Appendix H – Stormwater Management Control Plan

Stormwater Management Control Plan

Site Name	Martins Creek Quarry
Job No.	BMC
Client	Daracon

Document No. 1

Holder: DARACON

Revision	Date	Prepared By	Reviewed By Quarry Manager		Authorised By HSEQ / Divisional Manager	
			Name	Sign	Name	Sign
0	26/2/15	Ashley Smith	P WALKER			
01	24/2/16	Ashley Smith	P WALKER			

Contents

1. INTRODUCTION

1.1. BACKGROUND

Martins Creek Quarry is located at Station Street Martins Creek and lies within the Dungog Shire Local Government Area. The Quarry produces materials such as aggregates, ballast, roadbase and gabion for the construction industry.

The quarry is bound by the North Coast rail line to the North of the quarry and Martins Creek community to the south. (Refer to Appendix A). The quarry currently comprises of two portions;

- Lot 1 DP 204377 and Lot 1 1006375
  - Crushing and Screening of aggregates
  - Workshops
  - Rail siding and rail loading facility
  - Site compounds
  - Transport and Sales
  - Precoating Sealing Aggregate
- Lot 5 DP 242210, Lot 6 DP 242210
  - Material Extraction
  - Blasting
  - Transport and Sales
  - Washing of Coarse Manufactured Sand
  - Some sorting and Crushing

This plan should be read in conjunction with Daracon Group's documented project Environmental Management Plan (and any other supplementary plan referenced thereto).

This plan has been developed in accordance with the requirements of Landcom's "Blue Book" *Managing Urban Stormwater: Soils & Construction* 4TH Edition.

2. SCOPE

The work involves the operation of Martins Creek Quarry in the shire of Dungog Shire Council. Main works involve the winning, crushing, screening and sale of material for construction purposes.

3. PURPOSE of PLAN

This Stormwater Management and Control Plan (SWMCP) has been prepared to address surface water management on site including the control of pollutants generated by quarry operations.

The SWMCP aims to outline the following;

- Relevant legislative requirements for soil and water quality aspects generated during the operation of the quarry
- Erosion, sedimentation and water quality issues potentially arising from quarry operations
- Specific safe guards and procedures to manage soil and water quality during operation
- Roles and responsibilities of those involved in the design and implementation of the erosion and sediment controls
- An effective monitoring, auditing and reporting framework to assess the effectiveness of the controls implemented.

Safeguards to manage soil and water quality during the quarry's lifetime will be implemented through this plan.

4. LEGISLATIVE AND REGULATORY COMPLIANCE

4.1. RELEVANT LEGISLATION

Key environmental legislation relating to soil and water management includes;

- Protections of the Environment Operations Act 1997
- Environmental Planning and Assessment Act 2011
- Water Management Act 2000
- Soil Conservation Act 1938

4.2. ENVIRONMENTAL PROTECTION LICENCE

The Environment Protection Authority (EPA) has issued an Environmental Protection Licence EPL 1378 (Anniversary date 30-June) as the quarry falls under the definition of a scheduled activity under schedule 1 of the POEO Act 1997. With reference to surface water management EPL 1378 contains three (3) water monitoring/discharge points. These being Point 6(Dam 1), Point 7(Dam 2) and Point 8(Dam 3).

4.3. GUIDELINES AND STANDARDS

The key reference materials relevant to management of soil and water quality during design and operation of the quarry include;

- Managing Urban Stormwater: Soils and Construction Landcom, (4th Edition) March 2004 (Reprint 2006) the "Blue Book".
- Managing Urban Stormwater: Soils and Construction, Volume 2 E Mines and Quarries (DECC, 2008)
- Australian and New Zealand Guidelines for fresh and Marine Water Quality
- Protection of the Environment Operations Act 1997 (NSW)

5. OVERVIEW OF MARTINS CREEK QUARRY

5.1. FLOW PATHS and CATCHMENTS

The operational area of Martins Creek Quarry is characterised by three distinct catchment areas that report to Water Discharge Points. The three water quality monitoring discharge points as per EPL 1378 being;

- Point 6 (Dam 1)
- Point 7 (Dam 2)
- Point 8 (Dam 3)

A plan showing the location of these dams has been included in 12.2 Appendix B and the catchment areas for each dam is in Appendix C. For the detailed operation of Dams 1, 2 and 3

refer to the **"Martins Creek Quarry Dewater Procedure"**. In addition to these three catchment areas there are 5 smaller areas that have required the installation of further control measures. These control measures are detailed in the following Appendixes:

- Appendix D Overview of Erosion and Sediment Control Measures Areas 1-5
- Appendix E Detailed Discussion of Erosion and Sediment Control Measures Areas 1-5

5.2. SITE WATER BALANCE

The water used, extracted, dewatered, transferred and discharged by the quarry is detailed below.

5.2.1. WATER DEMANDS

Water required for the operation of the quarry includes both process water and potable water. Water demands include;

- Dust suppression for the crushing and screening plant
- Operation of the pugmill
- Haul road dust suppression
- Washing of manufactured sand
- Stockpile dust suppression
- Potable water for drinking purposes.
- Washing of heavy machinery and road Lorries.

Water will also be lost from the water management system via evaporation from the water of surface dams.

5.2.1.1 CRUSHING and SCREENING PLANT

The crushing and screening plant currently uses potable water for dust suppression on both belts and conveyor stockpiles.

5.2.1.2 PUGMILL

The pugmill produces moisture modified products. Water is currently sourced from potable supplies and will vary depend on the blend proportions and the customer's requirements.

5.2.1.3. STOCKPILE DUST SUPPRESSION

The volume of water required for stockpile dust suppression will vary accordingly to prevailing climatic conditions. It is considered that on days where the daily rainfall exceeds evaporation, it is unlikely that dust suppression will be required. Water to be used on stockpiles for dust suppression will be from potable water.

5.2.1.4 HAUL ROAD DUST SUPPRESSION

The volume of water required for the haul roads, dust suppression will vary accordingly to prevailing climatic conditions. It is considered that on days where the daily rainfall exceeds evaporation, it is unlikely that dust suppression will be required. Water to be used on the haul roads for dust suppression will be from Sediment dams 1, 2 and 3 or if no water is in these dams it will be sourced from potable water.

5.3. EROSION and SEDIMENT CONTROL PLAN

5.3.1.OPERATIONAL PHASE

The erosion and sediment controls for the site has been developed in accordance with the reference documents detailed in Section 4.3 'Guidelines and Standards'. The intent of the erosion and sediment controls is to minimise the generation of the sediment on-site and its transport around and/or off the site.

Specific erosion and sediment controls are contained in Appendixes D and E of this document. These plans include the following measures to be adopted to control the quality of runoff, including the following:

- Construction of erosion and sediment control measures prior to commencing stripping of topsoil in development areas.
- Construction and regular maintenance of sediment fences to contain sediment down slope of disturbed areas.
- Maintain plant and vehicle park up areas to ensure no pollution and sedimentation of water ways

- Seeding / Hydro-mulching of disturbed areas to provide rapid growth of vegetation.
- Construction of diversion drains upslope of areas to be disturbed to divert clean runoff.
- Limiting the number of roads and tracks established
- Progressively reshaping, topsoiling and vegetating road and cut and fill batters, to maximise long term stability.
- Inspections of erosion sediment controls to ensure they are performing adequately
- Regular maintenance of sediment controls to ensure adequacy of controls in place.

  Maintenance of sediment controls to include;
  - De-watering sediment dams
  - Removal of silt from sediment fences,
  - Cleaning of drains around site,
  - Ensuring build up of sediment does not significantly reduce capacity of dams
  - Reinstatement of controls as required.

Appendix's D and E of the SWMCP contain specific erosion sediment control measures that are in place on the site;

- Section 12.4 Appendix D; Overview of Erosion and Control Measures for Areas 1-5
- Section 12.5 Appendix E; Detailed Discussion of Erosion and Sediment Control Measures in Areas 1-5

These plans are to be updated as required or when new controls are put in place to reflect the current conditions.

5.4 POTENTIAL POLLUTION SOURCES

Areas of the quarry operations which are potential sources of pollution by oils, greases and chemicals are as follows:

5.4.1 FUEL/WASH DOWN/SERVICE BAY

The operation of this facility is for refuelling of quarry machinery and Road Lorries, wash down of machinery and for the servicing of plant. Contained within this facility is a diesel storage tank, oil/water separator, roofed refuelling/wash down/service bay concrete slabs and enclosed lubricant storage building.

The following control measures are in place:

- Concrete slabs are roofed and bunded with any water/hydrocarbons captured directed by pits and piping to the oil water separator
- Bunded diesel storage tank
- Oil water separator
- Waste oil bunded
- Waste oil removed from site by licensed contractor.
- Routine maintenance on sumps, pits, oil water separator and clean water tank.
- Clean water tank. Oil water separator contains high level alarm
- Spill kit located for localised spills

5.4.2 SMALL FUEL STORAGE SHED

Contains storage of fuels in fuel storage containers. Control measures in place are:

- All small fuel storage in containers to Australian Standard
- Fuel storage shed is bunded
- Spill kit located in the area.

5.4.3 PRECOAT PLANT

The Precoat plant is used to precoat aggregates for spray sealing applications. The area consists of a 30 000 litre storage tank for the precoating agent and the Precoat mixing plant. Aggregate is precoated by adding aggregate into a loading hopper where it progresses via a conveyor to a mixing box where the precoating agent is then added. The following environmental control measures are in place:

- Surface water runoff from the precoat stockpile area and the wheeled stockpile conveyor is channelled through a geo-textile hydrocarbon filter (currently being *"Ultra X-Tex"*)designed and constructed in consultation with Victory Engineering
- The rate at which the Precoat is added is monitored through the **"Precoat Plant Calibration Form" (Appendix 12.10 J).** The rate at which Precoat is added to the various aggregate sizes was determined by SAMI Bitumen Technologies so that the precoating agent is added at a level that ensures both functional performance and that there is no risk

of "wash off" of the Precoat. The trial and report as completed by SAMI is contained in the Precoat Calibration Procedure.

- The Precoat storage tank is bunded and roofed

6. ENVIRONMENTAL ASPECTS, IMPACTS AND RISK

The quarry has the potential to impact local water quality through erosion and transport of sediment generated due to the loss of vegetation, discharge of water and the exposure of soils.

6.1. ENVIRONMENTAL RISK ASSESSMENT

A risk assessment has been undertaken as part of the Martins Creek Quarry's Environmental Management Plan to identify the risk that quarry's operation may present to soil and water quality.

Table 1 below summarises the key activities and the potential impacts identified in the risk assessment that present a risk to soil and water during the quarry's operation. Control measures and safeguards to mitigate potential impacts on soil and water quality are provided in section 5 of the sites Environmental Management Plan.

Table 1: Environmental Risk Assessment Summary

Activity	Potential Impact
Vegetation Clearing	Erosion and discharge of sediments to waterways.
	Discharge of nutrients to waterways
	Carriage of weed material
Topsoil Stripping and Earthworks	Erosion of exposed soil horizons
	Sedimentation caused by stockpile erosion
	Erosion and sedimentation of undisturbed areas
	Sedimentation of local waterways
Drainage works	Increased flow or more concentrated flows causing scouring
	Damage to ecosystems due to pollution of waterways
Compounds including fuel and chemical storage areas	Pollution to local waterways from accidental spillage, failure of a control or inappropriate storage
	Ground contamination

7. TRAINING

All employees, contractors and utility staff working on site will undergo training that is relevant to the works that they will be undertaking whilst onsite. The Martins Creek site specific induction discusses the need to report any environmental incidents immediately.

Records will be kept of all personnel undertaking the site induction and training, including the contents of training.

Key staff will undertake more comprehensive training relevant to their position and or responsibility. This training may be provided as "Toolbox" training or at a more advanced level. Training may include but is not limited to:

- Aspects and impacts of SWMCP
- Legislation and Approvals
- Principles and techniques of Stormwater, Erosion and Sediment Control (ESC)
- Field planning and site management

8. INSPECTIONS, MONITORING, MAINTENANCE AND AUDITING

8.1. INSPECTIONS

The Supervisor or site delegate shall carry out regular inspections of all work areas to ensure that the following standards and processes are being maintained. All environmental aspects of the site shall be monitored at least daily by the Supervisor/delegate or Environmental Site Representative and the results recorded on the daily site inspection record (refer Section 12.7 Appendix G).

After each significant rain event site environmental controls shall be inspected by the Supervisor/ delegate and any necessary maintenance done as soon as practicable. A record of the maintenance shall be kept on F309.02 - Environmental Inspection Record (Refer Section 12.8 Appendix H).

The Quarry Manager shall determine appropriate corrective action to address the immediate consequences of the any areas requiring maintenance and the appropriate rectification measures.

The Quarry Manager shall regularly review environmental reports to confirm that clean up; restoration and corrective actions have been completed and are effective. The HSEQ Manager

shall review all non-conformances and report significant findings to monthly management review meetings.

Any potential damage to areas outside the site shall be immediately reported to the Quarry Manager who will advise on the nature of appropriate corrective action.

Inspections will take place on a regular basis as noted in Table 2 to ensure appropriate mitigation measures and controls are being provided and that they are effective.

Table 2: Inspection Regime

Interval	Type
Storm or Rainfall Event	Inspections following significant rainfall by the site manger or delegate and selected members of site personnel to inspect sediment control measures including sediment dams
Daily	Daily inspection and monitoring of site environmental conditions and impact control measures will be undertake by the Quarry Manager or delegate and noted in the daily inspection form
Others	Third party inspections (TREES) Audits as per the EMP

Any areas requiring maintenance shall be recorded and will remain open until action has been taken and the issued resolved. ESC measures in place will be checked against site ESC inspection checklist.

8.2. ENVIRONMENTAL MONITORING

Environmental monitoring is a central component of the SWMCP, which allows Daracon to better identify and manage the impacts of the quarry's activities are having on the soil and water quality.

8.2.1. WEATHER MONITORING

Weather data will be recorded continuously to the requirements of the Environmental Protection Licence 1378. The weather station at Martins Creek is a "Weather Maestro 10 Channel Logger" installed by Environdata Data. The weather station records and stores data as required by Clause M4.2 in EPL 1378:

- Air temperature (degrees centigrade)
- Wind Direction (degrees)
- Wind Speed (m/s)
- Rainfall (mm

8.2.2.WATER QUALITY

The water quality of sedimentation basins will be tested daily during discharge into receiving environments. Water collected in sedimentation basins will be tested using the criteria as outlines in Table 3. In-situ water testing is to be undertaken by trained personnel and a grab sample taken to a NATA accredited laboratory for analysis. If test results are not within the specified limits the basin may need further treatment.

Table 3: Water Quality Criteria (AS per EPL 1378, CI 3)

Criteria	Value	Test Method
Oil and Grease	<10mg/L	Visual Inspection
pH	6.5 – 8.5	Probe
Total Suspended Solids	<50mg/L	Grab Sample

For the waters captured within sediment dams to meet the above criteria it may be necessary for the waters to be treated by the additional of chemicals. This process will be managed by the Quarry Manger or delegate who will be responsible for ensuring that the process of treatment, testing and release is done in an environmentally competent manner. Water treatment will occur as required to enable the dams to have the required capacity for the next rainfall event. Where an active discharge from a site dam is required water testing by a NATA certified laboratory will be undertaken and upon the receiving of test results within the allowable parameters (Table 3 above) a "**Dewatering Permit"** shall be complete (refer Section 12.6 Appendix F). Water quality testing will be undertaken daily during discharge.

8.3. MAINTENANCE

Maintenance of all controls on site will be done to ensure that sediment control measures are operating in an efficient and effective manner. This maintenance may include:

- Removing accumulated sediment form sediment fences, check dams, straw bales and from formed drains.
- The replacing of straw bales and rock checks.

- Dewatering sediment dams.
- Removing sediment from dams.
- Reshaping roadways.

Regular inspections as per the inspection regime (Table 2 Section 8.1) will ensure that all sediment control devices in place are working effectively. Refer to Section 12.7 Appendix G for the **"Daily Inspection"** form used. Maintenance of sediment and erosion controls will be recorded on the form in Section 12.8 Appendix H **"Erosion and Sediment Control Maintenance Record."**

The maintenance procedure of the Water Quality Monitoring Points Dams 1, 2 and 3 is discussed detail in the **Martins Creek Quarry Water Treatment Procedure.**

8.4. AUDITING

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls and compliance with this plan.

A schedule for internal audits providing frequencies and responsibilities will be determined by the Systems Manager and the Quarry Manager.

9. RECORDS

9.1 GENERAL RECORDS

Daracon will maintain records of environmental activities throughout the course of the quarry's life. These include site environmental inspections, environmental monitoring data, audit reports, incidents and complaints.

9.2 POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN (PIRMP)

As per EPL condition O4.1 Martins Creek Quarry have in place a current Pollution Incident Response Management Plan. This document outlines the procedure for dealing with all types of pollution incidents (eg spills or fire) and is tested at a minimum of annually or following a pollution incident.

10. REVIEW AND IMPROVEMENT OF SWMCP

10.1. ENVIRONMENTAL MANAGEMENT REVIEW

The effectiveness and proper implementation of the SWMCP will be reviewed by Daracon annually or sooner if necessary. Review will be undertaken by the site management team and comprise of;

- Reviewing the results of audits
- Evaluation of the system, which improvements and corrective actions were undertaken
- Evaluation of the operations of the SWMCP

10.2. CONTINUAL IMPROVEMENT

Continual improvement of the SWMCP will be achieved by regular evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continual improvement process will:

- At least annually
  - Review the adequacy of this plan.
  - Consider any recent developments in practices and technology to ensure best management practices.
- At least quarterly
  - Review monitoring results and identify areas of opportunity for improvement.
- At least monthly (or after incidents / non-conformances occur)
  - Determine root cause or causes of non-conformance or incident
  - Develop and implement a plan of corrective actions to address non-conformance or incident
  - Verify effectiveness of the corrective actions and preventative actions

11. REFERENCES

- Landcom *Managing Urban Stormwater Soils and Construction 4th Edition.*

12. APPENDIXES

12. 1 APPENDIX A – AERIAL MAP

12.2 APPENDIX B- MONITORING LOCATIONS

12.3 APPENDIX C- CATCHMENT AREAS

12.4 APPENDIX D OVERVIEW OF EROSION AND SEDIMENT CONTROL MEASURES AREAS 1-5

12.5 APPENDIX E DETAILED DISCUSSION OF EROSION AND SEDIMENT CONTROL MEASURES AREAS 1-5

Appendix E is a summary of the erosion and sediment control measures that are located within smaller disturbed catchment areas that due to the topographical features of the quarry are not able to be diverted to Dams 1, 2 or 3. Refer to Section 12.3 and 12.4 for their locations within the quarry. These catchment areas are:

- 12.5.1 Area 1 – Pre-strip Area
- 12.5.2 Area 2 – Alternate Quarry Access (Station Street)
- 12.5.3 Area 3 – Haul road from quarry pit to processing area
- 12.5.4 Area 4 – Pre-strip Area
- 12.5.5 Area 5 – Northern Diversion Bund

12.5.1 Area 1 - Pre-strip Area

The pre-strip area is located on the haul road between the quarry processing area (Lot 1) and the material extraction area (currently lots 5 and 6). This area has had topsoil re-spread on it and has had Hydromulch applied to it. The erosion and sediment controls are as follows:

- Sediment fence is installed in multiple locations.
- Small sediment dam installed downstream of catchment.
- Construction of check dams downstream of small sediment dam

12.5.2 Area 2 - Alternate Quarry Access (Station Street)

The alternate quarry access is an unsealed road that extends from the Martins Creek Quarry main gate to the haul road connecting the quarry extraction area from the processing area. The control measures in place are as follows:

- Sediment fence installed on the downstream side of the roadway. The sediment fence is interrupted in several locations by rock check bunds to allow water egress
- The steeper sections of pavement edge drain have been lined with geo-fabric and ballast.
- Gaps in the earth bank that run on large sections of the road have been lined with geo-fabric and ballast to allow water egress
- Ballast check dams occur at intervals along the pavement edge

12.5.3 Area 3 – Haul road from quarry pit to processing area

The haul road connects the quarry extraction pit to the quarry processing area.

- The steeper sections of pavement edge drain have been lined with geo-fabric and ballast.
- Gaps in the earthy bank that runs along large sections of the road has been lined with geo-fabric and ballast to allow water egress. Several of these sections have rock check bunds at the outlet.
- Ballast check dams occur at intervals along the pavement edge

12.5.4 Area 4 – Pre-strip Area

The pre-strip area is located in the North East of the quarry. The erosion and sediment control measures are as follows:

- The area has multiple rows of sediment fence installed,
- A small sediment basin on the downstream of this area.
- The area has been hydromulched.

12.5.5. Area 5 – Northern Diversion Bund

A diversion earth bank has been installed at the Northern limit of the current development area. The following erosion and sediment controls have been installed.

- The earth bank diverts water form stripped development areas into the quarry.
- Earth bank has been top soiled and seeded.
- Several rock check dams are on the toe of the diversion bund.

12.6 APPENDIX F - DEWATERING PERMIT

DEWATERING PERMIT – Environmental Protection Licence

Facility : **EPL Number:** **Discharge Location** (as per EPL):

A Dewatering permit authorizing water to be released is required where the following occurs: • When releasing water from a Water Quality Monitoring Point • Water quality must be tested daily during discharge

(Completed by Person in charge of the work)

PART A Notification

Requested By:	Position:	Request Date:
Start Date:	Finish Date	

PART B Conditions for Release

All water released from a sediment basin must meet specific quality levels as set out in the Environmental Protection Licence - The pH must be within 6.5 to 8.5 - Total Suspended Solids (Tss) must be less than 50mg/L - Free from oil, grease and other Chemicals - Any other conditions outlined within the licence.

PART C Water Quality Record

Prior to the release of any water off site, water must be tested by a NATA accredited laboratory.		
Water Sampled by:		
Water tested by:		Report Number:
Has the water been treated with any Flocculants?	Y/N	If yes, Type: Amount (kg/L):

		Date treated:
Total Suspended Solids (mg/L)		Condition: Less than 50mg/l
pH		Condition: Between 6.5 and 8.5
Is the water free of oil and grease	Y/N	Condition: Y (Visual Inspection)
If the water meets **all** the above conditions then release is permitted, If any one of the conditions fails, the water must be treated before release.		

PART D – Water Discharge Details

Method of Discharge	
Description of receiving waters/ land	
Time and Date of Discharge	Time: til Date:
Estimated Quantity Discharged	L , m^3 or ML (circle)
Reason for Release:	
Comments:	

PART E PERMIT APPROVAL

Approval is hereby given to undertake Dewatering, I am satisfied that all the above conditions have been met.

		/ /
Name:	Signature	Approval Date:

(Manager or Delegate)

12.7 APPENDIX G DAILY ENVIRONMENTAL INSPECTION

13 To be completed **daily** by the quarry coordinator. Completed forms signed off by the quarry manger or delegate.

14 Please use ☑ or ☒ to complete the below table.

Date				**Day**	
Rainfall (previous 24 hours) mm				Incident or Complaint Y/N Ref:	
Max Temp °C					
Action	**Inspected**	**Compliant**	**Time**	**Comment & Actions**	**By Whom** (sign)
Erosion & Sediment Controls					
Sediment Fence					
Other controls					
Drains					
Clean Roads (Entry Exit Road)					
Sediment Ponds					
Water Sampled					
Discharge					
Sediment Removed					
Waste Management					
Tidy Site					
Waste Disposal					
Waste bins	Volume			Destination:	
Waste oil	Volume			Destination:	
Other				Destination:	
Truck Wheel cleaning Operating					

Other Environmental controls placed and effective

Water cart use				Water sourced from;	
Neighbourhood					
Fauna / flora					
Chemicals/Bunding					
Water tank at oil separator requires pump out					
Fuel / servicing/Wash Bay clean and tidy					

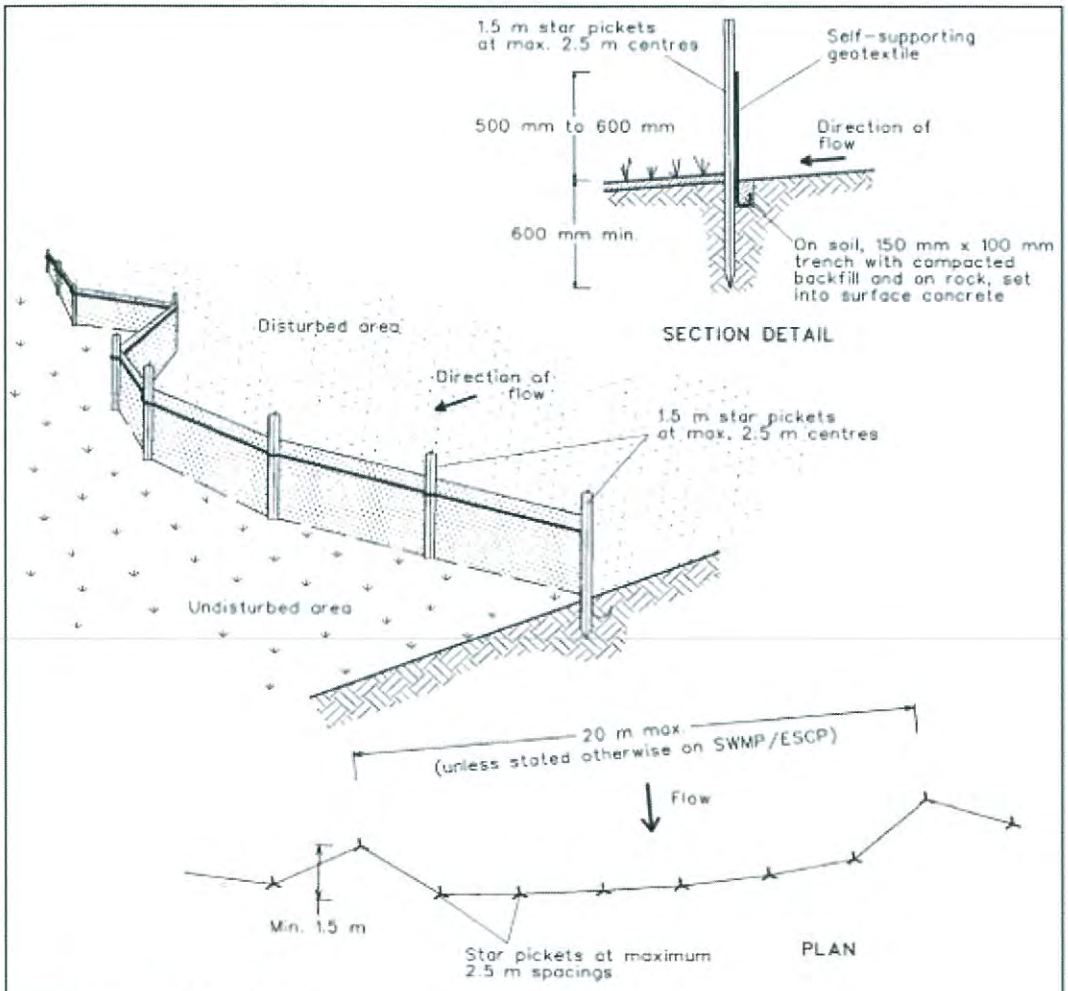
Quarry Co-ordinator – Action Complete Name Sign Date	**Quarry Manager (Delegate) – noted & placed on file** Name Sign Date

12.8 APPENDIX H EROSION AND SEDIMENT CONTROL MAINTENACE RECORD

INSPECTION DATE:				
MAINTENANCE DATES:				
INSPECTED BY:				
AREAS REQUIRING MAINTENACE ; GENERAL OVERVIEW (SEER BELOW FOR DETAILS AND CLOSE OUT)				
Item	**Aspect**	**Comments / Actions**	**Image**	**Status of Task**
1				

12.9 APPENDIX I BLUE BOOK STANDARD DRAWINGS

12.9.1 Sediment Fence

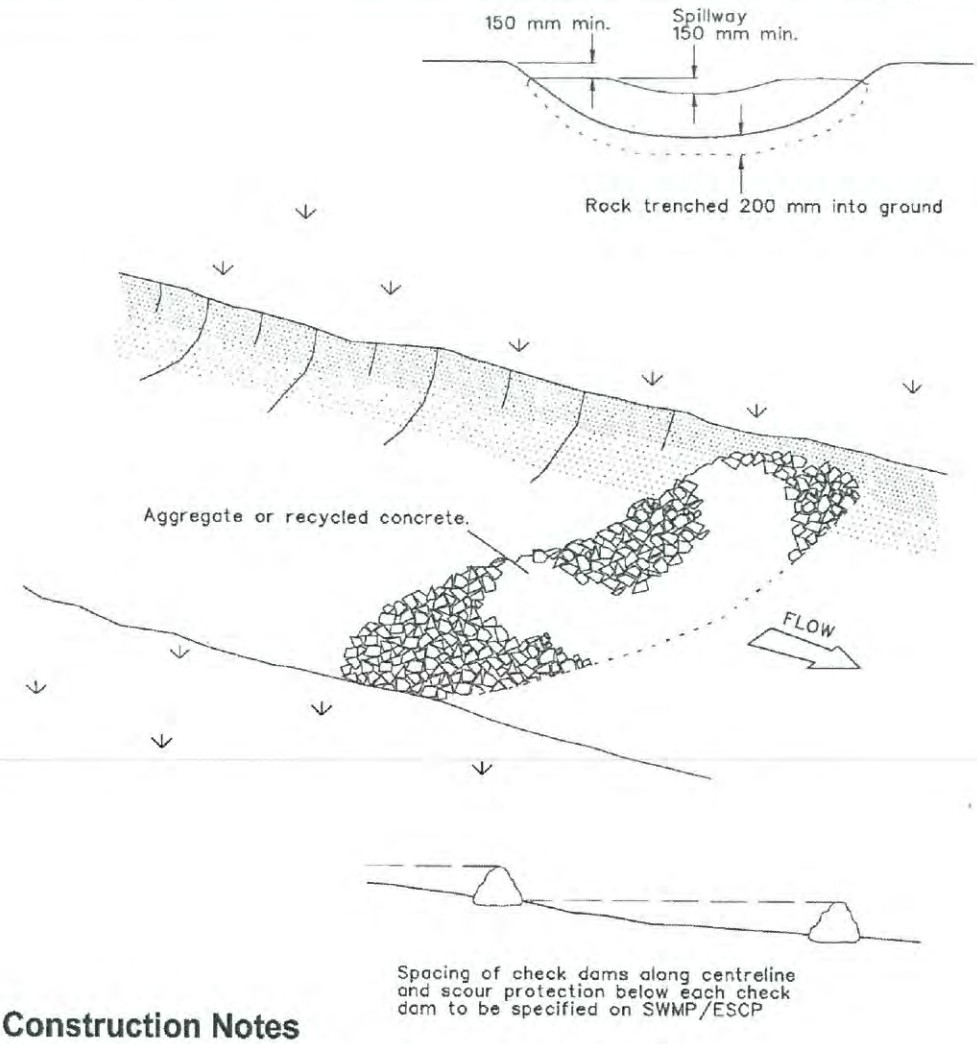


Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

12.9.2 Rock Check Dam

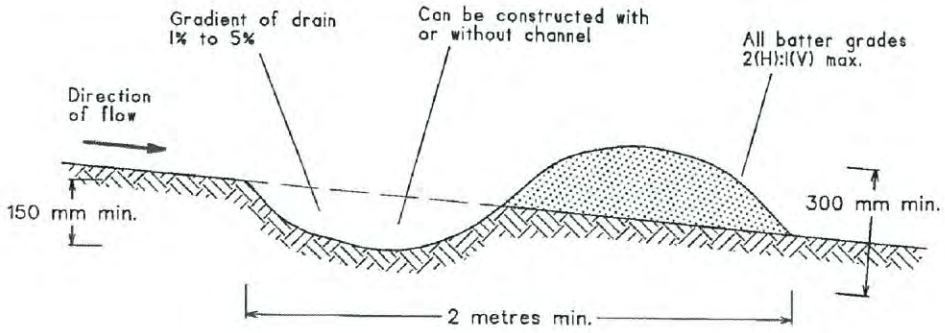


Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM **SD 5-4**

12.9.3 Earth Bank (Low Flow)



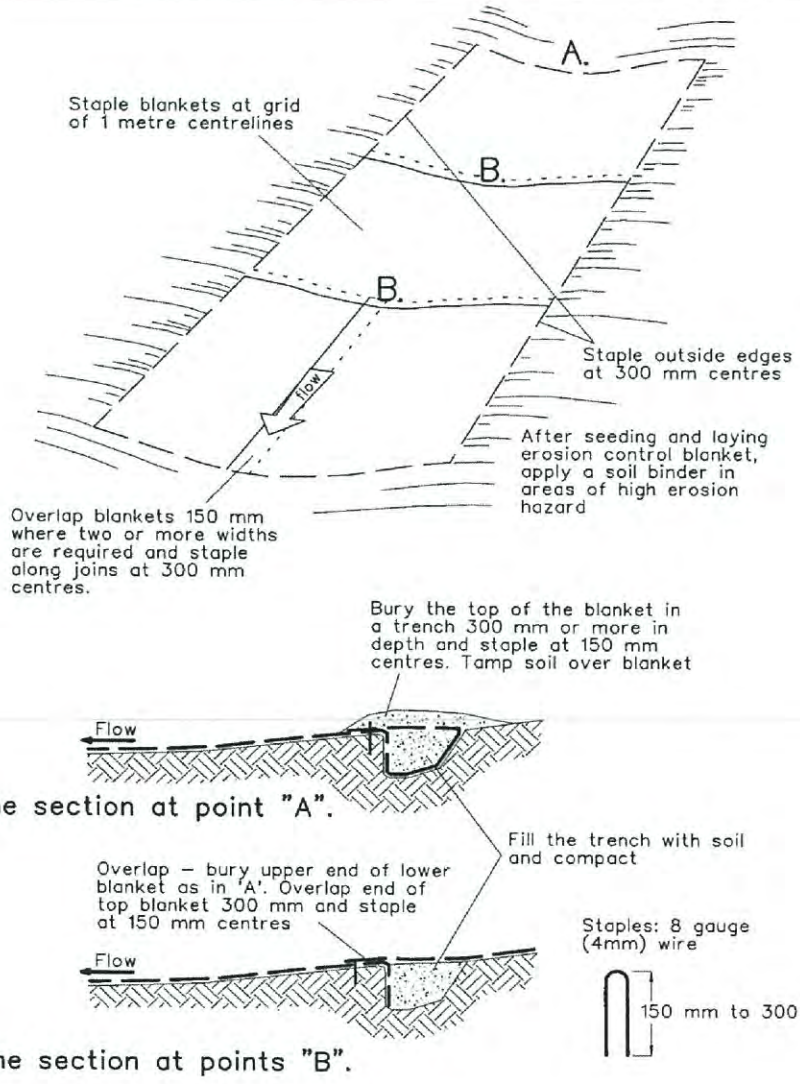
NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) **SD 5-5**

12.9.4 Concentrated Flow

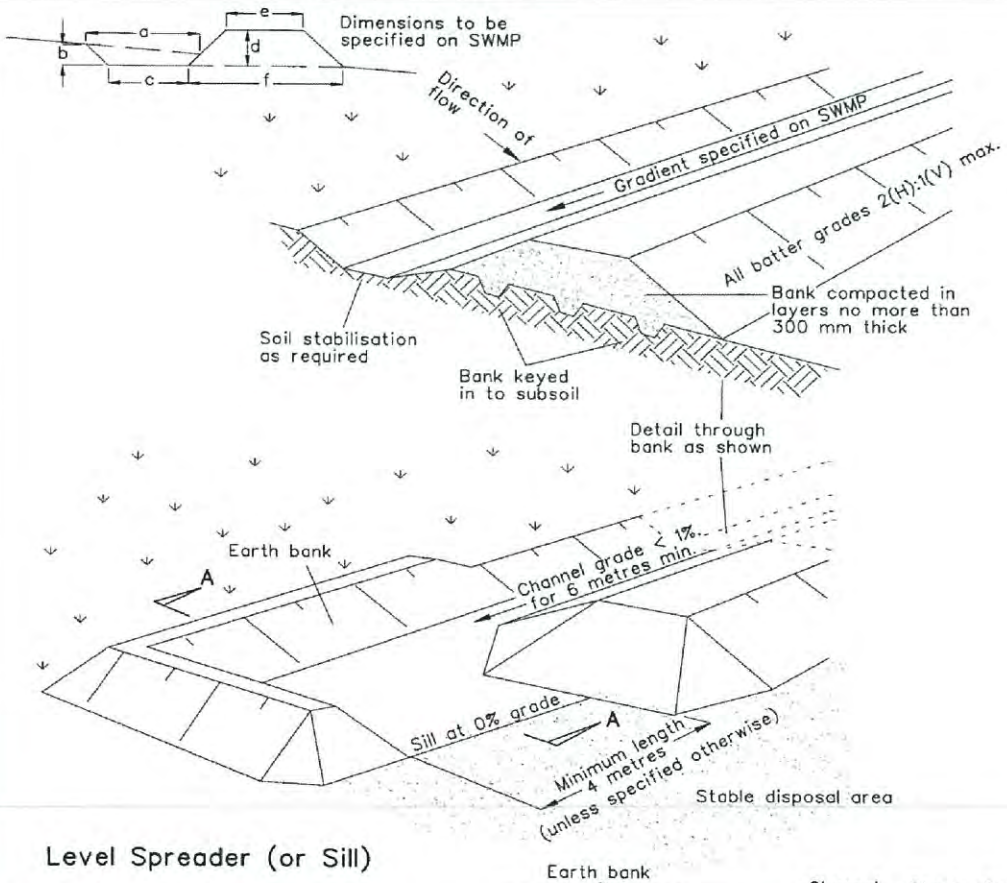


Construction Notes

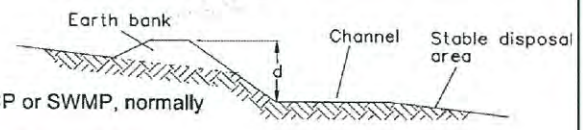
1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

RECP : CONCENTRATED FLOW **SD 5-7**

12.9.5 Earth Bank (High Flow)



Level Spreader (or Sill)



Section AA

Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) **SD 5-6**

12.10 APPENDIX J PRECOAT CALIBRATION FORM

Martins Creek Quarry Precoat Calibration Form

Required Flow Rate on Precoat Metre

Aggregate Size	*Meter Reading*
20mm	5
14mm	7
10mm	8
7mm	9

Date	Aggregate Size	Meter Reading	Name	Initial

Appendix I – Martins Creek Quarry Dewatering Procedure

DARACON Group

Martins Creek Quarry Water Treatment Procedure

Document No. 1
Holder: Daracon Martins Creek Quarry

Revision	Date	Prepared By	Reviewed By Quarry Manager		Authorised By HSEQ Manager	
			Name	Sign	Name	Sign
0	23.2.15	A.Smith	P. WALKER			
1	24/2/16	A.Smith	P. WALKER			

TABLE OF CONTENTS

Page No.

1. INTRODUCTION

1.1 Project Title

This document establishes the procedure for the treatment of water collected in Sediment dams 1, 2 and 3 within the quarry (Refer to Appendix A). These dams are water quality monitoring/discharge points provided for by Environmental Protection Licence 1378:

- Dam 1 – EPA identification Number Point 6
- Dam 2 – EPA Identification Number Point 7
- Dam 3 – EPA Identification Number Point 8

1.2 Scope of Works

Martins Creek quarry is required to collect site water in dams, transfer water between dams, treat water through flocculation/coagulation, perform water testing and discharge water.

1.3 Work Activities

The work includes:

- Full safety and environmental compliance
- Water sampling
- Water testing by NATA laboratories
- Addition of flocculent and coagulant using electric dosing pumps
- Mixing of flocculent and coagulant through purpose built pipeline
- Pumps for both treatment and discharge to natural watercourse
- Manually operated valves to change from water recirculation to water discharge

1.4 Hours of Work

Unless otherwise restricted the hours of work, including the pumping of water on the site shall be Monday to Saturday between 0600 hours to 1800 hours in Lot 1 DP 204377/Lot 1 DP 1006375 and Monday to Saturday between 0600 hours to 1800 hours in Lot 5 DP 242210 and Lot 6 242210. Work may be done outside these hours where specific approval is obtained from the Quarry Manager.

In general no work shall be done on Sundays or public holidays. If required, approvals will be sought from the Quarry Manager prior to undertaking Sunday work.

1.5 Specifications

Conduct of the water treatment and discharge requires adherence to the requirements of:

- Environmental Protection License 1378
- Daracon Group's Environmental Management System
- Relevant State Laws including the Protection of the Environment Operations Act 1997

EPL 1378 sets the following concentration limits for the discharge for the discharge from these dams

Pollutant	Unit of Measure	Concentration Limit
Oil and Grease	Visual	None visible
pH	pH	6.5-8.5
Total Suspended Solids	Milligrams per litre	50

Table 1

1.6 Environmental Protection Licence (EPL) 1378 Conditions

This procedure has been prepared to ensure that Martins Creek Quarry meet the requirements for surface water management as per EPL 1378. These are as follows:

- For each monitoring point the concentration of a pollutant discharged at that point must not exceed the concentration limits specified for that pollutant.(refer to Table 1)
- Discharges from the stormwater treatment dams must be managed to prevent downstream scouring and erosion
- Any flocculent added to stormwater treatment dams must not exceed concentrations that will cause an ecotoxic effect in the downstream receiving environment
- The stormwater treatment dams must be dewatered as is necessary to maintain adequate sediment and water storage volumes

1.6.1 Requirements to Monitor Concentration of Pollutants Discharged

For each monitoring point the following must be monitored and at the frequency as specified:

Pollutant	Units of Measure	Frequency	Sampling Method
Oil and Grease	Visible	Daily During Discharge	Visual Inspection
pH	pH	Daily During Discharge	Probe
Total Suspended Solids	Milligrams per litre	Daily During Discharge	Grab Sample

Table 2

Monitoring of pollutants discharged must be done in accordance with the approved methods publication and must be undertaken by a NATA accredited laboratory in the relevant test method (with the exception of the visual inspection of oils and grease).

1.7 Operation of the Dams

1.7.1 Dam 1

Water in the dam shall be stored at a level that is below the water level indicator in the dam. Following rainfall if the water level raises above the indicator the following measures shall be undertaken until such time that the water falls below the level indicator.
A manually operated Gould electric pump draws water from the dam and pumps water through a poly pipeline fitted with a series of manually operated valves and offshoot pipelines. Water can either be re-circulated within the dam or discharged via the dam spillway to the downstream creek.

1.7.1.1 Water Treatment/Clarification

To get the water to within the limits specified in Table 1 the following may be required:

1. Ensure the valves for recirculation within the dam are opened.
2. Ensure the valve to discharge to spillway is closed.
3. Check that there is sufficient flocculent and coagulant.
    a. Flocculent – Hifloc 20
    b. Coagulant – Nalkat 7607
4. Ensure valves are open at suction and discharge of dosing lines
5. Check hoses and fittings for signs of leaks, deterioration or wear.
6. Turn on general purpose outlet for coagulant and flocculent only.
7. Ensure sulphuric acid general purpose outlet is in the off position.
8. Start pump.

9. Dosing pump settings as determined in consultation with water process engineer (currently Victory Engineering)
10. Visually inspect that water flows form discharge lines and there are no noticeable leaks at the pump.
11. Check dosing pump suction and discharge lines are flowing.
12. At end of shift turn off pump. The general purpose outlets have a relay connected to the main electric pumps so they will not operate if the main pump is not operating.
13. Prior to repeating the procedure the following day a visual inspection of the water is required to determine if the water requires treatment again. If it does follow steps 1-11 again if not follow discharge procedure.

1.7.1.2 Discharge Procedure

When planning to discharge water to downstream creek the following is required:

1. Determine the ph of the water using probe.
2. Ensure the valve that discharges to the spillway is closed.
3. Check that there is sufficient sulphuric acid.
4. Ensure that the valves at the suction and discharge of Sulphuric Acid dosing lines are open.
5. Check hoses and fittings for signs of leaks, deterioration or wear.
6. Turn on general purpose outlet for Sulphuric Acid.
7. Ensure general purpose outlets for Flocculent and Coagulant are off.
8. Start pump.
9. Visual inspect that acid is moving through suction and discharge lines.
10. Open valve at sampling point and allow to run until it is evident that built up sediment has been purged from the pipe line.
11. Use sampling bottle to sample water.
12. If water appears clear enough to meet the requirements check for pH using probe. If water appears to still require treatment turn off the pump and follow procedure for "water treatment/clarification".
13. If pH test shows that sample is within the allowable limits take sample to NATA accredited laboratory for testing.
14. If report from the NATA accredited laboratory shows that the water is within the allowable limits water can be discharged to downstream creek.
15. Prior to discharge complete "**Dewatering Permit.**" (Refer to Appendix B)
16. To do this open valve to spillway discharge and close valves for recirculation.
17. During discharge visually inspect downstream creek for signs of erosion.

1.7.2 Dam 2

Water in the dam shall be stored at a level that is below the water level indicator in the dam. Following rainfall if the water level raises above the indicator the following measures shall be undertaken until such time that the water falls below the level indicator.

Water is not to be pumped from stormwater treatment Dam 2 via the spillway. The dewatering of Dam 2 is to be done by either of the following methods. :

1. Using the fixed electric pump at Dam 2 pump water to Dam 1 through the 75mm poly pipe line. Chemical coagulant Nalkat 7607 can be added by the use of a dosing pump.
2. Using the fixed electric pump at Dam 2 treat the water in Dam 2 through recirculation by adding coagulant Nalkat 7607 using the fixed dosing pump. Ensure that the valve is open to re-circulate the water and the valve is closed to transfer to Dam 1.

1.7.3 Dam 3

Water treatment for dam 3 is undertaken as follows (refer to plan Appendix C):

1. Establish portable diesel pump, chemical dosing pump and chemical coagulant in Dam 3.
2. Chemical dosing line to be connected to the suction side of the pump.
3. Chemical dosing rate as determined in consultation with water processing engineer (currently Victory Engineering).
4. Discharge line on diesel pump to Northern end of "transfer dam".
5. Install AN2 Floc blocs at discharge into transfer dam.
6. Establish Portable diesel pump at Southern End of "transfer dam". Discharge hose installed to license discharge point 8.
7. Install dosing line to suction side of portable diesel pump to dosing pump for PH correction (as required only).
8. Sample water.
9. If test result is within allowable limits complete "**Dewatering Permit"** and discharge water.
10. Test daily during discharge.

2. ROLES AND RESPONSIBILITIES

TASK	APPROVED PERSONS
Water Sampling	Trained water sampler
Dewatering Permit Sign off	• Quarry Manger or delegate
Environmental Inspections	• Quarry Manager • Quarry Supervisor • Quarry Coordinator • Martins Creek Systems Coordinator • Environmental Coordinator
Modifications to Coagulant and Flocculent Dose Rates	• Delegate as approved by Quarry Manager and only under direction from appropriately trained water process consultant (Currently Victory Engineering)
Adjustments to Sulphuric Acid dose rate	• Quarry Manager • Quarry Supervisor • Quarry Coordinator • Martins Creek Maintenance and Systems Coordinator • Environmental Coordinator
Operation of pump and dosing system	• Quarry Manager • Quarry Supervisor • Quarry Coordinator • Martins Creek Maintenance and Systems Coordinator • Environmental Coordinator • Martins Creek Diesel Service
Repairs and Maintenance to Hoses and Fittings	• Quarry Supervisor • Martins Creek Maintenance and Systems Coordinator • Environmental Coordinator • Martins Creek Diesel Service

3. SAFETY

Refer to the onsite SDS Register for Safety Data sheets for the Hifloc 20, Nalkat 7607 and Sulphuric Acid. All works involving the use of these chemicals are to be done so in accordance with the relevant SDS.

Any person involved in works associated with the stormwater treatment dams must refer to the Safe Work Method Statement "Operation of Water Treatment for Dams 1, 2 and 3" which is located at Martins Creek Quarry.

4. INCIDENT AND EMERGENCY PROCEDURES

4.1 General

Incidents and emergencies are to be dealt with in accordance with the Project Safety Management Plan and the Pollution Incident Response Management Plan (PIRMP).

5. APPENDICES

5.1 Appendix A Water Monitoring Locations

5.2 Appendix B - Dewatering Permit

Facility : **EPL Number:** **Discharge Location** (as per EPL)**:**
A Dewatering permit authorizing water to be released is required where the following occurs: • When releasing water from a Water Quality Monitoring Point • Water quality must be tested daily during discharge

(Completed by Person in charge of the work)

PART A Notification

Requested By:	Position:	Request Date:
Start Date:	Finish Date	

PART B Conditions for Release

All water released from a sediment basin must meet specific quality levels as set out in the Environmental Protection Licence - The pH must be within 6.5 to 8.5 - Total Suspended Solids (Tss) must be less than 50mg/L - Free from oil, grease and other Chemicals - Any other conditions outlined within the licence.

PART C Water Quality Record

Prior to the release of any water off site, water must be tested by a NATA accredited laboratory.		
Water Sampled by:		
Water tested by:		Report Number:
Has the water been treated with any Flocculants?	Y/N	If yes, Type: Amount (kg/L): Date treated:
Total Suspended Solids (mg/L)		Condition: Less than 50mg/l
pH		Condition: Between 6.5 and 8.5
Is the water free of oil and grease	Y/N	Condition: Y (Visual Inspection)
If the water meets **all** the above conditions then release is permitted, If any one of the conditions fails, the water must be treated before release.		

PART D – Water Discharge Details

Method of Discharge	
Description of receiving waters/ land	
Time and Date of Discharge	Time: til Date:
Estimated Quantity Discharged	L , m^3 or ML (circle)

Reason for Release:

Comments:

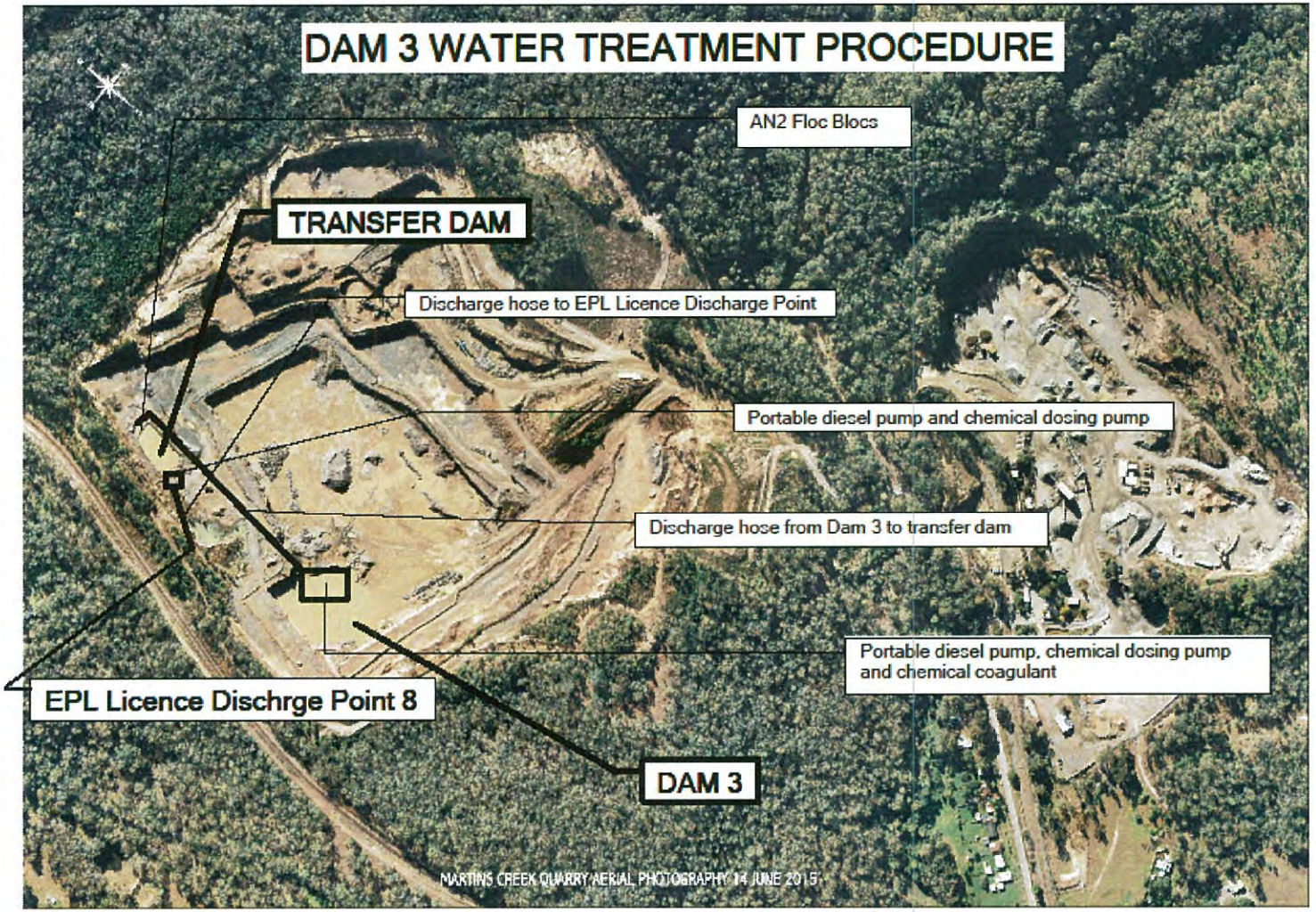
PART E PERMIT APPROVAL

Approval is hereby given to undertake Dewatering, I am satisfied that all the above conditions have been met.

		/ /
Name:	Signature	Approval Date:

(Manager or Delegate)

5.3 Appendix C Dam 3 Dewatering Procedure



Appendix J – Greenhouse Gas Management Plan

GREENHOUSE GAS MANAGEMENT PLAN

GREENHOUSE GAS MANAGEMENT PLAN

PROJECT: Martins Creek Quarry

DARACON PROJECT NO: BMC

REVISION REGISTER

Doc title	Revision	Date	Prepared by Systems Coordinator	Reviewed by Quarry Manager	Authorised by HSEQ Manager
GHGMP BMC	2	4/03/13	Daniel Smith	Paul Walker	Bob Murphy
GHGMP BMC	3	24/2/16	Ashley Smith		Bob Murphy

Document No: 1

Holder: Daracon

GREENHOUSE GAS MANAGEMENT PLAN

Table of Contents

GREENHOUSE GAS MANAGEMENT PLAN

1. INTRODUCTION

Daracon Group has engaged in the operation of Martins Creek Quarry near Paterson NSW.

This plan should be read in conjunction with Daracon Group's documented quarry Environmental Management Plan (EMP) and any other plan referenced thereto.

2. OBJECTIVES OF GREENHOUSE GAS MANAGEMENT PLAN

The purpose of this plan, in conjunction with the use of other environmental control documents (EMP etc.) associated with Martins Creek Quarry, is to ensure that Daracon Group fulfils its legal, contractual and social obligations by:

- Capturing relevant emissions and energy consumption data; and
- Providing relevant training to all personnel involved in Greenhouse Gas (GHG) aspects (incl. site induction, specific environmental aspects, toolbox talks)

3. LEGAL AND OTHER REQUIREMENTS

Daracon Group has an obligation under the provisions of the Commonwealth Government's National Greenhouse & Energy Reporting Act 2007 and the National Greenhouse & Energy Reporting Guidelines 2008 to ensure that its energy consumption and GHG emissions associated with its construction activities are captured and reported.

Accordingly, it is a requirement of contract that Daracon's energy consumption and GHG emissions associated with its construction activities be reported to DEC's Greenhouse Data Officer.

4. RESPONSIBILITIES

It shall be the responsibility of the Quarry Manager (PM) to ensure that the requirements of this plan are implemented. He is assisted in this regard, and as required, by the Quarry Quality Co-ordinator (QQC).

Contact details of the PM and PQC are as below:

PM	Paul Walker	0438 451 483
QQC	Daniel Houlahan	0408 675 111

Daracon's HSEQ manager shall be responsible for managing and reporting relevant NGER data to DEC's Greenhouse Data

GREENHOUSE GAS MANAGEMENT PLAN

5. NGER DATA

5.1. Electricity Consumption

Daracon's use of main grid electricity extends to its site office complex. Accordingly, Daracon's electricity consumption data shall be derived from Energy Australia tax invoices which are provided to Daracon on a quarterly basis.

5.2. Fuel Usage

Fuel usage totals for diesel and unleaded petroleum pertaining to plant, equipment and fleet vehicles used in the course of the works are derived from Daracon's CHEOPS accounting system. Fuel totals are entered directly into CHEOPS from Daracon's fuel supplier invoices and are, in turn, allocated against particular job and vehicle/plant fleet numbers.

5.3. Water / Sewage

Daracon's use of Hunter Water Corporation's potable water supply and sewage system extends to its site office complex located. Accordingly, Daracon's potable water and sewage data is derived from Hunter Water Corporation tax invoices which are provided to Daracon on a quarterly basis.

5.4. Solid Waste

Waste data required for the purposes of NGER are derived directly from weighbridge and tax invoice dockets supplied to Daracon from its waste removal subcontractor(s). Further details regarding data capture procedures of the different waste streams on site can be found within Daracon's Waste Management Plan WAMP BMC.

5.5. Incidental Emissions Sources

Incidental emissions sources, i.e. from the use of portable generator sets etc., are calculated from usage times against manufacturers estimates on power generation data.

6. PRACTICAL GHG MITIGATION STRATEGIES

Daracon is committed to reducing its carbon footprint and energy consumption.

- Ensure that all plant and machinery is turned off when not in use and not allowed to sit idling for excessive periods of time.
- Switch lights off when not in use.
- Don't run air-conditioning units whilst doors/windows are opened.
- Light vehicles shall be driven in a manner that minimises CO_2 emissions, i.e. no excessive revving, gentle braking and slow even acceleration.

GREENHOUSE GAS MANAGEMENT PLAN

7. REFERENCES

DEC NGER Act 2007
DEC NGER Reporting Guidelines 2008
DECC EPL no.1378

Appendix K – Pollution Incident Response Management Plan

DARACON Group

Pollution Incident Response Management Plan

For

Martins Creek Quarry

Document No. 1

Holder: **Martins Creek Quarry**

Paul Walker

Rev	Date	Prepared By		Quarry Manager		Authorised By HSEQ Manager	
		Name	Sign	Name	Sign	Name	Sign
02	24/2/15	Daniel Houlahan		Paul Walker			

NOTICE:

This copy is not to be removed from this location without authorisation from the HSEQ Manager

Document review date:

No unauthorised distribution of this document is allowed.

all changes are in blue in the template document.

*** note items in red can be excluded, depending on the type of project and application.**

1. INTRODUCTION

This Pollution Incident Response Management Plan (PIRMP) have been prepared to identify possible pollution incidents and assist with a coordinated management response.

A PIRMP is a requirement stated in the Environmental Protection License 1378 and Section 5.7A of the Protection of the Environment Operations Act 1997.

1.1. Definition of a pollution incident

The definition of a pollution incident is:

"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."

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

(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

RISK RANKING CHART

CONSEQUENCES				PROBABILITY				
				CERTAIN	LIKELY	POSSIBLE	UNLIKELY	REMOTE
				Commonly Occurs	Has Occurred	Could Occur	Not Likely to Occur	Practically Impossible
Equipment and Operations	Environmental Impact	Personal Injury		A	B	C	D	E
More than $500,000 loss	Catastrophic Environmental Event (publicity)	Fatality or Permanent Disability	1	1	2	4	7	11
Up to $500,000 loss	Major Environmental Event (prosecution)	Major LTI (>7 days lost from work)	2	3	5	8	12	16
Up to $100,000 loss	Serious Pollution (temporary/permanent damage)	Lost Time Injury	3	6	9	13	17	20
Up to $10,000 loss	Minor Pollution (Minor spill –temporary damage)	Medical Treatment Injury	4	10	14	18	21	23
Less than $500 loss/No Damage	Nil Impacts / Affects	First Aid Injury/No injury	5	15	19	22	24	25

LEGEND:	1-6 HIGH RISK	7-15 MEDIUM RISK	16-25 LOW RISK

LOW and **MEDIUM** risks must be reviewed and authorised by the Project Manager or authorised competent Daracon representative.

Where **HIGH** residual risks remains, **work must <u>not</u> commence** until further risk control measures are introduced to reduce the risk to **MEDIUM** or **LOW**.

2. DESCRIPTION, LIKELIHOOD, PREVENTION AND CONTROL OF INCIDENTS

Table 1

Potential Pollution Incident	Risk Ranking per chart	Possible Cause	Hazards associated with Incident	Preventative measures in place	Response to control the Incident
Oil spill	C3 MED	• Damaged plant item (engine, oil hose etc) ▪ Damaged storage tank/container ▪ Re-fuelling of plant and equipment • Handling of hazardous materials and substances	• Oil/fuel spilled onto ground • Oil/fuel enter water systems	• Regular preventative maintenance on plant • Daily prestart inspection of plant • Tanks/containers are stored in bunded areas with 110%+ capacity • 20000L diesel tank is bunded and fenced	• Stop plant where safe to to so • Park in service bay if possible without causing more harm • Bund spill if possible • Utilise spill kits • Pump remaining contents into another container if safe and not a fire risk • Implement surface water diversions around
Failure of storage dam	D2 MED	• Poor condition of dam • Over filling of dam	• Dirty water and sediment discharged into rivers	• Spillways installed on dams • Dam levels are monitored	• Clear personnel and neighbours of downstream areas • Install sed control to slow flow if possible
Failure/overflow of effluent tank	D3 LOW	• Tank hit by vehicle • Overflow of tank due to poor maintenance	• Effluent spilled into areas persons frequent • Possibly enter stormwater system	• Weekly pumping is arranged • Additional services arranged if increase in staff/tanks	• Clear area of personnel • Bund if possible • Call Coates to arrange pumping out/clean up of fluid (13 15 52) • Notify neighbours if major spill
Dust from driving on dry haul roads	C4 LOW	• Watercart breakdown • Water cart busy on hot/dry days	• High dust emissions	• Water cart permanently onsite • Supervisor monitors roads	• Stop activity in area • Water cart to water road

Excess dust emitted from processing plant	C3 MED	• Dust suppression failure • Issuficient dust suppression operation	• High dust emissions	• Dust suppression on all processing plant • Dust suppression maintained • Polo citrus system on Canica dust suppression	• Stop processing plant that is emitting dust • Turn on/alter dust suppression • Fix failed dust suppression
Pugmill emitting powder/dust	B4 MED	• Silo filter failure • Issuficient water in blend • Tanker pumping to hard/fast	• High dust emissions	• Filters checked/cleaned/replaced regularly • Operator monitors moisture of product	• Stop plant • Stop filling process • Alter water in blend • Alter taker pumping speed/pressure • Replace/clean/repair pugmill silo filter units
Dust/material leaving trucks	C4 LOW	• Driver not covering truck load • Tarp/closing mechanism failure • Material fallen on drawbar • Rock caught in between tires	• Dust leaving loaded truck • Material falling from truck	• Signage to remind trucks • Weighbridge operators checks all trucks are tarped • Parkup area provided for truck to tarp up	• Stop truck • Tarp load • Repair and failed tarping mechanism • Clear rock from tires/drawbar etc
Dirty tyre marks leaving quarry	B4 MED	• Dirty wheels • Tyres not cleaned when in quarry	• Contamining surrounding roads with dust	• Wheel bath installed at weighbridge	• Stop trucks • Hire a road sweeper
Dirty water runoff into creeks and stream	C2 MED	▪ Failed sediment controls ▪ Rain event in excess of sediment control design capacity	• Dirty water entering creeks and river system	• Sediment controls in place • Sediment controls monitored daily • Maintenance of controls done as required	• Reinstate sed controls if possible without causing more damage • Install additional sed controls upsteam to minimise issue if possible
Dirty water discharge	C2 MED	▪ Insufficient treatment/testing of water before discharge ▪ Discharge valves not closed/changed over on commencement of water treatment	• Discharge of dirty water into creeks	• Follow dewatering procedure • Test water before discharge to ensure within limits	• Stop pump • Close valves • Treat water as per Dewatering procedure

Oily water entering stormwater system	C3 MED	▪ Oil spill near stormwater controls	• Oily water discharged into creeks	• Regular plant checks/maintenance • Risk assess fuelling/services away from fuelbay	• Isolate oil spillage, bunds or oil booms • Turn any valves/pumps off
Fire (including bushfires)	D 3 LOW	▪ Incorrect storage of flammable goods ▪ Hot work or smoking in inappropriate areas ▪ Arsonists/children ▪ Natural/unknown	• Property damage • Personal injury	• Flammables stored in flammables cupboard where possible • Do not store oxy/acetylene together or with other flammables • No flame source to be used near flammables	• Use fire-fighting equipment or water cart on fire if safe to do so • Clear area of all personnel – raise alarm • Call 000 for emergency services to attend • Advise evacuation of any nearby residents or businesses of situation if they are at risk • Have personnel in place at a safe distance to prevent any access by media or onlookers
Excessive noise	D3 LOW	• Noise made outside of operational hours due to maintenance or emergency situation	• Noise pollution	▪ Program noise activities within hours allowable ▪ Handtools to be used for out of hours maintenance ▪ No cutting or grinding outside of hours	▪ Stop noise making activity(unless due to emergency where life is endangered)
Operating outside of hours	D3 LOW	▪ Trucks entering/exiting outside of operational hours ▪ Plant running ouside of hours	• Breach license conditions	▪ Transport consulted about operational hours ▪ Operators trained and toolboxed on operational hours	▪ Keep gate closed outside of hours ▪ Once truck has entered/exited no more damage can be done ▪ Turn off running plant
Explosion	E1 MED	▪ Flame source used in fuel bay ▪ Incorrect use of oxy/acetylene ▪ Explosives used in shotfiring activities ▪ Unleaded fuel transport in drums	• Explosion • Death/serious injury • Fire/bushfire • Burning plant – hazardous fume	▪ No flame source to be used near flammables ▪ Competent staff only to use oxy/acetylene ▪ Authorised person only to use/transport explosives	▪ Evacuate area ▪ Call 000 ▪

2.1. Training

All staff working on site will undergo site specific training in how to use this PIRMP.
The PIRMP is to be tested annually under a mock emergency situation.
Induction training will include but not be limited to:

- Notification requirements
- Emergency and incident response personnel
- Emergency and incident minimisation measures and procedures

Records will be kept of all personnel undertaking the site induction and training, including the contents of the training, date and trainers name.

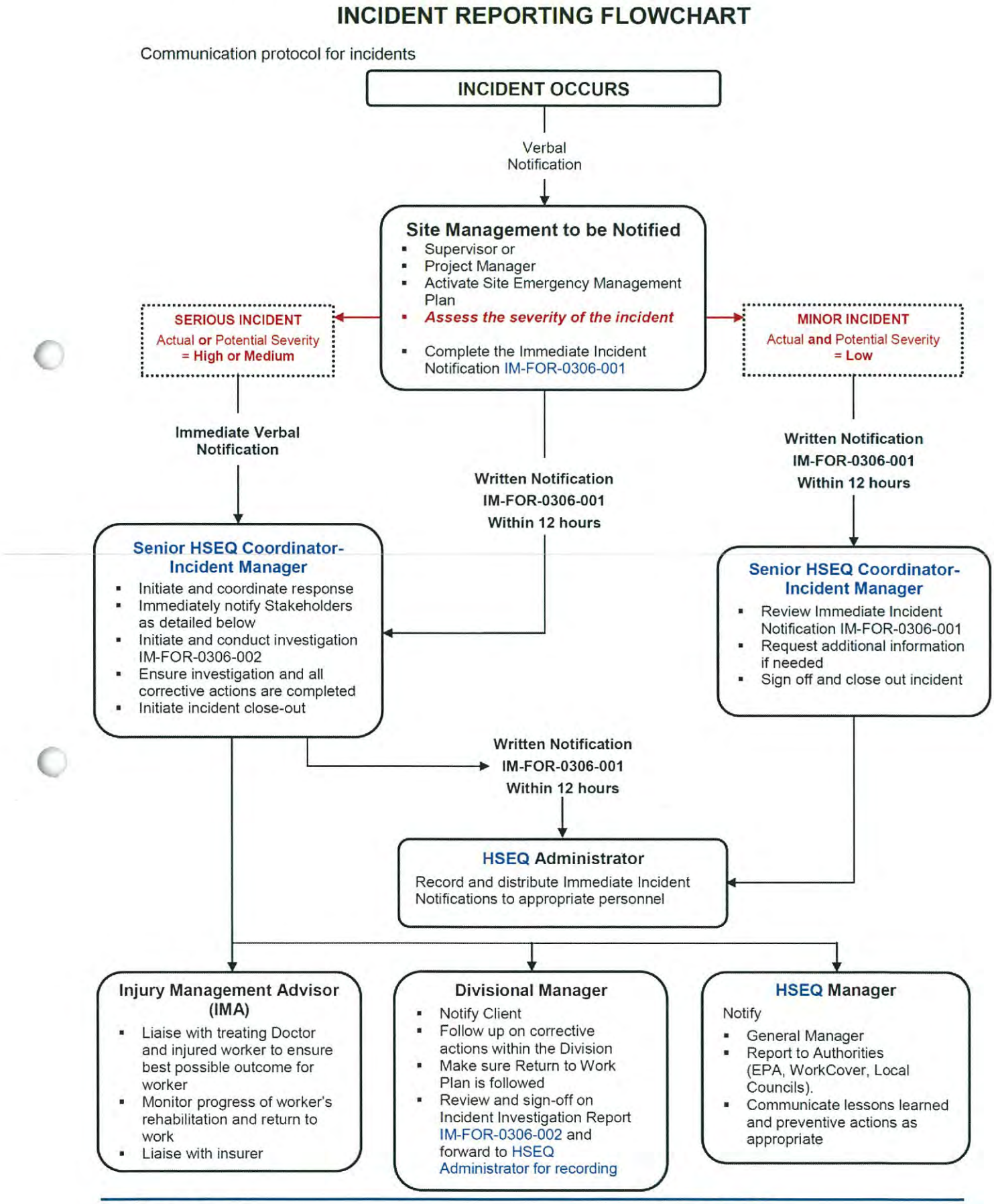
3. EMERGENCY RESPONSE

In the event of an incident site emergency response will be carried out as per table 1 "DESCRIPTION, LIKELIHOOD, PREVENTION AND CONTROL OF INCIDENTS" on page 4-6 and incident reporting as per flow chart OHS-DD-12 (fig 2 below)

3.1. Incident Reporting

In the event of an incident follow the emergency response and notification procedures shown in **figure 2** below will be followed under the guidance of IM-PRO-0306-001 (Appendix E).

Figure 2: Incident Reporting Flowchart



3.2. Emergency Contacts

Organisation	Name	Position	Contact Number
Daracon Group	Bob Murphy	HSEQ Manager	0439 395 286
	David Swadling	HSEQ Incident Manager	0417 651 479
	Paul Walker	Quarry Manger	0427 334 596
	Daniel Houlahan	Shift Supervisor	0418 630 715
	John Collins	Quarry Supervisor	0408 203 417
	Daniel Smith	HSEQ Coordinator	0429 020 728
EPA Hotline			131 555
WorkCover Authority			13 10 50
Local Hospital	Maitland Hospital		4939 2000
NSW Fire and Rescue			000/ 02 9265 2999
Bushfire Information Line			1800 679 737
Police / Fire / Ambulance		Call first if incident present immediate threat to human health or property	000
SES			132 500
Poisons Information			13 11 26
Utilities	Energy Australia		1800 105 347
	Hunter Water		1300 657 000

3.3. Stakeholder notification

Stakeholder will be notified if they, or their property are at risk of harm.
A reportable incident will be communicated to those members via either:

- Door knock process or;
- Ringing stakeholder

Details of stakeholders will be recorded on stakeholder register in Appendix J of this document.

4. APPENDICES

4.1. Appendix A- Site location

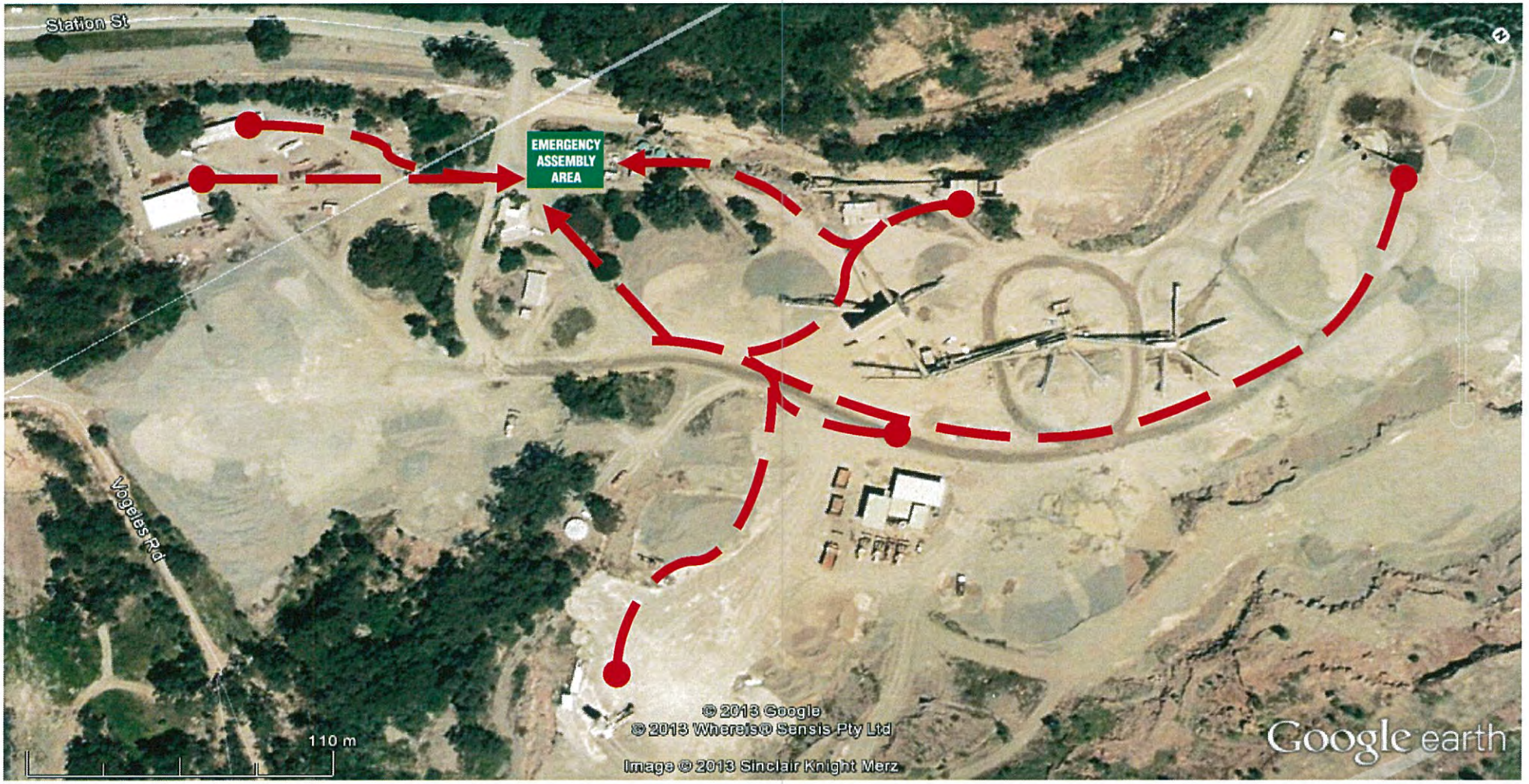
Name: Martins Creek Quarry

Street: Station Street.

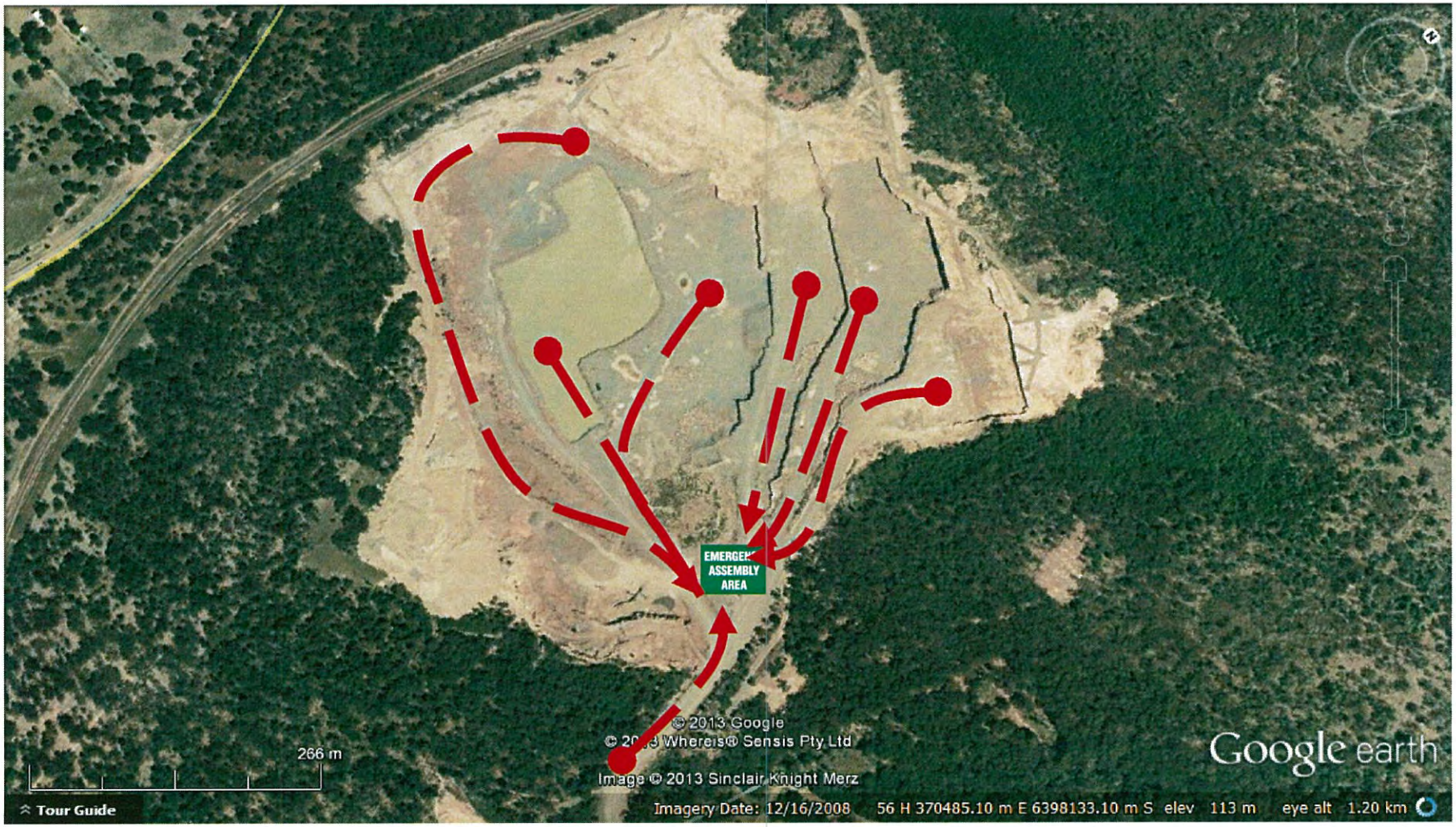
Office Number: 4938 5020

4.2. Appendix B - Emergency Assembly Areas

Main Entry – Weighbridge Office



PIT


EMERGENCY ASSEMBLY AREA
© 2013 Google
© 2013 Wherels® Sensis Pty Ltd
Image © 2013 Sinclair Knight Merz
266 m
Tour Guide
Imagery Date: 12/16/2008 56 H 370485.10 m E 6398133.10 m S elev 113 m eye alt 1.20 km
Google earth

4.3. Appendix C - Site Safety and emergency response equipment

Spill kits

Spill kits are provided to assist in countaining oil or fuel spillages. The spill kit includes:

- Small booms- to conatin flows, or to contain spills on water.
- Absorbant pads- to abosord oil/fuel
- Sawdust- to absord oil/fuel and be swept up after
- Hazardous goos plastic bags- to place used and contamined items in for disposal

Rubber boots

Rubber boots are provided to be worn when working in oil spills, or in wet conditions cleaning up sediment control issues

Protective overalls

Protective overalls are provided as a protection when cleaning up oil/fuel issues

Eye protection- glasses and goggles

- Safety glasses are provided for general eye safety onsite.
- Goggles are provided for activities that have a higher risk of material entering the eye

Hearing protection

Hearing protection is provided for use in activity that cause exposure to excessive noise

Sediment Control building materials

The following materials are provided to install/maintain sediment controls:

- Sediment fences
- Wooden pegs, star pickets, star picket caps and star picket installer
- Cable ties, wire and wire cutters
- Sandbags and shovels

Sediment controls are also contructed by used site material (overburden, dust or ballast etc) use site or hired machinery.

4.4. Appendix E - Site Emergency Procedures

To be included: List of first aiders
: OHS-DD-04 completed
: IM-PRO-0306-001

DARACON Group

FIRST AID OFFICERS

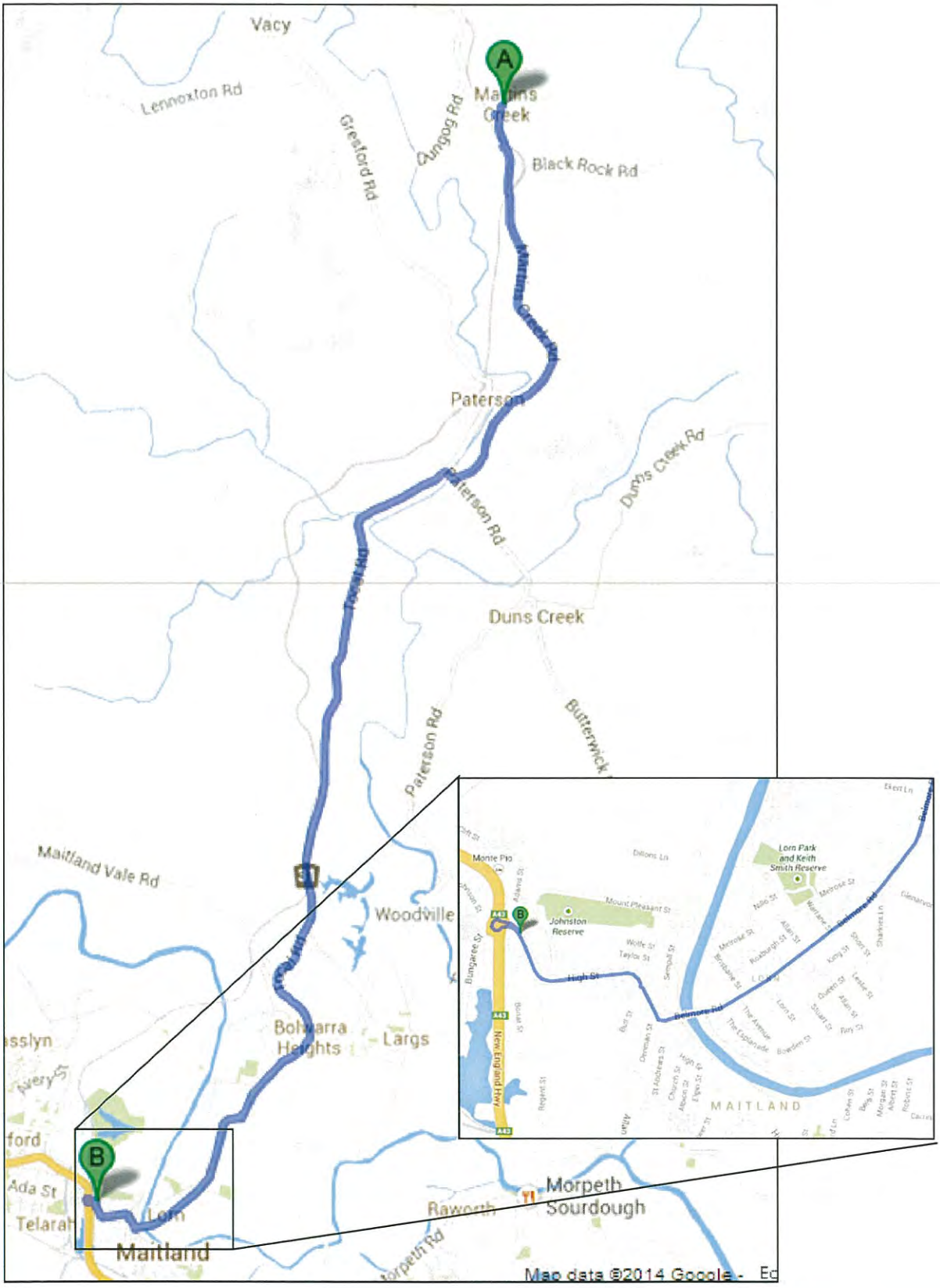
Weighbridge Office

In case of an **Emergency** requiring **First Aid** Assistance
Contact one of the following:

Paul Walker 0427 334 596	John Collins 0408 203 417	Andrew Hunt 02 4938 5020
Ashley Smith 0407 054 921	Daniel Houlahan 0418 630 715	

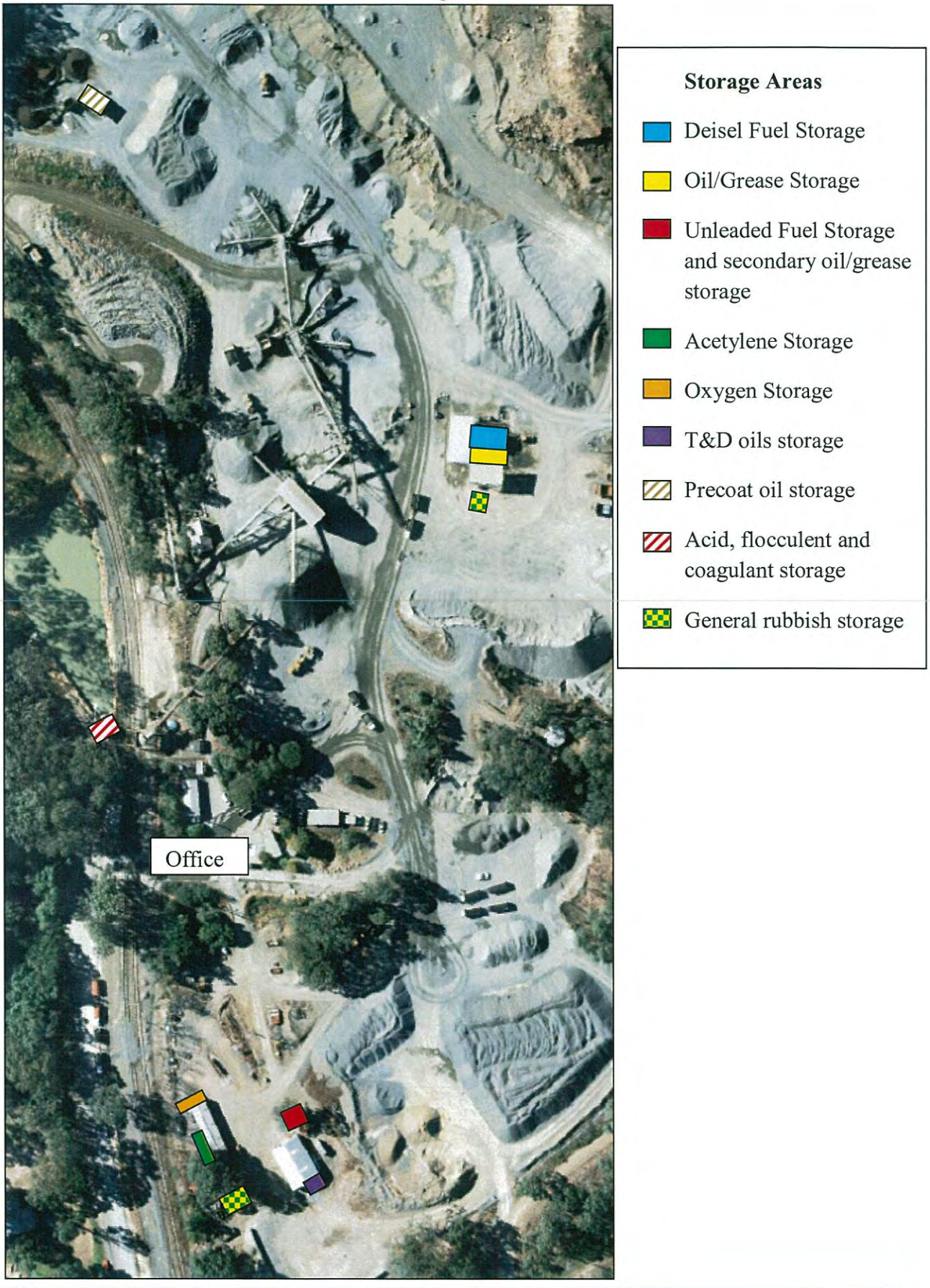
Contact Weighbridge Office on UHF channel 9 incase of Injury

4.5. Appendix F- Map to local hospital



4.6. Appendix G- Location of Response Equipment

4.7. Appendix H - Location of Hazardous Storage Areas



4.8. Appendix I - Location of Sediment Controls and Licensed water discharge locations

4.9. Appendix J- Contact Details of Local Stakeholders

Name	*Contact Number*	*Address*
K. Chase	4938 5052	279 Dungog Road, Martins Creek
Darrell / Bernadette Meyers	4938 8142	303 Dungog Road, Martins Creek
Ella Rogele	4938 5205	8 Cory Street, Martins Creek
Lisa Primmer	4938 5033 / 0418 440 565	13 Station Street, Martins Creek
Lyn Smith	0419 698 374	9 Station Street, Martins Creek
Ken / Maree Gibbs	4938 5397	3 Station Street, Martins Creek
Nikeah Smith	0427 096 630	11 Station Street, Martins Creek
Scott Meehan	0410 534 663	256 Dungog Road, Martins Creek
Bob Steward	4938 5417	15 Station Steet, Martins Creek
Kevin Crouch	4938 5057	1 Cory Street, Martins Creek
Mick Porter	4938 5474	3 Cory Stree, Martins Creek
Adam Coleough	0434 502 345	5 Vogeles Road, Martins Creek
Leane Steadman	0457 189 117	52 Grace Avenue, Martins Creek
Susan Radford	4938 8094	333 Dungog Road, Martins Creek

4.10. Appendix K- Summary of Hazardous Liquids and other poluutants

Hazardous Goods

MSDS Reference No.	Substance Name	Manufacturers/ Brand	Max. Qnty Held	Location where stored
1	Oxygen (Compressed)	BOC	300kg	Workshop cage
2	Acetylene	BOC	300kg	Workshop cage
3	Diesel	Caltex	30,000L	Fuelbay/machines
4	Unleaded	Caltex	500L	Small fuels shed
5	LPG	BOC	100kg	Workshop cage
6	Jaques BAC Part A	Jaques	1000L	Store shed
7	Jaques BAC Part B	Jaques	100L	Store shed
8	Calcium Chloride Dihydrate	Redox	NA	NA
9	Aluminium Sulfate		NA	NA
10	Concrete mix	Boral	400kg	Store shed
11	Rapid Set Concrete	Boral	400kg	Store shed
12	Readymix Concrete	Home Handy Pack	400kg	Store shed
13	Torque Fluid 414	Caltex	2000L	Fuel bay
14	Cold Galvanising Paint	Galmet	40 L	Workshop
15	Aerosol spray paint	Galmet	10 cans	Workshop
16	Cold Galvaninsing Aerosol	Galmet	40 cans	Workshop
17	Meropa 220	Caltex	1000L	Fuelbay
18	Meropa 460	Caltex	1000L	Fuelbay
19	Omala 460	Shell	1000L	Fuelbay
20	Meropa 680	Caltex	1000L	Fuelbay
21	Omala 680	Shell	1000L	Fuelbay
22	Meropa 68	Caltex	1000L	Fuelbay
23	Ultramax ISO 68	Valvolene	1000L	Fuelbay
24	Rando HD 68	Caltex	1000L	Fuelbay
25	Rando HDZ 46	Caltex	1000L	Fuelbay
26	Delo 400 SAE 15W40	Caltex	1000L	Fuelbay
27	Delo Silver SAE 30	Caltex	1000L	Fuelbay
28	Hand cleaner	Lightning Fast Orange	100L	Workshop
29	20W50	Penrite	1000L	Fuelbay
30	Coolant	Komatsu	1000L	Fuelbay
31	Diesel Engine Oil	Komatsu	1000L	Fuelbay
32	Spot Marking Spray	Signet	40 cans	Office
33	Heavy Duty Truckwash	Blu Murda	100L	Fuelbay
34	Rando HD46	Caltex	1000L	Fuelbay
35	EP Grease C0	Caltex	100L	Fuelbay
36	732 Multi Purpose Sealant	Dow Corning	10L	Workshop
37	Penetrene	Penetrene	10L	Workshop
38	Brake cleaner	Brākleen	10L	Workshop
39	Nickel Anti-cease	Locktite	10L	Workshop

MSDS Reference No.	Substance Name	Manufacturers/ Brand	Max. Qnty Held	Location where stored
40	Cutting Compound	Trefolex	10L	Workshop
41	Delo EP2 Grease	Caltex	100L	Workshop
42	EP Grease C00		100L	Workshop
43	Grease	Valvolene	100L	Workshop
44	Grease	Caltex	100L	Workshop
45	Saphire Ultraplex	ROCOL	100L	Workshop
46	Gadus S2 Grease	Shell	100L	Workshop
47	Grease	Shell	100L	Workshop
48	Two Stroke Oil	Castrol	10L	Small fuels shed
49	Two Stroke Oil	Caltex	10L	Small fuels shed
50	Aqueous Urea Solution	Adblue	2000L	Fuelbay/workshop
51	Lead Replacement Fluid	Flash Lube	10L	Small fuels shed
52	Sulphuric Acid	Active Chermicals	2000L	Dams
53	Nalkat 7607	Nalco	2000 L	Dams
54	Precoat	SAMI	36000L	Precoat plant
55	Hifloc 20	Concept Solutions	2000L	Dams

Other pollutants

- Sediment laden water in Dam 1, Dam 2 and Dam 3
- Effluent tanks at Operators lunch room and weighbridge toilets
- Oil separator system contains waste oil

Reference No.	Substance Name	Storage type	Max. Qnty Held	Location where stored
1	Sediment laden water	Dam 1	15 000 m^3	Dam 1
2	Sediment laden water	Dam 2	880 m^3	Dam 2
3	Sediment laden water	Dam 3	30 000 m^3	Dam 3
4	Effluent	Sewerage tank	2000L	Lunchroom
5	Effluent	Effluent tank	2000L	Office
6	Oily water from Oil separator	Water tank	20 000L	Fuelbay
7	Waste oil	IBC at water separator	2000L	Fuelbay