	> Moving engine parts are not needed to be accessed in normal operations. Guards on pinch points of ropes and pulleys. > Gloves to be worn when handling ropes and pulleys. > Barriers in place to prevent access to winch in normal operation.	Isolation	Minor	Possible	8	
Electrical - Component Lifecycle Management	> Electrical equipment develop risk which can caused hazard to workers.	> Electrical components can fail due to the amount of use and age.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Electrical component to be replaced as per OEM, Australian Standards or Mine Design Guidelines recommendations. > Schedule for replacement to be managed via gearbox. > Repaired or replaced as per safety alerts or information from industry or regulator.	Engineering / Redesign	Significant	Rare	10	
Electrical - Contractor Management	> Competence of contractors completing work at quarry.	> Electrical work / engineering work is outsourced to a contractor(s).	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All plant and equipment to be designed and maintained to the appropriate Australian standards. > All electrical contractors are to have applicable trade certificates or appropriate engineering documentation. > Electrical tradesperson is nominated to NSW regulator. > All contractors must have appropriate insurances managed by site pass. > Quarry Manager to shall check and maintain a records for the competency of all	Engineering / Redesign	Significant	Unlikely	14	
Electrical - Equipment to test electrical equipment.	Electric shock from using electrical test equipment.	> Failure of equipment. > Incorrect equipment used. > Exposed live electrical points.	Significant	Possible	18	Electrical Engineering Control Plan	> All electrical test equipment must be designed for testing the level of voltage anticipated. > Voltage tester must not expose workers to the risk of electric shock. > Test leads and testing devices should be provided with over current protection. > Be free from damage and cracks in insulation. > Also electrical testing screw drivers are not permitted.	Isolation	Serious	Unlikely	9	
Electrical - General Electrical Risks	> Electric shock / electrocution to workers.	> Workers touching electrical components they do not understand. > Poor or dangerous wiring.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Only trained and competent workers are to touch electrical components, people approved to work on electrical components must be authorised by the Quarry Manager. > Isolation points to great physical breaks in power to complete tasks, lock out tagged out. > Inspection and testing of electrical equipment. > Inspections and testing completed on electrical components. > Electrical components shall be fitted with residual current devices. > Drawing of electrical systems. > Electrical systems within protected areas (washdown areas) will be minimum IP55, electrical systems which are outside shall be a minimum of IP56. All other work areas should be accessed.	Engineering / Redesign	Significant	Rare	10	
Electrical - High Voltage work	Electrocution	> High voltage	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Site does not have high voltage electrical.	Elimination	Negligible	Rare	1	

Electrical - Maintenance	> Electrical equipment develop risk which can caused hazard to workers.	> Electrical components can fail due to the amount of use and age.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	Regular maintenance shall be completed ensuring: > Operation of electrical installation and not impaired by interference, damage or wear. > Live parts are insulated and workers are protected from inadvertent contact. > Earth leakage systems operates effectively. > Not exceeding operating limits. > The installation does not have the potential to start a fire. > Safety integrity limits (SIL) are maintained.	Isolation	Significant	Rare	10
Electrical - New electrical installations to site.	> New plant / structures can bring new hazards to site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All new electrical components brought onto the quarry to have design risk review completed, prior to construction. > All new electrical systems brought onto site to have commissioning plan develop and tested for continuity of earth, insulation resistance, polarity, correct circuit connections, earth fault-loop impedance and RCD operation. > All new electrical components to have an management of change completed, reviewed by either the OEM or qualified engineer. > A operational risk assessment (pre start up safety review) to be completed on all new electrical components to look for new introduced risks. > All new electrical components to be designed and built as per Australian standards.	Engineering / Redesign	Significant	Rare	10
Electrical - Portable powered tools	Electric shock from using tool	> Poorly maintained tool. > Tool being used beyond its capacity.	Significant	Possible	18	Electrical Engineering Control Plan	> Use battery powered tools as oppose to electrical tools. > All electrical tools must be tagged and tested and inspected by a competent person. > Electric power tools must be inspected prior to use. > All electrical tools must have an RCD fitted for use.	Substitution	Serious	Unlikely	9
Electrical - Power Distribution	Electrocution from powerlines	> In ground powerlines > Over head powerlines	Significant	Possible	18	Electrical Engineering Control Plan	> Austen quarry has no overhead powerlines. > Clearance work permit to be completed if working near overhead power lines or excavating near powerlines on site. > Powerlines onsite shall be know and clearly identified. > <del>Signage in place to indicate high of powerlines vehicle clearance</del>	Elimination	Significant	Rare	10
Electrical - Restoration of Power	Electrocution from restoration of power	> Daily starting of generator	Significant	Possible	18	Electrical Engineering Control Plan	> Prestart inspection to be completed prior to starting generator for the day. > Procedure and training for starting of generator. > <del>Generated started with out people working within vicinity.</del>	Engineering / Redesign	Serious	Unlikely	9
Electrical - Restoration of Power	Electrocution from restoration of power	> Overload trip > Short Circuit trip	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> Reset of power to be completed by an electrician after, fault is identified and repaired. > further tests also carried out to determine it is safe to start-up. > <del>Started with out people working within vicinity</del>	Engineering / Redesign	Serious	Unlikely	9
Electrical - Restoration of Power	Electrocution from restoration of power	> Circuit breaker reset > Blown fuse	Significant	Possible	18	Electrical Engineering Control Plan	> Reset only complete if the fault is known, if fault is unknown then electrician shall complete reset. > If trip occurs second time electrician shall investigate trip. > <del>Lock Out / Tag Out shall be used for replacement of fuses.</del>	Engineering / Redesign	Serious	Unlikely	9
Electrical - Switchboards and Distribution Boards	> Worker entering switchboard or distribution board in which they are not permitted to access.	> Workers are unaware they are not to access board.	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> All boards must be locked preventing worker access. > Only authorised persons are able to access boards. > Access to cables behind boards are only permitted when competent and with a clearance to work permit. > <del>Signage in place to warn of electrical installations and access is restricted</del>	Isolation	Significant	Rare	10
Electrical - Switchboards and Distribution Boards	Fire on switchboard / distribution board.	> Dust and heat causing over heating of distribution boards.	Significant	Possible	18	Electrical Engineering Control Plan	> Boards are contained in sealed room free from dust and contaminates. > Power distribution rooms are also air condition. > Multiple exit points from power distribution rooms, and easy to get away from boards. > No combustible material stored in distribution rooms > <del>Signage indicating controls</del>	Engineering / Redesign	Minor	Unlikely	5
Electrical - Work on live electrical circuits	Electrocution	> Live electrical work	Catastrophic (Principal Hazard)	Possible	22	Electrical Engineering Control Plan	> ABL employees and contractor are not permitted to work on live circuits.	Elimination	Negligible	Rare	1
Explosives - blasting onsite	>This site does not blast to extract product.	> Nil	Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1
Fire - External fire event potentially affecting the site.	> Workers being stuck onsite due to fire risk. > Fire fighting agencies accessing site being unaware of risk. > Workers on site to protect assets.	Fire event onsite due to offsite fire event (bush fire).	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> Emergency management plan for external fire event. > Emergency rations to be onsite for minimum 5 days (including food and water). > The site shall develop a fire plan for the specific fire event, ensuring water carts etc. have water to extinguisher spot fires. > Site shall have tools in place for external communication during a fire event and utilize government websites to manage approaching fire and weather conditions. > Sites shall have provisions for some sleeping. > Sites need to manage road closures and enable workers to leave prior to roads being closed if possible. > Open areas need to be available to get to separate people from the fire risk.	Isolation	Catastrophic (Principal Hazard)	Rare	15
Fire - External fire event potentially affecting the site.	> Fire to assets / people.	Fire event onsite due to offsite fire event (bush fire).	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> Site shall have emergency management plan developed. > Fire management plan shall be available and visible within site. > Maps in place of the site. > Engage with fire authority, to show site and discuss fire plans, prior to incident.	Isolation	Catastrophic (Principal Hazard)	Rare	15
Fire - Hot Work	Fire as a result of hot work outside of workshop.	> Unknown hazards due to hot work.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All hot work outside of the workshop must be completed with a hot work permit. > Fire extinguishers must be in place for hot work, as well as wetting areas when outside with combustible material. > Hot works are not permitted outside during total fire bans.	Administrative	Catastrophic (Principal Hazard)	Rare	15
Fire - Management of fire equipment	Failure of fire equipment when needed.	> Poorly maintained or incorrect fire equipment.	Catastrophic (Principal Hazard)	Possible	22	Fire Prevention and Protection Management Plan	> All fire equipment must be inspected as per OEM recommendations or Australian Standards. > Workers must be trained in fire equipment. > Suitable volume and type of fire equipment must be in place for each different emergency type	Engineering / Redesign	Serious	Possible	13
Fire - Plant / Mobile Plant	> Fire while people are in or operating mobile plant.	> Malfunction within machine.	Catastrophic (Principal Hazard)	Rare	15	Fire Prevention and Protection Management Plan	> Machines are inspect pre shift for any signs of potential faults. > All machines on site are inspected and maintained as per OEM recommendations. > Machines are fitted with fire extinguishers enabling workers to escape machinery. > Machines are easy to escape from or have multiple evacuation methods.	Engineering / Redesign	Serious	Rare	6

Fire - Pressurised gas cylinders	Pressurised gas cylinders failing causing risk.	> Fire spreading to cylinder storage. > Failure of gas cylinder causing flammable risk. > Storage of non compatible material.	Significant	Possible	18	Fire Prevention and Protection Management Plan	> All cylinders must be stored upright, and chained, in designated storage area. > All cylinders must be inspected to ensure they are free from damage and complaint to Australian standards. > Cylinders are exchanged through supplier, ensuring they are complaint. > SDS must be consulted with to ensure non compatible items are not stored together. > All gas cylinders shall be isolated from areas, by either one-hour firewall or by minimum of three metre distance.	Isolation	Serious	Possible	13	
Fire - Refuelling of vehicles	Vehicle catching fire due to being on during refuelling.	> Vehicle being on during refuelling. > Ignition sources within refuelling area.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All refuelling to occur in designated refuelling areas. > All vehicles refuelled onsite are diesel not unleaded petrol. > Closed systems for refuelling, minimal oxygen within fuelling areas. > Vehicles must be turned of during refuelling, unless completed under specific risk assessment. > No ignition sources are permitted within refuelling areas. > Fire extinguishers / fire protection systems. > Daily pre start inspections on vehicles.	Engineering / Redesign	Significant	Rare	10	
Fire - Spontaneous Combustion	> Site has no risk of spontaneous combustion		Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1	
Fire - Storage Oils / flammables	Fire of oils / flammable liquids	> Fire spreading to oil / flammable storage.	Catastrophic (Principal Hazard)	Unlikely	19	Fire Prevention and Protection Management Plan	> All flammable material must be stored in flammable storage cabinets. > All chemicals must be labelled. > All chemicals shall be stored in suitable lidded containers. > SDS must be consulted to not store incompatible material together. > Flammable material must be stored away from ignition sources.	Isolation	Significant	Rare	10	
Fire - Waste oils / flammables	Fire of waste oils / flammable liquids	> Poor housekeeping of flammable equipment leading to fire or making fire worse.	Significant	Unlikely	14	Fire Prevention and Protection Management Plan	> All rags must be disposed of correctly, and work areas cleaned at the end of the job. > All waste oil must be stored in designed oil storage containers. > Suitable fire extinguishers within areas to manage flammability risk. > Large volumes of flammable material not stored on site.	Administrative	Significant	Rare	10	
Fire - Welders / cutters	Welding / cutting of material.	> Fire / explosion of welding equipment.	Significant	Unlikely	14	Fire Prevention and Protection Management Plan	> Regular inspections of all welding and cutting units. > All cables and leads must be kept free from grease and oil. > Flash back arrestors must be fitted to all welders / cutters. > Welding screens must be in place to prevent injuries to other workers. > All people welding must wear the correct PPE. > Fire extinguishers must be in place for welding / cutting.	Engineering / Redesign	Serious	Unlikely	9	
Fixed Plant & Structures - Boot (Bin)	Worker falling into the bin.	> Workers needs to access bin area or unintentional access of bin area. > Haul truck / Loader falling into bin	Significant	Possible	18	Not Applicable	> Pedestrians to not access boot unless under Clearance to work permit. > Haul Truck Drivers are not to leave cabin when parked at the boot. > Tyre bump stop in place to prevent truck falling into the bin (Boot)	Engineering / Redesign	Significant	Rare	10	> Signed to be installed indicating no pedestrian access.
Fixed Plant & Structures - Conveyors	Entanglement of operator within conveyor.	> Worker can access conveyor with potential to get entangled.	Significant	Possible	18	Not Applicable	> All conveyor are guarded to prevent access. > Work on conveyors to be done under a Clearance to work permit and lock out, tag out process. > LOTO in place to prevent unplanned plant movements. > Conveyor siren starts prior to conveyor start. > Conveyors are fitted with emergency stop buttons.	Engineering / Redesign	Serious	Unlikely	9	
Fixed Plant & Structures - Conveyors	Fires within bearing / rollers	> No grease within bearing causing friction fire to start.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Weekly inspection of whole tertiary, inspecting all elements. > Daily visual inspection of plant prior to start up. > Bearing temperature inspection > Weekly shutdown maintenance > Fire extinguishers on plant. > Workers operate within vicinity of operating plant.	Administrative	Serious	Rare	6	
Fixed Plant & Structures - Conveyors	Debris falling from conveyor, impacting worker.	> Overloading conveyors. > People accessing conveyor at incorrect place.	Serious	Possible	13	Mechanical Engineering Control Plan	> Conveyors transport sand mainly, potential size of any rock is very small. > Workers wear hard hats when outside walking around site. > Workers to only pass under conveyor system under designated walkways. > Skirt rubbers at transfer points, skirt rubbers centralise rocks onto centre of the conveyor. > Guarding canes in place to prevent unauthorised access to dangerous areas.	Substitution	Minor	Rare	3	> Enclose conveyor under designated walkways.
Fixed Plant & Structures - Conveyors	Failure of plant structures.	> Heavy corrosion of plant caused by dust and elements.	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> Every 5 years a mechanical engineer completes inspections of all plant and structures for signs of fatigue. > Weekly inspection of whole tertiary, inspecting all elements. > Daily visual inspecting of whole plant prior to start up.	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15	
Fixed Plant & Structures - Conveyors	Cuts and lacerations from conveyor belts.	> Conveyors can have sharp edges.	Minor	Probable	12	Not Applicable	> Workers generally do not need to handle conveyor belts. > Worker wear category 3 cut resistant gloves.	PPE	Negligible	Unlikely	2	
Fixed Plant & Structures - Crushers	High pressure injections from hydraulic systems	> Failure of hoses and seals.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> All high pressure hydraulic components that propose a potential risk have burst protection in place or guarding. > Lock Out, Tag Out for all worker working on hydraulic systems.	Engineering / Redesign	Serious	Rare	6	> Develop dear doctor letter for a HPI injury and emergency response plan.
Fixed Plant & Structures - Crushers	> Limb pinch between moving parts of machine.	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into crusher, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work bar inspection / top up oil requires clearance to work permit and working at heights permit	Isolation	Minor	Rare	3	
Fixed Plant & Structures - Crushers & Screens	Fall into crusher or screen resulting in injury or fatality	Removing blockages from crushers and screens	Significant	Possible	18	Mechanical Engineering Control Plan	> Hand rails and suitable guarding in place to prevent accidental fall into danger areas > Warning signs in place to inform of inherent dangers. > 2 persons working in the area at all times	Engineering / Redesign	Significant	Rare	10	
Fixed Plant & Structures - Crushers & Screens	Incident within confined space	Parts of the crusher are confined spaces for workers.	Significant	Possible	18	Not Applicable	> Only registered and qualified persons are allowed to conduct work in confined spaces in accordance with AS2865 - Safe work in a confined space. > A clearance to work and confined space permit must be used when entering confined space. > Air quality monitored during confined space activities, adequate ventilation must be present prior to entry. > Ensure sufficient ventilation is available before entry proceeds. (Extraction fans must be used if available in the confined space.)	Administrative	Significant	Unlikely	14	
Fixed Plant & Structures - Screens	> Pinch between moving parts of machine. > Limb crush points	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into screen, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit	Isolation	Minor	Rare	3	

<b>Fixed Plant &amp; Structures</b> Screens	Entanglement within screens.	> Maintenance activities / inspections of screens.	Serious	Unlikely	9	Mechanical Engineering Control Plan	> Guarding in place to prevent people falling into screen, > Guarding inspected daily during prestart to ensure all guarding is in place. > Guarding in place to ensure limb in unable to access moving parts. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit	Isolation	Minor	Rare	3
<b>Fixed Plant &amp; Structures</b> Screens	Engulfment within screens, during maintenance.	> Maintenance activities / inspections of screens.	Significant	Unlikely	14	Mechanical Engineering Control Plan	> Lock Out, Tag Out for all worker to be completed where worker needs to access screens. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit	Isolation	Minor	Rare	3
<b>Fixed Plant &amp; Structures</b> Tertiary crushing plant	Fall from heights - Parts of plant are elevated with the potential for workers to fall from heights.	> Completing pre start inspections and greasing moving parts. > Slips while on plant, due to wet surfaces	Significant	Possible	18	Mechanical Engineering Control Plan	> All plant is guarded to prevent workers fall from height, handrails. > Only workers with operational need access tertiary crusher platforms. > Any other work, bar inspection / greasing requires clearance to work permit and working at heights permit. > Workers wear lace up safety footwear. > Anti slip construction of walking surfaces on tertiary crusher plant	Engineering / Redesign	Significant	Rare	10
<b>Ground &amp; Strata Management</b> - Bench Failure	> Bench may fail causing injuries to workers below or workers on the bench.	> Bench may fail due to weathered material. > Pooling of water or rain event washing away material. > Undercut of highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Geotechnical studies undertaken of benches. > Daily visual inspection looking for evidence of ground stability or strata failure. > Drilling and operations completed as per pit design. > Catch benches in place.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Dumping	> Dumping over water.	> Movement of dump. > Incorrect position of vehicle to dump. > Debris from dumping not cleared.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Floor shall be slopping upwards. > The Quarry Manager or Supervisor shall determine safe distance from the tip edge, a minimum of 5 metres from windrow to be used. > The dozer shall remain on the dump at all time while tipping is occurring. > Should the dump / tip edge show signs of cracking, tipping shall stop and the face be reinspected. > All unstable material for this operation shall be diverted	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Fill areas / Overburden	> Subsidence / wash away of fill areas.	> Poor compaction of fill areas. > Water ingress into fill areas causing wash away. > Design failures / maintenance of dump areas. > Seismic event.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Filled areas shall be designed and compacted as per geotechnical report. > Daily inspections of working areas. > Water pressure & corrosion to be considered for design of fill areas. > Sumps to be in place. > Post a seismic activity, fills areas shall be inspected for possible failure. > Dump / fill areas should be no higher than 20 metres unless advised received from geotechnical advice. > Persons shall not access the toe of a dump on foot unless an inspection has been completed prior for loose material / rocks. > Should dump areas be unsafe, geotechnical advice sort and access prohibited until remedial work has taken place. > For any abnormal events a risk assessment must be completed to develop a plan to	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Highwall Failure	> Failure of highwall (Wedge / Slop failure).	> Incorrect slop angle, too steep. > Loose material on highwall. > Excessive highwall face height. > Undercut of Highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Daily visual inspection looking for evidence of ground stability or strata failure.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Highwall Failure	> Highwall may fail causing injuries to workers below or workers on top of the highwall due to water.	> Water pooling behind highwall. > Large weather event washing away parts of highwall. > Incorrect slop design (Too Steep). > Incorrect bench design (Too Narrow). > Ground water within pit. > Undercut of Highwall.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Daily visual inspection looking for evidence of ground stability or strata failure. > Regular performance monitoring to be undertaken of highwalls. > Face height shall not exceed the Geotechnical report requirements. > Geotechnical Engineer shall be engaged as required to reassess mining methodology. > Faces of highwall to not exceed 15 metres, or higher than the loader / excavator can reach for the purposes of scaling.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Highwall Failure	> Highwall may fail causing injuries to workers below or workers on top of the highwall.	> Seismic activity	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Post a seismic activity, highwall shall be inspected for possible failure, daily inspections. > Face height shall not exceed the Geotechnical report requirements. > Blasting shall also be completed in accordance with the explosives control plan.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Highwall Failure	> Fracture of Highwall due to Blast.	> Blast onsite weakening strata and causing potential failure onsite.	Catastrophic (Principal Hazard)	Unlikely	19	Ground Control Management Plan	> Site is designed, for blasting activities to take place. > Comply with explosives control plan. > Post blast inspection conducted > Bunding built to capture loose rocks which could fall from highwall. > Scaling completed on highwalls to remove loose rock	Engineering / Redesign	Catastrophic (Principal Hazard)	Rare	15
<b>Ground &amp; Strata Management</b> - Water Management	> Water may corrode / damage structure within the pit.	> Water pooling behind highwalls and road surfaces. > Large weather event washing away parts of highwall. > Ground water within pit.	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Ground water shall be stored in a sump or pumped to a suitable area. > Water drainage paths shall be established around site, so water does not pool at the toe or crest of critical slopes. > Decrease slop angle shall be consider whilst undertaking geotechnical slope design. > Daily visual inspection looking for evidence of ground stability or strata failure. > Regular performance monitoring to be undertaken of highwalls. > Face height shall not exceed the Geotechnical report requirements. > Geotechnical Engineer shall be engaged as required to reassess mining methodology.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
<b>Ground &amp; Strata Management</b> - Working near base of highwall	> Highwall may fail causing injuries to workers below highwall face.	> Failure of highwall	Catastrophic (Principal Hazard)	Possible	22	Ground Control Management Plan	> Decrease slop angle shall be consider whilst undertaking geotechnical slope design, and faces shall not exceed the geotechnical requirements. > Workers shall not be within the toe of the highwall, highwalls which have poor strata shall exclusion zones as determined by an engineer. > Catch benches shall be in place. > People and vehicles shall not be with 15 metres of the toe of a highwall unless they have a specific task to do	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19

Health Effects - Biological Health	> Health effects due to virus / disease	> Unknown sources. > Water contamination.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Follow recommendation from state and federal governments and world health organisation. > Risk assess any health pandemics. > Bottle water for drinking and town water purchased for hand washing etc. > <del>Process water regularly used to prevent stagnate water</del>	Isolation	Catastrophic (Principal Hazard)	Rare	15	
Health Effects - Psychosocial Hazards	> Physiological hazards for workers.	> Work / Job Stress > Non work related factors	Significant	Possible	18	Health Control Plan	> Employee assistance program available for workers and promoted. > Workers have access to support through different levels of management. > Regular reviews with workers on performance and expectations.	Administrative	Significant	Rare	10	
Health Effects Air Quality & Dust - Asbestos	> Inhalation of asbestos within workplace	> Asbestos in Buildings. > Asbestos naturally occurring.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> No Asbestos onsite.	Elimination	Negligible	Rare	1	
Health Effects Air Quality & Dust - Community exposed to dust working onsite.	> Dust onsite due to mining operations, effecting community health.	> Mining a product with a high silica content. > Breaking rock to make dust and little rocks. > Wind	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Silica content of product known (product has high silica content). > Local Community is a significant distance from mine. > Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems).	Isolation	Significant	Rare	10	
Health Effects Air Quality & Dust - Dredge Operations (Crystalline Silica).	> Workers operate dredge during production process.	> Potential dust during dredging process.	Catastrophic (Principal Hazard)	Rare	15	Health Control Plan	> Dredge operates on a body of water, dredge pipework is flooded with water during process. > Dredge process can not operate without water.	Isolation	Negligible	Rare	1	
Health Effects Air Quality & Dust - Dust generated on roads from vehicles (Crystalline Silica).	> Workers inhaling silica dust when moving around the site.	> Vehicles on roads generating dust.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Product is sand and does not clump. > All vehicles access the quarry shall have windows up at all times. > All vehicles accessing quarries shall have air conditioning, with air set to recycle. > Water cart / sprinkler system available to wet roads. > All vehicles shall have door seals which are regularly inspected and replaced as per OEM recommendations.	Isolation	Serious	Unlikely	9	> In prestart inspections, include comment re checking for signs of excessive dust in cabin, this shall then trigger the cabin to cleaned filters and doors seals to be inspected also. > Move air conditioning unit inspection from "low" risk faults to medium to high, would we accept operating machines if air conditioning not working? > Establish regular cleaning regime for cleaning vehicle cabins / potentially weekly or less.
Health Effects Air Quality & Dust - Dust in Workshop (Crystalline Silica)	> Dust / sand build up. > Dust in service area.	> Workers need to sweep up dust and mud in workshop. > Dust settles on equipment.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Vehicles are wash down prior to entering workshop. > Some dust does enter workshop, however is washed out to minimise exposure.	Administrative	Minor	Unlikely	5	
Health Effects Air Quality & Dust - Fume exposures	> Health effects due to fume exposure.	> Chemicals onsite. > Mobile plant / vehicles.	Significant	Unlikely	14	Health Control Plan	> All chemicals onsite are known and SDS is reviewed, dangerous inhalation risk chemicals are not required on site. > Chemicals are stored in well ventilated areas. > Vehicles operate outside in well ventilated areas.	Engineering / Redesign	Serious	Rare	6	
Health Effects Air Quality & Dust - Human movement generating dust (Crystalline Silica).	> Workers inhaling silica dust when within vehicle cabin. > Dust within offices / lunchrooms, continuing worker exposure during break times.	> Areas where people enter / exit vehicles or offices having product build up.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Vehicles are not to be swept out, however vacuumed out and wiped down with a damp cloth. > Rooms have doors seals. > Rooms have air-conditioning which are regularly serviced.	Administrative	Serious	Unlikely	9	> Establish regular cleaning regime for cleaning vehicle cabins / potentially weekly or less. > In prestart inspections, include comment re checking for signs of excessive dust in cabin, this shall then trigger the cabin to cleaned filters and doors seals to be inspected also.
Health Effects Air Quality & Dust - Wash plant (Crystalline Silica)	> Worker needs to access washing plant	> Dust generation on wash plant	Catastrophic (Principal Hazard)	Rare	15	Health Control Plan	> Wash plant is a wet process, sand is washed wet and therefore does not generate dust, also sand is not crushed therefore no dust generated. > Work sequence the wash plant is not washing when the operator needs to access it.	Isolation	Negligible	Rare	1	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Mining a product with a high silica content. > Breaking rock to make dust and little rocks. > Wind.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Site completes three yearly dust exposure monitoring of work groups (SEGs). (frequency of testing may vary due to exposure). > Silica content of product known (product has high silica content). > Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure). > Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems). > All vehicles onsite shall have an enclosed cabin, with air condition and adequate door seals. > Regular / inspections maintenance to take place on all equipment seals and filtration systems (OEM recommendations). > Operations to stop if the dust can not be controlled on hazardous weather days. > Workers walking around site have respirators available. > Workers are trained in silica and exposure risks.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Operating vehicle / mobile plant. > Excavating. > Grading. > Loading. > Tipping.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Water used within processes to reduce airborne dust (Watercart / stockpile sprays / sprinkler systems). > All vehicles onsite shall have an enclosed cabin, with air condition and adequate door seals. > Regular / inspections maintenance to take place on all equipment seals and filtration systems (OEM recommendations). > OEM maintains vehicle where applicable. > Windows on vehicles must be closed at all times. > Cabins to be cleaned regularly, wiped with wet cloths and vacuumed.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Conveyor transport.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Water sprays on conveyors. > Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure). > In plant design minimise drop distances between product transfer points. > Workers walking around site have respirators available. > Workers are trained in silica and exposure risks.	Isolation	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Fix plant maintenance and cleaning.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Wash/wet screens and structures, prior to maintenance. > Extended grease lines in place from restricted space. > Use of small mobile equipment to access under conveyors and structures. > Use disposable coveralls and dust respirators (and trained) when completing maintenance on dusty areas. > Clothing can be washed onsite. > Workers are trained in silica and exposure risks and trained in correct use / fitment of	Engineering / Redesign	Significant	Unlikely	14	
Health Effects Air Quality & Dust - Confined Space	> Build up of fume / oxygen depleting substance.	> Machine in operation near confined space. > Chemical / substance releasing fume.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> All confined spaces must be identified and have signage warning of prohibited access. > The atmosphere of the confined space must be tested prior to entry, ensuring there is sufficient oxygen within the space. > Continual air monitoring must occur in the confined space. > Confined spaces entry shall only occur under a permit and risk assessment. > A stand by person must be in place for a confined space entry. > Both the stand by and confined space entrant must be trained in confined space.	Engineering / Redesign	Serious	Rare	6	

<b>Health Effects Air Quality &amp; Dust</b> -Workers exposed to dust working onsite (Crystalline Silica).	> Dust onsite due to mining operations, effecting workers health.	> Washing operations. > Conveyor transport. > Movement of vehicles around site. > Wind.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Site completes 3 yearly dust exposure monitoring of work groups (SEGs). (frequency of testing may vary due to exposure). > Site is a wet process, and does not generate dust through dredge and washing operation (furthermore, product is not crushed down so does not normally form a fine powder). > The site has its own weather station, which enables the site to monitor conditions where dust could generate. This enables the site to water cart operation in risk areas. > Workers are trained in silica and exposure risks.	Isolation	Significant	Unlikely	14	> Workers complete 5 yearly health Surveillance for silica exposure health effects. (frequency of surveillance may vary due to exposure).
<b>Health Effects on Body</b> - Diesel powered vehicles and machinery.	> Inhalation of diesel particulate.	> Diesel powered vehicles can generate diesel particulate.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Vehicles operate in open spaces and all vehicles operate with windows up, with air conditioning. > Vehicles are also fitted with particulate filters. > Workers do not work in diesel fume. > Diesel powered machinery maintained as per OEM recommendations. > Diesel exhaust to be away from open window and building windows.	Isolation	Minor	rare	3	
<b>Health Effects on Body</b> - Ergonomics	> Musculoskeletal disorders	> Poorly designed equipment. > Hazardous manual handling.	Serious	Possible	13	Health Control Plan	> All equipment designed with ergonomic consideration. > All new machinery is risk assessed through our Change Management process. > Routine tasks have operating procedures and risk assessments in place. > Permit system in place for non routine task. > Hazardous Manual Handling Standard - ABL-HSE-GOS-12.	Engineering / Redesign	Serious	Unlikely	9	
<b>Health Effects on Body</b> - Fitness for work	> Fitness for work (fatigue)	> Insufficient time to recover between shifts. > Poor shift start and finish times.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> All personnel shall comply with ABL-HSE-GOS-29-02 Fatigue Management. > A site specific fatigue risk assessment shall be undertaken if an employee works more than 60 hours in a week.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
<b>Health Effects on Body</b> - Fitness for work	> Fitness for work (drugs / alcohol)	> Worker under the effects of drugs and/or alcohol.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Workers shall tell their supervisor if they are on any prescription medication. > Random drug and alcohol testing of workers. > Workers shall have zero alcohol in their system.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
<b>Health Effects on Body</b> - Fitness for work	> Fitness for work (fatigue)	> Insufficient time to recover between shifts. > Poor shift start and finish times.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> All personnel shall comply with ABL-HSE-GOS-29-02 Fatigue Management. > A site specific fatigue risk assessment shall be undertaken if an employee works more than 60 hours in a week.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
<b>Health Effects on Body</b> - Fitness for work	> Fitness for work (drugs / alcohol)	> Worker under the effects of drugs and/or alcohol.	Catastrophic (Principal Hazard)	Unlikely	19	Health Control Plan	> Workers shall tell their supervisor if they are on any prescription medication. > Random drug and alcohol testing of workers. > Workers shall have zero alcohol in their system.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
<b>Health Effects on Body</b> - Hazardous Substances	> Unknown health effects from being exposed to hazardous substances.	> Exposures to hazardous substances.	Catastrophic (Principal Hazard)	Possible	22	Health Control Plan	> Register onsite of all hazardous substances. > SDSs kept onsite and accessible. > For all chemicals brought onto site the SDS is reviewed ensuring any additional controls re implemented. > Attempt to replace dangerous chemicals with lower risk chemicals. > Workers are trained in the safe use and handling of the substances. > Signage in place for any specific chemical hazards. > All flammable goods stored in suitable storage locations.	Engineering / Redesign	Serious	Unlikely	9	
<b>Health Effects on Body</b> - Hot Weather / High Humidity	> Heat stress / heat stroke.	> Hot weather / humidity.	Serious	Possible	13	Health Control Plan	> Mobile plant fitted with air conditioners, and all office spaces / building fitted with air conditioners. > Potential to increase breaks if needed or postpone work with no protection from heat. > Workers able to carry water with them, in vehicles / on job. > Workers have long pants, shirts, hat and sunscreen to protect them from UV.	Elimination	Minor	Unlikely	5	
<b>Health Effects on Body</b> - Noise	> Industrial hearing loss.	> Continual noise over 85dBA	Serious	Possible	13	Health Control Plan	> Workers operate within vehicle cabins, vehicle cabins are designed to be under exposure standard. > Buy quiet, buying machinery which when in cabin operates at low decibels. > Workers isolated from noisy equipment and breaks taken away from noisy areas. > Noise survey mapping completed on a 5 yearly basis. > Noise monitoring conducted on the mine site. > Hearing protection available. > Signs indicating areas where excessive noise may be and where hearing protection is needed. > Machinery maintained to minimise noise.	Administrative	Serious	Unlikely	9	
<b>Health Effects on Body</b> - Vibration	> Effects on body due to vibration	> Vibration while operating mobile plant.	Serious	Possible	13	Health Control Plan	> Workers operate within vehicle cabins, vehicle cabins and seats are designed to reduce / eliminated vibration exposure. > Maintenance on mobile plant as per OEM recommendations. > Incident / hazard reporting processes.	Engineering / Redesign	Minor	Unlikely	5	
<b>Health Effects on Body</b> - Welding	> UV burns. > Health effects from fume.	> Welding light and fume.	Significant	Unlikely	14	Health Control Plan	> Welders use screens to prevent exposure to others. > Welders have correct PPE such as welding helmets and leather apron and gloves. > Fume extraction equipment. > Designated Hot work area.	Engineering / Redesign	Minor	Possible	8	
<b>Inundation / Inrush</b> - Gas	> Site is an open cut quarry and there is no risk of gas in workings.		Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1	
<b>Inundation / Inrush</b> - Water offsite.	> Water from quarry affecting local community.	> Man made dams and rivers / lakes over flowing or giving way impacting local community.	Significant	Rare	10	Inundation and Inrush Management Plan	> Site is away from local community and possible flood risk from quarry. > Quarry is designed to only capture the water they are licenced to hold, in excessive rain event water will run off quarry in controlled manner. > Pumps able to move quarry water offsite in controlled manner. > Inspections and management of water within and leaving quarry. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams.	Engineering / Redesign	Serious	Rare	6	
<b>Inundation / Inrush</b> - Water onsite.	> Water into workings putting worker at risk of drowning.	> Quarry water washing through site.	Significant	Rare	10	Inundation and Inrush Management Plan	> Water drains from product very slowly. > Pipelines and drains in place to divert the incoming water into the quarry sumps. > Sumps built to capture and store water. > Water can be pump around site to manage water.	Engineering / Redesign	Serious	Rare	6	
<b>Inundation / Inrush</b> - Water onsite.	> Water into workings putting worker at risk of drowning.	> Man made dams and rivers / lakes above workings giving away, washing through site.	Significant	Rare	10	Inundation and Inrush Management Plan	> Sites designed with all dams at low points on the site, water washing through site is limited to what pumps can push up hill. > Roads and areas where water pools is inspected post rain event and during daily inspections. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams. > Regular inspections of dams and dam walls.	Isolation	Serious	Rare	6	

Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Ground water rising into workings.	Serious	Unlikely	9	Inundation and Inrush Management Plan	> Flow of ground water into working is very slow. > Inspection of quarry each day to ensure no excessive water. > Pumps in place to move water out of working areas.	Engineering / Redesign	Minor	Unlikely	5
Inundation / Inrush - Water onsite.	> Water into workings putting worker at risk of drowning.	> Significant rain event	Significant	Rare	10	Inundation and Inrush Management Plan	> Site work to stop in excessive rain events, as roads and visibility could be unsafe. > Sites designed with all dams at low points on the site, water washing through site. > Roads and areas where water pools is inspected post rain event and during daily inspections. > Diversion systems in place such as, overflow channels, direct water away from workings and structure of dams.	Engineering / Redesign	Serious	Rare	6
Mine Shaft & Winding Systems	> No risk onsite.	> No risk onsite.	Negligible	Rare	1	Not Applicable	> No risk onsite.	Elimination	Negligible	Rare	1
Outburst - Gas	> Site is an open cut quarry and there is no risk of gas in workings.		Negligible	Rare	1	Principal Hazard However Not Present on Site	> Nil no risk present	Elimination	Negligible	Rare	1
Plant & Structures - Maintenance of plant	> Unable to complete safe maintenance / servicing on equipment.	> Safety devices not fitted to plant.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All plant on site must be risk assessed ensure safety devices and warning signals are in place and in suitable positions. > Inspections in place to ensure safety devices are in working order, apart of pre start up inspection. > Servicing completed on safety and warning systems. > Lock Out / Tag Out process, to verify isolation points re effective. > Clearance to work permit to be completed for non standard maintenance tasks. > Upon completion of maintenance work, all plant to returned to operational design.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19
Plant & Structures - Maintenance of plant	> Injuries to person	> Release of energy	Significant	Possible	18	Not Applicable	> All plant to be designed to enable isolation of energy sources. > Lock Out / Tag Out and Clearance to work process. > Machinery Preventative maintenance and inspections.	Isolation	Significant	Rare	10
Plant & Structures - Boom Lift (Boom Length Greater than 11m)	> Person fall from boom lift	> Failure of boom lift	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> People using boom lift must have the applicable high risk work licence. > Boom lift must be fitted with crusher bar. > Boom lift capacity must not be exceeded. > People working within basket must be attached to basket with lanyard. > Boom lift used must be suitable for all terrain. > Exclusion zone to be in place for people not working with boom lift	Engineering / Redesign	Significant	Unlikely	14
Plant & Structures - Contractor Management	> Competence of contractors completing work at quarry. > Advising risky solutions	> Mechanical engineering work is outsourced to a contractor(s).	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Mechanical engineer to complete 5 yearly inspection of all fixed plant and structures. > All plant and equipment to be designed and maintained to the appropriate Australian standards. > All mechanical contractors are to have applicable trade certificates or demonstrate minimum of 2 years working within industry, completing that style of task. > All contractors must have appropriate insurances managed by site pass. > Quarry Manager to shall check and maintain a records for the competency of all contractors who complete maintenance works.	Engineering / Redesign	Significant	Unlikely	14
Plant & Structures - Diesel powered vehicles.	> Inhalation of diesel particulate.	> Diesel powered vehicles can generate diesel particulate.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Risk is managed in airborne contaminates control plan, however vehicles operate in open spaces and all vehicles operate with windows up, with air conditioning. > Vehicles are also fitted with particulate filters. > Also workers do not work in diesel fume.	Isolation	Minor	Rare	3
Plant & Structures - Hirer Plant & Equipment	> Hirer plant and equipment used on site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All new plant brought onto the quarry to be risk assessed prior to use. > All hirer plant brought onto site, to used under clearance to work permit and any other applicable permits. > Hire equipment suppliers to be of suitable ABL standard to provide equipment to ABL sites. > Procurement processes to establish suitable suppliers as well as sub contractor	Engineering / Redesign	Significant	Unlikely	14
Plant & Structures - Inspections / Maintenance of plant	> Plant develop risk which can caused hazard to workers.	> Plant and structures can deteriorate over time and operation.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All plant is to be maintained as per OEM specifications, Australian Standards, Mine Design Guidelines and information from relevant safety alerts. > Life cycle of plant to also be establish as per OEM recommendations, and maintenance completed by qualified person(s). > All plant has a daily visual inspection, pre start-up inspection. > All plant has a weekly detailed operational inspection, all inspection points have individual item numbers. > Bi Monthly quarry inspections completed. > Off highway vehicles shall be inspected for every 250hrs of service. > All fixed plant has a 5 yearly external inspection by external mechanical engineer, register of equipment is stored in gearbox. > If inspections identify any issues, corrective action is developed and entered into Gearbox for completion. > Quarry manager will review / verify all inspections are completed.	Engineering / Redesign	Significant	Unlikely	14
Plant & Structures - Ladders & Scaffolding	> Worker fall from ladder.	> Failure of ladder enabling worker to fall.	Significant	Possible	18	Mechanical Engineering Control Plan	> All ladders shall have a formal 3 monthly inspection completed. > All portable ladders shall Australian standards and be of industrial quality, capacity 150kg or greater. > All scaffolding shall be completed by a scaffolding company who has qualified scaffolders.	Engineering / Redesign	Significant	Unlikely	14
Plant & Structures - Lifting with cranes.	> Fall of load.	> failure of lifting equipment	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> No person to stand or be under suspended load. > All crane lifts must have a lift plan with clearance to work or procedure for lift. > Cranes must be compliance with Australian standard. > All lifting equipment must be inspected every three months. > Qualified dogman to sling appropriate loads.	Isolation	Serious	Unlikely	9
Plant & Structures - New plant to site / Modification to plant	> New plant / structures can bring new hazards to site.	> Unknown / unforeseen risks / processes	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All new plant brought onto the quarry to have design risk review completed, prior to construction. > All new plant brought onto site to have commissioning plan develop and executed to look for possible risk. > All new plant to have an management of change completed, reviewed by either the OEM or qualified engineer. > A operational risk assessment (pre start up safety review) to be completed on all new plant to look for new introduced risks.	Engineering / Redesign	Significant	Unlikely	14



Plant & Structures - Non Destructive Testing	> Plant develop risk which can caused hazard to workers.	> Parts of plant can fail due to the amount of use	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> Non destructive testing to be completed on equipment as per OEM, Australian Standards or Mine Design Guidelines recommendations. > Schedule for Non destructive testing to be managed via gearbox. > All non destructive testing to be completed by a NATA certified testing facility. > If non destructive testing is cost prohibitive, item is to be replaced prior to item being out side of service life.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Pressure vessels	> Pressure vessel failure causing explosion.	> Not maintained or inspected. > Collision with pressure vessel.	Catastrophic (Principal Hazard)	Possible	22	Mechanical Engineering Control Plan	> All pressure vessel must be inspected annual, by an external qualified provider. > Pressure vessels must comply with Australian Standards. > All pressure vessels must be protected from collision with mobile plant. > All portable pressure vessels must be stored in a secured place. > Pressure vessels fitted with pressure relief valves.	Isolation	Serious	Rare	6	
Plant & Structures - Vehicles with rubber tyres.	> Failure of Rim or tyres.	> Poor maintenance of rim or tyre enabling failure.	Significant	Possible	18	Mechanical Engineering Control Plan	> All rims to complete non destructive testing (10000 hours on new or 5000 hours on pre tested) as per OEM / Australian Standards. > Person who completes work on rims / tyres must be competent in rim management, with competence managed in site pass and preferable work for the OEM. > Daily inspections completed on wheel assemblies and tyres. > Tyres are inspected to ensure inflation is correct as per OEM requirements, tyres shall be tested with a pressure gauge.	Engineering / Redesign	Significant	Unlikely	14	
Plant & Structures - Vehicles with rubber tyres	> Failure of Rim or tyres.	> Rubber tyre vehicles which have come into contact with electricity or heating	Catastrophic (Principal Hazard)	Unlikely	19	Mechanical Engineering Control Plan	> Any rubber tyred vehicle which has come into contact with high voltage electricity or heating shall be isolated in a 300m exclusion zone for a minimum of 24 hours.	Isolation	Serious	Rare	6	
Road - Bodies of Water	> Vehicle enter body of water.	> Unaware of body of water.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Barriers shall be erected within 5 metres of the sloping edge, not the waters edge. > Signage in place warning of locations of bodies of water.	Isolation	Serious	Rare	6	
Road - Design of roads within quarry	> Collision of vehicles.	> Poor roads / conditions enabling vehicle collision.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All two-way travel roads must be 3 times the width of the widest vehicle, if not possible road must include radio call point and vehicle passing points. > Ideally two way roads would have a centre berm to separate vehicles. > No road shall be narrower than 1.5 times the width of the widest vehicle which will travel along it. > All berms shall be half the wheel height of the biggest vehicle site. > Roads shall be made of suitable material and maintained so they are in a safe condition. > Roads should be under a 1/10 grade, roads with a steeper grade shall have a specific risk assessment. > Corners shall be designed with cross-falls of no greater than 5 degrees. > Drainage provision shall be installed on all roadways and benches to removed pooled water. > Where possible centre berms shall be used as a road divider. > Intersections, Crests and blind corners should be eliminated, if they can not be	Engineering / Redesign	Significant	Unlikely	14	
Road - Interaction with Power Lines	> Vehicle collision with overhead powerlines	> Unknown vehicle height. > Unknown powerline height.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All powerlines on site shall be buried underground, to prevent possible collision. > If it is not possible signage must determine the location of powerlines and vehicle height restrictions must be in place.	Engineering / Redesign	Significant	Rare	10	
Road - Maintenance of Roads	> Unplanned movement of vehicle travelling on roads, causing collision.	> Road condition deteriorates due to poor maintenance.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Road ways must be regularly graded and watered. > All workers must be notified at pre-start or toolbox talk, if roads are in poor condition or being maintained during shift. > Obstacles and debris shall be removed from road ways. > Road ways shall be inspected for cracking, sinking or slippages during / after any periods of heavy rain	Engineering / Redesign	Serious	Unlikely	9	
Road - Refuelling Stations	> Vehicle collides with re fuelling station	> Unplanned movement of vehicle, roll away.	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Refuelling stations shall be listed on a sites traffic management plan. > Refuelling stations must be designed and constructed as per AS1940. > Physical barriers must be in place to prevent collision with refuelling stations.	Isolation	Serious	Unlikely	9	
Road - Traffic Management	> Unplanned movement of vehicle travelling on roads, causing collision.	> Vehicle operators not aware of road rules.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles have two way radios to call operators who may be not following road rules. > All people are inducted to site and trained in traffic management rules. Plus annual refresher training of drivers. > Signage onsite directing vehicles, and signage is compliant to AS1744:1975. > Signage is in visible location where they do not generate a hazard and they are place far enough away from a hazard to enable an operator to stop.	Engineering / Redesign	Significant	Unlikely	14	> Site shall complete specific site walk through risk assessment for traffic management, identifying heights of berms, one / two way roads, placement of signage, speed limits, radio call points, parking areas, and dealing with road hazards (Crests, blind corners, Intersections), pedestrian integration.
Road Vehicle Operations - Access and Egress of all Mobile Plant.	> Fall while accessing or exiting mobile plant.	> Design of access / egress. > Damage to access / egress.	Serious	Possible	13	Not Applicable	> Three points of contact for accessing mobile plant. > Fall protection in place for mobile plant. > Review each piece of plant for access and egress, prior to introduction to site. > Mobile plant operators have appropriate PPE. > Pre-Start inspection on all mobile plant.	Engineering / Redesign	Serious	Rare	6	
Road Vehicle Operations - Collision with fixed plant	> Collision with fixed plant	> Machinery needs to access areas near fixed plant to tip / load.	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Signage reinforcing all site speed limits. > Reversing cameras in place. > Designated stop and hold points, and exclusion zones.	Administrative	Serious	Possible	13	
Road Vehicle Operations - Congested Work Areas	> Collision of vehicles within congested work zones Heavy Vehicle v Heavy Vehicle	> Certain work areas (Boot, Loader, Stockpile area, loading zones) have multiple vehicle movements.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Radio communication between vehicles > Signage reinforcing all site speed limits. > Reversing cameras in place. > Flashing lights for dust / dawn operations. > Designated stop and hold points, and exclusion zones.	Isolation	Serious	Possible	13	
Road Vehicle Operations - Congested Work Areas	> Collision of vehicles within congested work zones Heavy Vehicle v Light Vehicle	> Certain work areas (Boot, Loader, Stockpile area, loading zones) have multiple vehicle movements.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Speed limits within congested 15km/h. > Radio communication between vehicles, light vehicles must give way to all heavy vehicles. > Signage reinforcing all site speed limits. > Reversing cameras in place. > Flashing lights and whip flags on light vehicles. > Designated stop and hold points, and exclusion zones.	Isolation	Serious	Possible	13	

Road Vehicle Operations - Fire on mobile plant.	> Fire on mobile plant.	> Failure on mobile plant causing fire.	Significant	Possible	18	Fire Prevention and Protection Management Plan	> Fire fighting equipment in place to enable driver to escape from vehicle, and of suitable size for self escape. > Fire extinguishers tested every 6 months. > Workers trained in fire equipment. > Pre start inspection on machinery and equipment maintained as per OEM recommendations.	Engineering / Redesign	Significant	Rare	10	
Road Vehicle Operations - General Vehicle Movements	> Collision of vehicles.	> Unknown vehicle movement, > Unable to see other vehicle. > Vehicle causing more severe injury to occupants.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles must be fitted two-way radios, > All vehicles must have a flashing light, > Head lights, indicator lights and brake lights. > Vehicles <4.5 Tonne must be fitted with whip flags. > All mobile plant must be fitted with reversing beepers and a fire extinguisher. > All public road going vehicles, must meet road worthy inspections for NSW. > All Off Highway vehicles must comply with maintenance as prescribed from regulator and OEM. > Roads designed to protect workers and minimise integration between heavy and light vehicles, 3x width of widest vehicle for two-way roads, single way roads 1.5 width of widest vehicle. > Workers are trained and competent to drive vehicle. > Collision avoidance technology, vehicle reversing alarms.	Engineering / Redesign	Significant	Unlikely	14	
Road Vehicle Operations - General Vehicle Movements	> Collision with building / Structure.	> Building in position where run away vehicle can have collision.	Catastrophic (Principal Hazard)	Unlikely	19	Roads and Other Vehicle Operating Areas Management Plan	> Speed calming devices installed. > Barricading and Bollards to slow/stop vehicles. > Separation between vehicles and pedestrian areas. > Run off areas for vehicles. > Speed limit onsite 30km/h. > Road is maintained to prevent it being slippery.	Engineering / Redesign	Serious	Rare	6	
Road Vehicle Operations - General Vehicle Movements	> Collision with person.	> Unknown vehicle movement, > Unable to see other person	Significant	Possible	18	Roads and Other Vehicle Operating Areas Management Plan	> Designated walk ways for pedestrians, pedestrians not to walk around moving heavy vehicles. > Pedestrians where high visibility clothing. > All mobile plant must be fitted with reversing beepers. > All public road going vehicles, must meet road worthy inspections for NSW. > All Off Highway vehicles must comply with maintenance as prescribed from regulator and OEM.	Isolation	Significant	Rare	10	
Road Vehicle Operations - General Vehicle Movements	> Collision with other Vehicle, structure or pedestrian.	> Driver not fit for work (fatigue or drugs / alcohol). > Distracted mobile phone (personal device).	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> No mobile phones to be taken with in vehicles >4.5T GVM. > No vehicle <4.5T GVM drivers are permitted to use mobile phones when driving on a quarry site, hands free or otherwise. > Drivers trained in fatigue management and have regular breaks. > All persons onsite must be free from the effects of drugs or alcohol. > Onsite random drug and alcohol testing.	Administrative	Catastrophic (Principal Hazard)	Rare	15	
Road Vehicle Operations - Loading box trailers for light vehicles (<4.5T GVM)	> Failure of trailer.	> Overload vehicle > Bucket damages vehicle	Significant	Possible	18	Not Applicable	> Light vehicle box trailer to not be loaded on site.	Elimination	Negligible	Rare	1	
Road Vehicle Operations - Loading of tipper trailers.	> Failure of tipper vehicle.	> Overloading of truck / trailer.	Minor	Possible	8	Not Applicable	> Maximum capacity of tippers are known. > Scales on loader to indicate weight of load. > loader driver qualified and evenly distributes load. > All tipper vehicles are site inspected. > Two communication between truck driver and loader driver.	Administrative	Minor	Rare	3	
Road Vehicle Operations - Operating vehicle in poor visibility conditions	> Collision with other Vehicle, structure or pedestrian.	> Night, > Smoke, > Fog.	Catastrophic (Principal Hazard)	Possible	22	Roads and Other Vehicle Operating Areas Management Plan	> Vehicles are fitted with head lights and tail lights. > All vehicle have flashing lights. > Reflective tape, signs and clothing. > Consider halving speed limits when low visibility.	Engineering / Redesign	Catastrophic (Principal Hazard)	Unlikely	19	> Include in control plan.
Road Vehicle Operations - Roll over / Fall Over	> Vehicle roll over or fall over	> Poor road condition, > Load shift, > Too fast in corner,	Catastrophic (Principal Hazard)	Probable	24	Mechanical Engineering Control Plan	> Further information in Roads and other vehicle control plan. > All vehicles must be fitted with seat belts and must be warn for all vehicle movements. > Workers must not travel in a vehicle seat which does not have a seat belt for each seat. > Maximum speed limit on site is 30 km/h. > Roads are inspected and maintained as per roads and other vehicle control plan. > Excavators must transport loads as low to the ground as possible. > All mobile plant fitted with roll over protection.	Engineering / Redesign	Serious	Unlikely	9	
Road Vehicle Operations - Tarping Load	> Driver falling from vehicle, prime mover and trailers.	> Driver need to tarp up load. > Drivers need to alight vehicle. > Uneven surfaces	Significant	Unlikely	14	Roads and Other Vehicle Operating Areas Management Plan	> All vehicles are loaded onsite, must have automatic tarps or be able to be tarped up from the ground. > Prime movers are fitted with compliant stairs and vehicle access systems. > All vehicles must be fundamentally stable (on level ground) prior to existing the vehicle.	Engineering / Redesign	Serious	Unlikely	9	
					0						0	
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**SAFETY MANAGEMENT SYSTEM**

HTA-S-HSE-057

Hy-Tec Industries – Penrose Quarry

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Appendix 19B PPE Matrix

PERSONAL PROTECTIVE EQUIPMENT												
Note: PPE use is a “minimum” risk control measure, however it can be used in conjunction with other safety controls.												
LEGEND– M= Mandatory R = Recommended if required												
SITE SPECIFIC RULES WILL DETERMINE WHAT PERSONAL PROTECTIVE EQUIPMENT (PPE) MUST BE WORN												
PPE Type Hazard/Activity	 HEAD PROTECTION MUST BE WORN Safety Helmet	 HEARING PROTECTION MUST BE WORN Hearing Protection	 EYE PROTECTION MUST BE WORN Eye Protection	 FOOT PROTECTION MUST BE WORN Safety Boots	 PROTECTIVE CLOTHING MUST BE WORN Long Clothing	 HAND PROTECTION MUST BE WORN Hand Protection	 SAFETY VEST MUST BE WORN Hi-Vis Clothing	 HALF FACE MASK RESPIRATOR MUST BE WORN Respiratory Equipment	 FACE SHIELD MUST BE WORN Face Shield	 WELDING MASK MUST BE WORN Welding Mask	 SAFETY HARNESS MUST BE WORN Safety Harness	
Employees/visitors	M	R	M	M	M		M					
Plant Operation	M	M	M	M	M	R	M	R	R			
Mechanical Maintenance	M	R	M	M	M	R	M	R	R		R	
Fabrication Work	M	M	M	M	M	M	M	R	R	R	R	
Hazardous Substances	M	R	M	M	M	M	M	R	R			
Workshop Activities	M	M	M	M	M	R	M	R	R	R		
Office Work				M	M		M					
Working at Heights	M	R	M	M	M	R	M	R	R	R	M	
Confined Spaces	M	M	M	M	M	R	M	R	R	R	R	
Cleaning Activities	M	R	M	M	M	R	M	R	R		R	

# Concrete & Aggregates

PIRMP Document Control

Dunbogan Quarry

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## Pollution Incident Response Management Plan Review Sheet

Plan	Revision No	Date	Review	Approved by (Planning and Development)
PIRMP	1.0	08.03.2013	Reviewed – no changes	D.Thiedeke
PIRMP	1.0	15.05.2014	Reviewed – minor changes made	D.Thiedeke
PIRMP	2.0	04.05.2015	Reviewed – update contacts	D.Thiedeke
PIRMP	3.0	12.05.2016	Reviewed – no changes	D.Thiedeke
PIRMP	4.0	09.05.2017	Reviewed – update contacts	D.Thiedeke
PIRMP	5.0	11.05.2018	Reviewed – no updates	D.Thiedeke
PIRMP	6.0	08.03.2019	Alterations to numerous sections	D.Thiedeke
PIRMP	7.0	07.05.2020	Minor changes – Management structure	D. Thiedeke
PIRMP	8.0	23.12.2022	Alterations to numerous sections	D.Thiedeke

Status: Approved

Owner: NP&DM  
Manager

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