



# **Annual Environmental Management Report**

## **2011**

Name of mine      **NOWRA BRICKWORKS & FLAT ROCK Quarries**  
Titles/Mining Leases   **ML 5087 / ML 6322 / ML 531**  
MOP Commencement Date **01/09/2010**      MOP Completion Date **31/08/2017**  
AEMR Commencement Date **1/12/2010**      AEMR End Date **1/12/2011**  
Name of leaseholder   **Abib Pty Ltd**  
Name of mine operator, **South Coast Concrete Crushing and Recycling P/L**  
Reporting Officer   **Graham Tranter**  
Title                      **Consultant**

Signature .....

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## **Attachments**

This report in digital format  
Instrumental of Approval in digital format  
Mining Operations Plan in digital format  
Plans in digital format

## 1. INTRODUCTION.

### 1. General:

This AEMR has been prepared to cover a period from 1st December 2010 to 1<sup>st</sup> December 2011.

The operations of this mine are controlled by the Mining Operations Plan which covers mining operation for 7 years from 1 September 2010 and provides the relevant information on the mining, processing and rehabilitation operations necessary for compliance with the collective conditions imposed upon the mining development at the Nowra Brickworks Quarry by the applicable mineral authorities and other licences required to be held by SCCCR.

This report should be read in conjunction with the current mining operations plan.

### 1.1 Consents, Leases and Licences

#### 1.1.1 Mineral Authorities.

Table 1.1 presents the details of the mineral authorities covered by the MOP.

Table 1.1

Mineral Authorities

Title	Act	Expiry Date	Area (ha)	Group
ML 5087	1906	08 January 2019	7.36	Group 5
ML 6322	1906	08 March 2020	14.67	Group 5
ML 531	1906	05 Nov 2019	16.68	Group 5

The area covered by these mineral authorities is referred to hereafter as “the quarry site”.

### **NO ACTIVITIES WERE CARRIED OUT IN FLAT ROCK QUARRY DURING THE REPORTING PERIOD**

#### 1.1.2 Licences

The Nowra Brickworks Quarry is operated in accordance with Environment Protection Licence No. 11765. This licence covers “Hard-Rock Gravel Quarrying” of between 100 000t and 500000t per annum and “Crushing, Grinding or Separating Works” between 100 000t and 500 000t per annum.

#### 1.1.3 Development Consents

- Development Consent under Section 75J of The Environmental Planning and Assessment Act 1979. Application No. 07\_0123. Approved by the Minister for Planning 1<sup>st</sup> December 2009.

### 1.2 Mine Contacts

SCCCR personnel responsible for operational and environmental performance at the Nowra Brickworks Quarry and their relevant contact details are as follows.

- John Green – Mine Manager and sole director of SCCCR, retains overall responsibility for all activities and performance on site. Contact: 02 4221 7766. Fax 02 4421 7988. Postal Address PO Box 192, OAK FLATS NSW 2529

1.3 Actions Required at Previous AEMR Review  
No actions were required from the previous AEMR Review

## 2. Operations During Reporting Period

### 2.1 Exploration

No exploration was carried out within the mine area during the period.

### 2.2 Land Preparation

No Land preparation was required during the reporting period.

### 2.3 Construction

A weighbridge has been installed along with a new office building adjacent to the truck wheel wash bay installed under previous AEMR.

Once approval for the weighbridge construction has been completed then the original weighbridge will be relocated as a second weighbridge adjacent to the new one.

### 2.4 Mining

All mining activities were carried out in accordance with the current MOP.

( from MOP 3.4.2 **Mining Methods**

*Weathered shale material would be extracted from below the base of the subsoil to a depth where the material becomes too hard to be extracted using an excavator. The weathered shale material would be loaded into trucks for transportation to customers, stockpiled for subsequent sale and despatch, or used for rehabilitation-related purposes within the quarry (Mining Operations Plan for the Nowra Brickworks Quarry, Corkery & Co. Pty Ltd, 2007).*

**(( From Mining Operations Plan Cokery 2007**

**Description of Activity**

*The following materials are likely to be stockpiled:*

☐ *Virgin Excavated Natural Material (VENM) for blending and processing into quarry products*

☐ *VENM, top-soil, subsoil and weathered shale for quarry backfilling operations*

☐ *Blending materials, such as crusher dust and road base, for processing into quarry products*

☐ *Recyclable materials, such as select construction waste, concrete and bitumen for processing and blending into quarry products Quarry products))*

*MOP Continued..*

*Once the hardness of the shale becomes too great to be ripped, drill and blast techniques would be used to extract the material which would be direct loaded into the processing plant using an excavator. All drilling and blasting-related activities will be conducted in accordance with the Drilling and Blasting procedures set out in GHD (2010).*

**( From Environmental Management GHD 2010**

☐ *All drilling and blasting-related activities will be supervised by a suitably qualified and experienced blasting engineer or shot-firer. Blasting is to be designed to:*

- Achieve the required degree of fragmentation*
- Satisfy all environmental criteria (especially noise and vibration, refer to Section 14)*
- Contain all blast flyrock within the nominated blast envelope)*

### **14.3 Blasting Monitoring Criteria and Levels**

#### **14.3.1 Methodology**

*Blasting is to be designed to:*

- ☐ *Achieve the required degree of fragmentation;*
- ☐ *Satisfy all environmental criteria (especially noise and vibration,); and*
- ☐ *Contain all blast flyrock within the nominated blast envelope.*

*Blast emissions will be quantified using a portable blast emissions monitor (measurement of airblast and vibration , which will be positioned at the nearest potentially affected residences and other blast emission sensitive receivers to the plant operations as identified in the Project Approval. Blast monitoring instrumentation will be employed to meet the primary specifications presented in the Noise Monitoring Program/Blast management Plan.*

*The Blast Design Record Sheet is to be filled in for individual blast events.*

*In accordance with the mining leases, mining is planned to a depth of 30 metres with the maximum amount of shale material to be extracted while ensuring no resource sterilisation. The extraction area would then be backfilled with VENM to create a final, rehabilitated landform that would mimic the adjacent environment.*

*All material imported onto the quarry will be as per the Importation and use of Virgin Excavated Natural*

*Material procedures as set out in GHD (2010).*

#### **Importation of VENM Environmental Management GHD 2010**

*VENM is to be imported to the site for processing and blending to produce quarry products. VENM not used to make quarry products will also be placed within the 'exhausted' extraction area for rehabilitation purposes and to ultimately establish a final landform which mimics the pre-extraction landform.*

*The use of VENM as part of the rehabilitation process will be restricted to the use of VENM as defined in the NSW Protection of the Environment Operations Act 1997, i.e.: Natural material (e.g. clay, gravel, sand, soil and rock) that is not mixed with any waste that:*

- a) has been excavated from areas that are not contaminated, as the result of industrial, commercial, mining or agricultural activities, with manufactured chemicals and that does not contain sulphidic ores or soils, or*
- b) consists of excavated natural materials that meet such criteria as may be approved by the EPA"*

#### **Certificate and Receipt Procedures**

- ☐ *All imported VENM will be certified at its source and certification verified by the Mine Manager (or delegated authority) on receipt in accordance with relevant guidelines current at the time of VENM importation. This is likely to include a visual inspection for signs of contamination and the presence of any other waste material.*
- ☐ *A VENM certification sheet will be prepared, dated and signed by the person certifying the material.*
- ☐ *The history of the site from which the material is to be excavated will be determined and recorded on the VENM certificate sheet. The following procedures will be implemented depending on the previous land uses.*

- Where the site has been used for commercial, industrial, mining or agricultural purposes at any time, or if the site contains fill material, or there is potential for chemical contamination from past or current uses, a testing regime will be implemented to establish that the material sourced from the site can be classified as VENM.
  - Where the site is, and has always been, used for residential or agricultural purposes then excavated material from the site, with the exception of surface layers that may be contaminated with physical debris, vegetation, chemicals, fertilisers or asbestos, will be presumed to be classified as VENM.
- Upon arrival, the Mine Manager (or delegated authority) will require the drivers delivering the VENM material to complete and sign a VENM record sheet. The Mine Manager (or delegated authority) will direct the driver to the receival where the load will be inspected to ensure it corresponds with the description of the material included on the certificate sheet before it is accepted.
- Any unsuitable loads (i.e. loads that do not meet the description of VENM) will not be accepted and the supplier/driver will be advised to deliver the load to a licensed waste facility.

### **VENM Stockpiling**

- When VENM is being processed, it will be placed in the stockpiling and processing area. The environmental management measures for stockpiles detailed in Section 9 of this EMS will be applied.
- All surface waters will be diverted into the water storage or sump within the extraction area.

### **VENM Placement and Compaction**

When VENM is to be used to backfill the quarry, the following procedures will be undertaken:

- Compaction of VENM will not occur within approximately 3.5 m of the proposed final landform .
- Between approximately 3.5 m and 1.0 m of the final landform VENM comprising weathered material is to be placed without compaction.
- Between 1.0 and 0.5 below the final landform, weathered shale material will be placed without compaction.
- Sub-soil and top-soil will be placed over the VENM/weathered shale in accordance with the Landscape and Biodiversity Management Plan.
- Soils will be handled only when they are moist (neither wet, nor dry) to minimise the risk of soil structural decline.

### **VENM On-site Operations**

- Water sprays and water trucks will be used in all areas of potential dust lift-off to minimise potential dust emissions.
- A maximum speed limit of 10 km/hour will be maintained within the quarry site.
- The width of haul roads will be limited to that which is safe for heavy vehicle passage to minimise soil erosion hazards.

### **Monitoring and Reporting**

During all VENM importation operations, records will be kept for each site where imported VENM is to be sourced and for each load of material

received.

Record sheets must be filled out at the source of VENM for transport to the quarry, and at the quarry for the receiving of VENM. Completed record sheets are to be stored and filed in a suitable location to facilitate the reporting, auditing, and “access to information” requirements specified in the Project Approval and EPL.

## 2.5 Mineral Processing

All materials mined were processed in accordance with the current MOP  
(From MOP Mineral Processing

*The quarry maintains the following infrastructure to carry out its operations:*

☐ Mobile crushing plant;

☐ Excavator;

☐ Conveyors and stackers; and

☐ Front end loader.

*The shale extracted from the quarry undergoes crushing, shaping, screening and blending with imported construction waste material.)*

## 2.6 Waste Management

Mining activities do not produce waste products as all materials are processed and sold.

## 2.7 Ore and Product Stockpiles

No material is long term stockpiled as production meets the demand and materials are shipped out as produced.

## 2.8 Water Management

No water is allowed to go offsite and is stored on site in a storage basin.

## 2.9 Hazardous Material Management

No hazardous materials are stored on the mine site, fuel for machinery is brought in as required, and explosives are only brought to site by contractor on the day required. No variations to the MOP were carried out within the reporting period.

**Table 2.1 Production and Waste Summary**

<b>Cumulative Production (all cubic metres)</b>			
Process	Start of Reporting Period	At end of Reporting Period	End of next reporting (estimated)
Topsoil Stripped	16480	16480	16480
Topsoil Used/Spread	16480	16480	16480
Waste Rock	Nil	Nil	Nil
Ore	692800	759315	812800
Processing Waste	Nil	Nil	Nil
Product	692800	759315	812800

**Table 2.2 Stored Water**

	Volumes held (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	Storage Capacity
Clean water	8500 est.	10000 est.	103000
Dirty water	Nil	Nil	Nil
Controlled discharge water	Nil	Nil	Nil
Contaminated water	Nil	Nil	Nil

### 3. ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

#### 3.1 Air pollution

Airborne dust within the quarry site is generated predominantly through mining activities within the quarry, crushing and screening activities and from stockpiles and exposed surfaces on the site.

A range of air quality controls are currently undertaken at the Nowra Brickworks Quarry and will continue to be implemented for the term of the MOP.(2017)

- The processing plant is currently fitted with dust suppression equipment and this equipment would continue to be used whenever the plant is operational.
- On-site roads, hardstand areas, stockpiles and exposed surfaces are and will continue to be regularly watered using a water cart or sprinklers. Water for this purpose is sourced from water within the extraction area or the Water Storage Dam.
- The loads of trucks carrying material to or from the quarry site on public roads are and will continue to be covered.
- Progressive rehabilitation of disturbed areas no longer required for mining related activities will continue. (Results of air quality testing are attached).

#### 3.2 Erosion and Sediment

An erosion and sedimentation control at the Nowra Brickworks Quarry revolves around:

- diversion of 'clean' surface water runoff away from disturbed areas; and
- capture and retention of 'dirty' water flowing from disturbed areas of the quarry site.

#### 3.3 Surface water pollution

The two main potential contaminants of surface water at the Nowra Brickworks Quarry are suspended sediment and hydrocarbon material.

In order to minimise the potential for hydrocarbon (fuel, oil, grease etc.) contamination of surface and groundwater, all routine maintenance of mobile equipment will take place within the "dirty" water management area.

On-site hydrocarbon storages are limited to four jerry cans of petrol, two 205L drums of waste oil and two 205L drums of fresh oil. The jerry cans are and would continue to be stored in a steel tray and the 205L waste oil containers would continue to be stored within a sea container with internal steel bunding.

#### 3.4 Ground water pollution

Quarrying operations at the Nowra Brickworks Quarry currently intersects only a small amount of groundwater. As a result, no groundwater specific management controls are considered necessary under the MOP.

With the exception of fuel for equipment operation, no substances capable of contaminating groundwater will be used at within quarry site.

SCCCR is constructing a number of piezometers within the quarry site as a part of the hydrology assessment for the Part 3A application. A description of these piezometers and the results of water level monitoring and water quality testing undertaken is presented as part of that application.( Piezometers are monitored and test results are attached)

### **3.5 Contaminated polluted land**

No contamination or pollution occurred during the reporting period

The principal potential sources of soil or land contamination at the Nowra Brickworks Quarry is from spillage or leaks of hydrocarbon material. In the event of any hydrocarbon spillage or leak, the spillage will be cleaned up immediately as follows.

- The source of the spill will be located and the cause of the spill will be addressed to prevent additional material spilling on the ground.
- Bunding material will be used or earth bunds constructed to limit the area of the spill.
- Absorption material would be spread over the area of the spill to absorb as much spilt hydrocarbon material as possible.
- The ground on which the spillage or leak occurs would be ripped and excavated by bulldozer, front-end loader, excavator or other suitable mobile equipment.
- Contaminated soil removed during the cleanup process will be spread out in a thin layer within the quarry site to encourage biological breakdown.

Superphosphate may be added to the contaminated material to assist the breakdown process.

### **3.6 Threatened flora or fauna**

Notwithstanding the fact that no threatened flora or fauna have been identified within the quarry site, the following management strategies and safeguards will, where practicable, be implemented during the term of the MOP.

- As much native vegetation as possible within the quarry site will be maintained, with progressive rehabilitation of disturbed areas undertaken.
- Direct replacement of topsoil and subsoil on surfaces to be rehabilitated and the use of freshly removed branches to provide mulch to the topsoiled surface will be maximised. Only when inadequate areas are available to be rehabilitated will stockpiling be undertaken.
- Weed and pest control programs will be undertaken regularly.
- Where possible, the use of seed collected in the local area in the rehabilitation activities will be maximised

### **3.8 Weeds**

A weed management program has been implemented by SCCCR within the quarry site. The initial site inspection revealed the presence of some declared noxious weeds.

The identified plants were removed and a monitoring and weed control programme has been implemented. Notwithstanding this however, SCCCR has engaged a contractor to undertake a weed inspection and management program.

### **3.9 Blasting**

All blasting conducted within the quarry site is undertaken by a suitably qualified and experienced blasting contractor. A copy of blasters work method statement is attached. Blasting controls include the following.

- The police, Shoalhaven City Council, NSW Roads and Traffic Authority, Environmental Protection Agency and the resident occupying the house immediately to the south of the quarry site are notified verbally at least 24 hours prior to the initiation of each blast.

- The drill hole spacing, burden distance, stemming length, maximum instantaneous charge are carefully selected and implemented by the blasting contractor to ensure that ground vibration and air blast do not exceed the Environmental Protection Agency specified criteria and that there is no danger to motorists using the Princes Highway.
- Each blast is monitored at the nearest residence, adjacent to jail, adjacent to commercial premises and north of brickworks and subsequent blast designs are modified if required in light of the blast monitoring.
- Records of each blast monitored have been stored for future reference, and are attached to this report.

### **3.10 Operational noise**

The Company's objective is to not cause unreasonable intrusive noise levels at residences and other premises surrounding the quarry site. Taking into account the limited amount of noise generated by mining-related activities, the noise generated by traffic on the Princes Highway and the predominantly industrial land uses surrounding the quarry few specific noise controls are considered necessary. This notwithstanding, the following controls have been enforced.

- The allowed hours of operation were adhered to.
- All vehicles and plant are fitted with effective exhaust mufflers.
- All trucks used are maintained in good condition to ensure both body noise and engine noise is within acceptable limits.
- All speed restrictions are adhered to.

### **3.11 Visual, stray light**

The following design and operational safeguards will minimise the visual impact of the Nowra Brickworks Quarry.

- The perimeter bunds were maintained and extended where practicable to limit the visual impacts associated with the quarry from vantage points in the vicinity of the quarry site.
- Progressive rehabilitation of disturbed areas is undertaken as required.
- The quarry site has been maintained in clean and tidy conditions at all times.
- Dust suppression activities have been undertaken over all disturbed or exposed surfaces.

### **3.12 Aboriginal heritage**

No sites or items of Aboriginal heritage significance have been identified within the quarry site. In addition, all proposed works within the mineral authorities covered by the MOP will be undertaken in areas of existing disturbance. As a result, no Aboriginal heritage-specific management controls are required. Notwithstanding this, however, should any Aboriginal site or artefact be identified, it will be reported to National Parks and Wildlife Service and work will be stopped in the vicinity of the site until such time as advice is obtained.

### **3.13 Natural heritage**

No sites or items of natural heritage significance have been identified within the quarry site. As a result, no natural heritage-specific management controls are required.

### **3.14 Spontaneous combustion**

There are no risks associated with spontaneous combustion within the quarry site. As a result, no spontaneous combustion-specific management controls are required.

### **3.15 Bushfire**

The following bushfire-specific management controls have been implemented and enforced.

- On-site bushfire fighting facilities have been provided and maintained.
- Bushfire fighting equipment is operational for fire fighting purposes at all times.
- Fire breaks and fire tracks have been maintained.

- Sufficient water resources have been maintained within the quarry site for fire fighting purposes.
- Fuel loads are monitored and fuel reduction programs will be implemented where necessary.

### **3.16 Mine subsidence**

There are no risks associated with mine subsidence within the quarry site. As a result, no mine subsidence-specific management controls are required.

### **3.17 Hydrocarbon contamination**

Management controls for preventing or minimising hydrocarbon contamination of water and/or land were carried out in accordance with the MOP

( From MOP..

#### **Existing and Additional Control Strategies**

Control strategies to manage hydrocarbon contamination at the quarry are defined in the following sections of GHD (2010):

□ 4 – Emergency Response; and

□ 10.2 – Loading, Despatch and Transportation.

The main controls to reduce the impacts of hydrocarbon contamination from site activities are:

□ Implementation of a Nowra Brickworks Quarries Mine Safety Plan;

□ Training of employees in the Safety Plan;

□ Notification of environmental harm to the EPA hotline; and

□ Maintenance of all mobile equipment to manufacturer's specifications.)

(Environmental Management GHD 2010..

### **4. Emergency Response**

Response to an emergency is to be in accordance with the Nowra Brickworks Quarries Mine Safety Plan, prepared in accordance with the NSW Mine Health and Safety Act 2004. Emergency procedures are located in the SCCCR main office.

The following procedures relate to environmental emergencies which are not covered by the quarry's emergency plan and procedures, i.e. spills and environmental harm.

#### **4.1 Spills**

The principal potential sources of soil or land contamination at the quarry is from spills or leaks of hydrocarbons (fuel, oil, grease, etc). The following pollution control measures will be implemented during the life of the Project:

- Employees will read the quarry's Environmental Response Plan (attached as Appendix C) for fuel and oil spills, and will refer to the Material Safety Data Sheets (MSDS) located next to the first aid kit located in SCCCR main office.

- During fuelling, the following will be observed: – Fuelling will be undertaken carefully to minimise drips on the ground;

- Fuelling will be undertaken in a suitable area away from access areas and drainage lines or water courses;

- Persons undertaking the fuelling will remain present during the entire fuelling operation; – If necessary, the emergency shut off switch for plant and machinery is to be used; – A spill kit will be kept at or near each fuelling area and on the fuel truck; – Spills and dirty absorbent materials will be cleaned up; – Fuelling equipment will be inspected for cracks, leaks, corrosion or failure; and – Small equipment will be fuelled over a paved or concrete area, away from any

stormwater drains or ditches, and a funnel will be used when pouring fuel from a portable can.

- Any stormwater drains on site will be located and blocked. Spilled fuel will be prevented from reaching drains or waterways.

- Any spills will be cleaned up thoroughly and promptly. The Dry Method (refer to the Emergency Response Plan attached as Appendix C) will be used for cleaning up fuel spills (die sel or kerosene).

- If fuels are leaking or have spilled on an impermeable surface, the nearest down gradient drain will be diked or bermed to prevent fluids from flowing. Absorbent material from the spill kit will be applied on the spill area, and after cleaning up the contaminated absorbent material will be swept up, and the berm or dike will be removed from the stormwater drain.

- If fluids are leaking or have spilled on a permeable surface, the area will be marked and assistance will be sought to clean up.

- Spills or leaks will never be hosed down.

- ▶ Any spill kit materials will be disposed of in accordance with EPA guidelines.
- ▶ Any spill or discharge of any pollutant will be reported to the Mine Manager. If a spill or leaks of a hazardous substance that exceeds 500 mL, is an unknown substance of any amount, or a spill is too great to control, the NSW Fire Brigade will be called on 000.
- ▶ All applicable employees will be trained in general water pollution prevention and spill response, and a record of the employees trained will be kept.
- ▶ A current copy of the Spill Response Plan will be maintained in the SCCCR main office.

### **3.18 Methane drainage/ventilation**

There are no risks associated with methane drainage and ventilation within the quarry site. As a result, no methane-specific management controls are required.

### **3.19 Public safety**

The Nowra Brickworks Quarry is located in an area with extensive industrial development and adjacent to a major public road. As a result, public safety, including the safety of employees and contract truck drivers, is an important issue for the proper management of the quarry. The following management controls have been implemented and enforced to manage this safety issue.

- The front gate is locked outside the hours of operation and whenever the quarry site is not occupied.
- The perimeter bunding is maintained to ensure that the only vehicular access to the quarry site is via the front gate.
- Warning signs will continue to be prominently displayed around the perimeter and within the quarry site.
- Concrete blocks will continue to be placed adjacent to the perimeter of the extraction area in areas where vehicles or people may be working.
- 10km/h speed signs have been erected and speed limits are enforced by site management.
- All employees and contractors working within the quarry site will be required to complete a site induction.
- Visitors are required to complete a visitor's induction and sign a visitors book indicating their time of arrival and departure.
- All employees, contractors and visitors are required to wear personal protective equipment, namely hard hats, safety glasses, steel cap boots and reflective vests. This equipment will be supplied to individuals who do not have their own.
- All communication between mobile equipment within the quarry site is by UHF radio. All mobile equipment owned or operated by SCCCR are fitted with a UHF radio. A handheld UHF radio is supplied to any transport contractor who does not have a UHF radio fitted to their vehicle.
- No truck drivers are permitted to leave the cab of their truck while the vehicle is within the extraction or processing areas. A designated area for covering loads will continue to be provided.
- All trucks carrying material to or from the quarry site on public roads will have their loads covered to prevent material falling from trucks.

The quarry entrance and adjoining highway shoulder are continually monitored and any spillage is removed immediately.

The Company maintains a register of any complaints it receives from the public, such as speeding trucks or generally unsafe or discourteous driving or quarry vehicles.

## **4. Community Relations**

During the reporting period there were no community complaints or feedback to the quarry management.

## **5. REHABILITATION**

During this reporting period all mining works were contained within a small area of previously disturbed ground.

This primarily was expanding and deepening a water storage reservoir and as a consequence no undisturbed area was affected.

Some soil was spread to the northern end of water storage and seeded with native endemic seed.

As stated earlier a new office building has been erected at the new weighbridge Mining activities and rehabilitation works will be continued during the next reporting period as per the approved MOP.

**TABLE 3: Rehabilitation Summary**

TABLE 6: Rehabilitation Summary

		Cumulative Area Affected (hectares)		
		To date	Last report	Next Report (estimated)
A: MINE LEASE AREA				
A1	Mine Lease(s) Area	22.028ha		
B: DISTURBED AREAS				
B1	Infrastructure area other disturbed areas to be rehabilitated at closure including facilities, roads	1.3 ha	1.3 ha	1.3 ha
B2:	Active Mining Area excluding items B3 - B5 below	3.5 ha	3.5 ha	3.5 ha
B3	Waste emplacements, active/unshaped/in or out-of-pit	0.27 ha	0.27 ha	0.27 ha
B4	Tailings emplacements, active/unshaped/uncapped	0.60 ha	0.60 ha	0.60 ha
B5	Shaped waste emplacement (awaits final vegetation)	0.80 ha	0.80 ha	0.80 ha
ALL DISTURBED AREAS		6.47 ha	6.47 ha	6.47 ha
C REHABILITATION PROGRESS				
C1	Total Rehabilitated area (completed)	1.5 ha	1.50 ha	1.50 ha
D: REHABILITATION ON SLOPES				
D1	10 to 18 degrees	1.0 ha	1.0 ha	1.0 ha
D2	Greater than 18 degrees	Nil	Nil	Nil
E: SURFACE OF REHABILITATED LAND				
E1	Pasture and grasses			
E2	Native forest/ecosystems	2.0 ha	2.0 ha	2.0 ha
E3	Plantations and crops			
E4	Other (include non vegetative outcomes)			

**TABLE 4: Maintenance Activities On Rehabilitated Land**

(This period's activities and activities proposed in the next reporting period)

Area Treated (ha)
-------------------

<b>NATURE OF TREATMENT</b>	<b>Report period</b>	<b>Next period</b>	<b>Comment/control strategies/ treatment detail</b>
<b>Additional erosion control works</b> (drains re-contouring, rock protection)			None required at this stage
<b>Re-covering</b> (detail - further topsoil, subsoil sealing etc)	<b>1.00ha</b>	<b>1.00 ha</b>	<b>As backfilling/restoration reaches part completion those areas will be soiled over.</b>
<b>Soil treatment</b> (detail - fertiliser, lime, gypsum etc)			Nil
<b>Treatment/Management</b> (detail - grazing, cropping, slashing etc)			No treatment will be required
<b>Re-seeding/Replanting</b> (detail - species density, season etc)	<b>2.0 ha</b>	<b>2.0 ha</b>	<b>Backfilling covers will contain sufficient endemic native seed to self establish as can be seen from some of the revegetated areas.</b>
<b>Adversely Affected by Weeds</b> (detail - type and treatment)			No weed infestations are present
<b>Feral animal control</b> (detail - additional fencing, trapping, baiting etc)			No feral animals have been observed on the site

**Planning Approval** (this Planning Approval document has been pasted from an original PDF file comprising images, and cannot be edited or have references added.

## **Project Approval**

**Section 75J of the *Environmental Planning and Assessment Act 1979***

I approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent and/or minimise adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

*S Haddad*

Sam Haddad  
Director-General  
as delegate for the Minister for Planning

Sydney

*1<sup>st</sup> December*

2009

### **SCHEDULE 1**

<b>Application No:</b>	07_0123
<b>Proponent:</b>	South Coast Concrete Crushing and Recycling
<b>Approval Authority:</b>	Minister for Planning
<b>Land:</b>	Lot 464, DP1058778
<b>Project:</b>	Nowra Brickworks Quarry

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## DEFINITIONS

AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
CCC	Community Consultative Committee
Council	Shoalhaven City Council
Day	The period between 7am and 6pm on Monday to Saturday and between 8am and 6pm on Sunday and Public Holidays
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DI&I	Department of Industry and Investment
EA	Environmental Assessment prepared for SCCCR entitled <i>Environmental Assessment for the Continuation and Expansion of Extractive Operations at the Nowra Brickworks Quarry, South Nowra</i> (February 2009), including the response to submissions
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act 1997</i>
Evening	The period between 6pm and 10pm
Land	The whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Material harm to the environment	Material harm to the environment as defined in <i>Protection of the Environment Operations Act 1997</i>
Minister	Minister for Planning, or delegate
Night	The period between 10pm and 7am, Monday to Saturday and between 10pm and 8am on Sunday and Public Holidays
NOW	NSW Office of Water of DECCW
Privately-owned land	Land that is not owned by a public agency, or a quarry company (or its subsidiary)
Proponent	South Coast Concrete Crushing and Recycling or any other person or persons who rely on this approval to carry out the project
Quarrying operations	Extraction of clay/shale, structural clay and associated materials, processing of quarry products and transport of quarry products from the site
Quarry products	Clay/shale, structural clay and associated materials extracted from the site, whether or not blended with recycled and/or blending materials
Reasonable and feasible	<i>Reasonable</i> relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements. <i>Feasible</i> relates to engineering considerations and what is practical to build
Response to submissions	The Proponent's response to issues raised in submissions, dated August 2009
RTA	Roads and Traffic Authority, now part of the Department of Transport and Infrastructure
SCCCR	South Coast Concrete Crushing and Recycling
Site	Land to which the project application applies (see Schedule 1 and Appendix 1)
Statement of Commitments	The Proponent's Final Statement of Commitments for Site Operations and Management, as set out in Appendix 2

## SCHEDULE 2 ADMINISTRATIVE CONDITIONS

### Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

### Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
  - (a) EA;
  - (b) Statement of Commitments; and
  - (c) conditions of this approval.

#### Notes:

- The general layout of the project is shown in Appendix 1; and
- The Statement of Commitments is reproduced in Appendix 2.

3. If there is any inconsistency between the above documents, the latter document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable requirements of the Director-General arising from the Department's assessment of:
  - (a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with the conditions of this approval; and
  - (b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.
5. The Proponent shall prepare revisions of any strategies, plans or programs required under this approval if directed to do so by the Director-General. Such revisions shall be prepared to the satisfaction of, and within a timeframe approved by, the Director-General.
6. By 30 June 2010, the Proponent shall surrender all existing development consents for the site to the relevant consent authority, to the satisfaction of the Director-General.

### Limits on Approval

7. The Proponent may undertake quarrying operations on the site until 31 December 2039.

*Note: Under this approval, the Proponent is required to rehabilitate the site to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been rehabilitated to a satisfactory standard.*

8. The Proponent shall not:
  - (a) extract more than 364,000 tonnes per year of clay/shale, structural clay and associated materials (in total) from the site;
  - (b) import more than 50,000 tonnes per year of recycling materials to the site;
  - (c) import more than 125,000 tonnes per year of blending materials to the site;
  - (d) import more than 200,000 tonnes per year of VENM to the site; or
  - (e) despatch more than 500,000 tonnes per year of quarry products from the site.

### Management Plans / Monitoring Programs

9. With the approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

### Structural Adequacy

10. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

*Notes:*

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

**Demolition**

11. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

**Operation of Plant and Equipment**

12. The Proponent shall ensure that all plant and equipment used on site is:
  - (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

### SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

#### NOISE

##### Noise Impact Assessment Criteria

- The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1;

*Table 1: Operational noise impact assessment criteria dB(A)*

Location and Locality	Day <i>L<sub>Aeq10 min</sub></i>	Evening <i>L<sub>Aeq10 min</sub></i>	Night <i>L<sub>Aeq10 min</sub></i>
1 80 Links Road	30	35	35
2 371 Old Southern Road	45	35	35
4 243 Princes Highway	49	38	38
5 South Coast Correctional Facility	51	37	37

*Notes:*

- To interpret the locations in Table 1, see Appendix 3.
- Location 3 in Appendix 3 is project related.
- Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.
- The noise limits do not apply if the Proponent has an agreement with the landowner to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

##### Operating Hours

- The Proponent shall comply with the operating hours in Table 2.

*Table 2: Operating hours*

Activity	Day	Time
Quarrying Operations	Monday – Friday	7.00am to 6.00pm
	Saturday	7.00am to 4.00pm
	Sunday and Public Holidays	None

*Notes:*

- Maintenance activities may be conducted outside weekday hours in Table 3 provided that the activities are not audible at any privately-owned residence, or until 5pm on Saturdays.
- Up to three unladen trucks are permitted to arrive at the site between 6.00am to 7.00am on Monday to Saturday; and up to three unladen trucks are permitted to return to the site between 6.00pm to 8.00pm on Monday to Friday and between 4.00pm to 6.00pm on Saturday.
- This condition does not apply to delivery of material if that delivery is required by police or other authorities for safety reasons, and/or the operation or personnel or equipment are endangered. In such circumstances, notification is to be provided to DECCW and the affected residents as soon as possible, or within a reasonable period in the case of emergency.

##### Continuous Improvement

- The Proponent shall:
  - implement all reasonable and feasible noise mitigation measures;
  - investigate ways to reduce the noise generated by the project; and
  - report on these investigations and the implementation and effectiveness of those measures in the AEMR,
 to the satisfaction of the Director-General.

##### Monitoring

- The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. The Program must:
  - be prepared in consultation with DECCW and be submitted to the Director-General for approval within 6 months of the date of this approval;
  - include annual attended noise monitoring;
  - include details of how the noise performance of the project would be monitored; and
  - include a noise monitoring protocol for evaluating compliance with the noise criteria in this approval.

## BLASTING AND VIBRATION

### Airblast Overpressure Limits

5. The Proponent shall ensure that the airblast overpressure level from blasting at the project does not exceed the criteria in Table 3.

Table 3: Airblast overpressure impact assessment criteria

Receiver	Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
Residential & South Coast Correctional Facility	115	5% of the total number of blasts in any 12 month period
	120	0%
Commercial	125	0%

### Ground Vibration Impact Assessment Criteria

6. The Proponent shall ensure that the ground vibration level from blasting at the project does not exceed the levels in Table 4.

Table 4: Ground vibration impact assessment criteria

Receiver	Peak particle velocity (mm/s)	Allowable exceedance
Residential & South Coast Correctional Facility	5	5% of the total number of blasts in any 12 month period
	10	0%
Commercial	25	0%

### Blasting Hours and Frequency

7. The Proponent shall carry out blasting on site only between 9 am and 3 pm Monday to Friday. No blasting is allowed on weekends and Public Holidays.
8. The Proponent shall not carry out more than one blast per week on site.

*Note: In the case of a documented misfire, the Proponent may carry out a second blast in the relevant week.*

### Operating Conditions

9. The Proponent shall not undertake blasting within 200 metres of any privately-owned land, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property and to human safety to the satisfaction of the Director-General.

### Property Inspections

10. Prior to 30 June 2010, the Proponent shall advise all landowners within 500 m of proposed blasting activities, and any other landowner nominated by the Director-General, that they are entitled to a property inspection to establish the baseline condition of the property.
11. If the Proponent receives a written request for a property inspection from any such landowner, the Proponent shall:
- (a) commission a suitably qualified person, whose appointment has been approved by the Director-General, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
  - (b) give the landowner a copy of this property inspection report.

*Note: It is preferable for the property inspection to be carried out prior to the commencement of blasting activities on the site, and the Proponent should facilitate this occurring wherever possible.*

## Property Investigations

12. If any landowner within 500 m of proposed blasting activities, or any other landowner nominated by the Director-General, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:
- (a) commission a suitably qualified person whose appointment has been approved by the Director-General to investigate the claim and prepare a property investigation report; and
  - (b) give the landowner a copy of the report.

If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the Director-General.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

## Management

13. Prior to 30 June 2010, the Proponent shall prepare and implement a detailed Blast Management Plan for the project to the satisfaction of the Director-General. The Plan must
- (a) be prepared in consultation with DECCW;
  - (b) substantiate blast design to ensure compliance with blast criteria;
  - (c) include protocols for communicating with all neighbouring landholders regarding scheduled blasts;
  - (d) include details of how and at what locations blasting performance would be monitored; and
  - (e) include a blast monitoring protocol for evaluating compliance with the blast criteria in this approval.

## AIR QUALITY

### Continuous Improvement

14. The Proponent shall:
- (d) implement all reasonable and feasible dust mitigation measures;
  - (e) investigate ways to reduce the dust generated by the project; and
  - (f) report on these investigations and the implementation and effectiveness of these measures in the AEMR,
- to the satisfaction of the Director-General.

### Impact Assessment Criteria

15. The Proponent shall ensure that dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 5 to 7 at any residence on privately owned land, or on more than 25 percent of any privately-owned land.

*Table 5: Long term impact assessment criteria for particulate matter*

<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>

*Table 6: Short term impact assessment criterion for particulate matter*

<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>

*Table 7: Long term impact assessment criterion for deposited dust*

<i>Pollutant</i>	<i>Averaging period</i>	<i>Maximum increase in deposited dust level</i>	<i>Maximum total deposited dust level</i>
Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

*Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS/NZS 3500.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.*

#### **Air Quality Monitoring**

16. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. This program must:
- (a) be prepared in consultation with DECCW, and be submitted to the Director-General for approval prior to 30 June 2010; and
  - (b) include details of how the air quality performance of the project will be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.

#### **WATER MANAGEMENT**

##### **Discharge**

17. Except as may be expressly provided for by an EPL, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the project.
18. The Proponent shall manage on-site sewage to the satisfaction of the Council and DECCW. The facility must comply with the requirements of the *Environment and Health Protection Guidelines – On-site Sewage Management for Single Households (1998)*.

##### **Water Management Plan**

19. The Proponent shall prepare and implement a Soil and Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECCW and NOW, and be submitted to the Director-General for approval prior to 30 June 2010; and
  - (b) include a:
    - Site Water Balance;
    - Erosion and Sediment Control Plan;
    - Surface Water Monitoring Program;
    - Ground Water Monitoring Program; and
    - Surface and Groundwater Response Plan.

##### **Site Water Balance**

20. The Site Water Balance must:
- (a) include details of:
    - sources and security of water supply;
    - water make and use on site;
    - water management on site;
    - any off-site water transfers; and
    - reporting procedures; and
  - (b) investigate and describe measures to minimise water use by the project.

##### **Erosion and Sediment Control**

21. The Erosion and Sediment Control Plan must:
- (a) be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 1, 4<sup>th</sup> Edition, 2004* (Landcom);
  - (b) identify activities that could cause soil erosion and generate sediment;
  - (c) describe measures to minimise soil erosion and the potential for the transport of sediment downstream in Nowra Creek;
  - (d) describe the location, function, and capacity of erosion and sediment control structures; and
  - (e) describe what measures would be implemented to maintain the structures over time.

##### **Surface Water Monitoring**

22. The Surface Water Monitoring Program must include:
- (a) detailed baseline data on surface water flows and quality in Nowra Creek and any other waterbodies that could potentially be affected by the project;

- (b) surface water and stream health impact assessment criteria;
- (c) a program to monitor the impact of the project on surface water flows in Nowra Creek, water quality and stream health, including monitoring for major cations and anions; and
- (d) reporting procedures for the results of the monitoring program.

#### Groundwater Monitoring

23. The Ground Water Monitoring Program must include:
- (a) detailed baseline data on ground water levels and quality, based on statistical analysis;
  - (b) ground water impact assessment criteria, including trigger levels for investigating any potentially adverse ground water impacts;
  - (c) a program to monitor ground water levels and quality;
  - (d) a protocol for further ground water modelling to confirm the limits to excavation depth across the site would not adversely affect ground water availability for the environment or local users; and
  - (e) a protocol for the investigation, notification and mitigation of identified exceedances of the ground water impact assessment criteria.

#### Surface and Groundwater Response Plan

24. The Surface and Groundwater Response Plan must describe the measures and/or procedures that would be implemented to:
- (a) investigate, notify and mitigate any exceedances of the surface water, stream health and ground water impact assessment criteria, including an increase in salinity levels for Nowra Creek; and
  - (b) mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

### REHABILITATION AND LANDSCAPE MANAGEMENT

#### Biodiversity Offset Strategy

25. The Proponent shall:
- (a) review its proposed Biodiversity Offset Strategy (see Table 8), in consultation with DECCW and the Director-General, to seek to identify a replacement for the proposed Southern Biodiversity Offset Area that:
    - is located in the vicinity;
    - is not affected by identified future public infrastructure proposals; and
    - has equivalent (or better) biodiversity values;
  - (b) implement the Biodiversity Offset Strategy (as amended under (a) above, if applicable);
  - (c) ensure that adequate resources are dedicated towards the implementation of the strategy;
  - (d) provide appropriate long term security for the offset areas; and
  - (e) provide a timetable for the implementation of the offset strategy prior to the clearing of any forested area of the site, or as otherwise agreed by the Director-General,
- to the satisfaction of the Director-General.

Table 8: Biodiversity Offset Strategy

Offset Areas	Minimum Size
Northern Biodiversity Offset Area	21.5 hectares
Southern Biodiversity Offset Area	16.19 hectares
<b>Total</b>	<b>37.69 hectares</b>

#### Landscape and Biodiversity Management Plan

26. The Proponent shall prepare and implement a Landscape and Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared by suitably qualified person(s), approved by the Director-General;
  - (b) be submitted to the Director-General for approval prior to the 30 June 2010; and
  - (c) include a:
    - Rehabilitation and Biodiversity Offset Strategy Management Plan; and
    - Long Term Management Strategy.

*Note: The Department accepts that the initial Landscape and Biodiversity Management Plan may not include the detailed Long Term Management Strategy. However, a conceptual strategy must be included in the initial plan, along with a timetable for augmentation of the strategy with each subsequent review of the plan.*

27. The Rehabilitation and Biodiversity Offset Strategy Management Plan must include:
- (a) the rehabilitation objectives for the site and offset areas;
  - (b) a description of the measures that would be implemented to:
    - rehabilitate and stabilise the site;
    - minimise the removal of mature trees;
    - implement the Biodiversity Offset Strategy; and
    - manage the remnant vegetation and habitat on the site and in the offset areas;
  - (c) detailed performance and completion criteria for the rehabilitation and stabilisation of the site;
  - (d) a detailed description of how the performance of the rehabilitation of the quarry areas would be monitored over time to achieve the stated objectives;
  - (e) a detailed description of what measures would be implemented to rehabilitate and manage the landscape of the site including the procedures to be implemented for:
    - progressively rehabilitating and stabilising areas disturbed by quarrying;
    - implementing revegetation and regeneration within the disturbance areas;
    - protecting areas outside the disturbance areas, including the Biodiversity Offset Strategy areas;
    - vegetation clearing protocols, including a protocol for clearing any trees containing hollows and the relocation of hollows from felled trees;
    - managing impacts on fauna, in particular threatened species;
    - controlling weeds and pests;
    - controlling access;
    - bushfire management; and
    - reducing the visual impacts of the project;
  - (f) a description of the potential risks to successful rehabilitation and a description of the contingency measures that would be implemented to mitigate those risks; and
  - (g) details of who is responsible for monitoring, reviewing, and implementing the plan.
28. The Long Term Management Strategy must:
- (a) define the objectives and criteria for quarry closure and post-extraction management;
  - (b) be prepared in consultation with NOW, OIL and Council;
  - (c) investigate and/or describe options for the future use of the site;
  - (d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
  - (e) describe how the performance of these measures would be monitored over time.

## Rehabilitation

29. Backfilling of the quarry void and water storage facility is restricted to the use of materials which are "Virgin Excavated Natural Materials" as defined in the *Protection of the Environment Operations Act 1997*, to the satisfaction of the Director-General. The Proponent must consult with the Council to identify the proposed alignment of the link road from Warra Warra Road to the Flinders Industrial Estate. Backfilling within the proposed alignment must use materials and a compaction standard suitable for the future construction of the link road, to the satisfaction of the Director-General.

*Note: the conceptual final landform is shown in Appendix 4.*

## HERITAGE

### Aboriginal Cultural Heritage Management Plan

30. The Proponent shall prepare and implement an Aboriginal Cultural Heritage Management Plan to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECCW and local Aboriginal communities;
  - (b) be submitted to the Director-General for approval prior to 30 June 2010; and
  - (c) include a description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the project.

## VISUAL

### Visual Amenity

31. The Proponent shall minimise the visual impacts of the project to the satisfaction of the Director-General.

## **WASTE MANGEMENT**

### **Waste Minimisation**

32. The Proponent shall minimise the amount of waste generated by the project to the satisfaction of the Director-General.

## **TRAFFIC AND TRANSPORT**

33. The Proponent shall make a monetary contribution of \$174,000 to the RTA for the construction of the following elements of the proposed Princes Highway upgrade between Central Avenue and Warra Warra Road:
- the central median for a length of 60m; and
  - a left turn deceleration lane on the southbound approach to the quarry access road.
34. The Proponent shall pay the monetary contribution required by condition 33 according to the following schedule:
- (a) \$54,000 paid prior to 30 June 2010; and
  - (b) \$40,000 paid prior to 30 June in each of the years 2011, 2012 and 2013,
- unless the RTA commences the proposed upgrade prior to the completion of these payments, in which case any remainder of the contribution not yet paid is payable immediately.
35. The Proponent shall upgrade the access to the development and land shall be dedicated generally in accordance with the RTA's preliminary concept design (see Appendix 5) to ensure the access accommodates swept paths for B-doubles and the future Princes Highway alignment, prior to the completion of the proposed Princes Highway upgrade and to the satisfaction of the RTA.

### **Road Haulage**

36. The Proponent shall ensure that:
- (a) all loaded vehicles entering or leaving the site are covered;
  - (b) all loaded vehicles leaving the site are cleaned of materials that may fall on the road, before they leave the site; and
  - (c) a truck wheel wash facility is constructed on the site prior to 30 June 2010, to the satisfaction of the Director-General.

## **EMERGENCY AND HAZARDS MANAGEMENT**

### **Dangerous Goods**

37. The Proponent shall ensure that the storage, handling, and transport of fuels and dangerous goods are conducted in accordance with the relevant *Australian Standards*, particularly AS1940 and AS1596, and the *Dangerous Goods Code*.

### **Safety**

38. The Proponent shall secure the project to ensure public safety to the satisfaction of the Director-General.

### **Bushfire Management**

39. The Proponent shall:
- (a) ensure that the project is suitably equipped to respond to any fires on-site; and
  - (b) assist the rural fire service and emergency services, if safe to do so, if there is a fire on-site.

## **PRODUCTION DATA**

40. The Proponent shall:
- (a) provide annual production data to the DII using the standard form for that purpose; and
  - (b) include a copy of this data in the AEMR.

## SCHEDULE 4 ADDITIONAL PROCEDURES

### NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria, then the Proponent shall notify the Director-General and affected landowners and tenants, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the relevant criteria.

### INDEPENDENT REVIEW

2. If a landowner of privately-owned land considers that the project is exceeding any of the impact assessment criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.

If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 3 months of the Director-General advising that an independent review is warranted:

- (a) consult with the landowner to determine his/her concerns;
  - (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to determine whether the project is complying with the relevant criteria in schedule 3, and identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and
  - (c) give the Director-General and landowner a copy of the independent review.
3. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.
  4. If the independent review determines that the project is not complying with the relevant criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:
    - (a) implement all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria; and
    - (b) conduct further monitoring to determine whether these measures ensure compliance; or
    - (c) secure a written agreement with the landowner to allow exceedances of the relevant criteria in schedule 3,to the satisfaction of the Director-General.

If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in schedule 3, or the Proponent and landowner enter into a negotiated agreement to allow these exceedances, then the Proponent may discontinue the independent review with the approval of the Director-General.

5. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the Director-General for resolution.

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 6).

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**SCHEDULE 5**  
**ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING**

**ENVIRONMENTAL MANAGEMENT STRATEGY**

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
  - (a) be submitted to the Director-General for approval by 30 June 2010;
  - (b) provide the strategic framework for environmental management of the project;
  - (c) identify the statutory approvals that apply to the project;
  - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
  - (e) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
    - receive, handle, respond to, and record complaints;
    - resolve any disputes that may arise during the course of the project;
    - respond to any non-compliance; and
    - respond to emergencies; and
  - (f) include:
    - copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and
    - a clear plan depicting all the monitoring currently being carried out within the project area.

**INCIDENT REPORTING**

2. Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) material harm to the environment, the Proponent shall notify the Department and other relevant agencies of the exceedance/incident.
3. Within 6 days of notifying the Department and other relevant agencies of an exceedance/incident, the Proponent shall provide the Department and these agencies with a written report that must:
  - (a) describe the date, time, and nature of the exceedance/incident;
  - (b) identify the cause (or likely cause) of the exceedance/incident;
  - (c) describe what action has been taken to date; and
  - (d) describe the proposed measures to address the exceedance/incident.

**ANNUAL REPORTING**

4. Within 12 months of the date of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and relevant agencies. This report must:
  - (a) identify the standards and performance measures that apply to the project;
  - (b) describe the works carried out in the last 12 months, and the works that will be carried out in the next 12 months;
  - (c) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
  - (d) include a summary of the monitoring results for the project during the past year;
  - (e) include an analysis of these monitoring results against the relevant:
    - impact assessment criteria/limits;
    - monitoring results from previous years; and
    - predictions in the EA;
  - (f) identify any trends in the monitoring results over the life of the project;
  - (g) identify any non-compliance during the previous year; and
  - (h) describe what actions were, or are being, taken to ensure compliance.

## INDEPENDENT ENVIRONMENTAL AUDIT

5. Within 3 years of the date of this approval, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
  - (a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been approved by the Director-General;
  - (b) assess the environmental performance of the project, and its effects on the surrounding environment;
  - (c) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;
  - (d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
  - (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.
6. Within 1 month of completion of each Independent Environmental Audit, the Proponent shall submit a copy of the audit report to the Director-General and relevant agencies, with a response to any of the recommendations in the audit report.
7. Within 3 months of submitting a copy of the audit report to the Director-General, the Proponent shall review and if necessary revise the:
  - (a) strategies/plans/programs required under this approval; and
  - (b) rehabilitation bond, to consider the:
    - effects of inflation;
    - changes to the total area of disturbance; and
    - performance of the rehabilitation against the completion criteria of the Landscape and Biodiversity Management Plan.to the satisfaction of the Director-General.

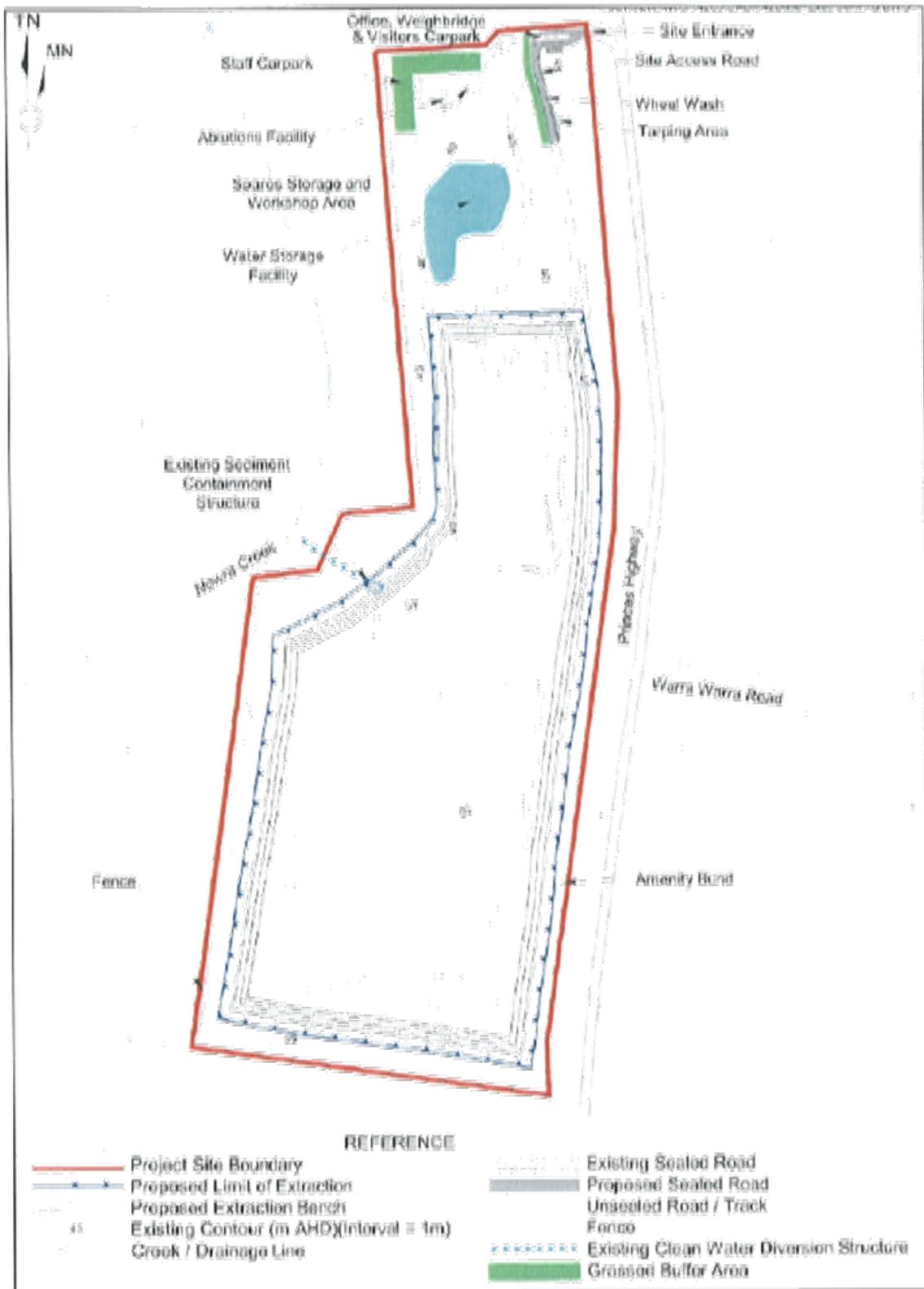
## COMMUNITY CONSULTATIVE COMMITTEE

8. Within 3 months of the commencement of quarrying operations, the Proponent shall establish a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in accordance with the Department's *Guideline for Establishing and Operating Community Consultative Committees for Mining Projects*.

## ACCESS TO INFORMATION

9. Within 1 month of the approval of any strategies/plans/programs required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMR required under this approval, the Proponent shall:
  - (a) provide a copy of the relevant document/s to the relevant agencies and to members of the general public upon request; and
  - (b) ensure that a copy of the relevant document/s is made publicly available on its website and at the site.
10. During the project, the Proponent shall:
  - (a) make a summary of monitoring results required under this approval publicly available on its website; and
  - (b) update these results on a regular basis (at least every 6 months).

## APPENDIX 1 PROJECT MAP



**APPENDIX 2**  
**STATEMENT OF COMMITMENTS**  
**Final Statement of Commitments for the Nowra Brickworks Quarry**

Page 1 of 10

Desired Outcome	Action	Timing
<b>1. Environmental Management</b>		
Compliance with all conditional requirements in all approvals, licences and leases.	<p>1.1 Comply with all commitments recorded in Table 5.1</p> <p>1.2 Comply with all conditional requirements included in the:</p> <p>Project Approval;</p> <p>Environment Protection Licence;</p> <p>Mining Leases; and</p> <p>any other approvals.</p>	Continuous and as required.
All operations conducted in accordance with all relevant documentation.	<p>1.3 Undertake all activities in accordance with the accepted Mining Operations Plan, environmental procedures, safety management plan and/or site-specific documentation.</p> <p>1.4 provide annual production data to DPI</p>	Continuous and as required.
<b>2. Area of Activities</b>		
All approved activities are undertaken generally in the location(s) nominated on the figures shown in Sections 2 and 4.	2.1 Mark, and where appropriate, survey the boundaries of the areas of proposed disturbance.	Prior to the commencement of the relevant activity.
<b>3. Hours of Operation</b>		
All operations are undertaken within the approved operating hours.	<p>3.1 Extraction, processing and VENM backfilling-related activities.</p> <ul style="list-style-type: none"> <li>• 7:00am to 6:00pm, Monday to Friday.</li> <li>• 7:00am to 4:00pm, Saturday</li> </ul> <p>3.2 Product despatch.</p> <ul style="list-style-type: none"> <li>• 7:00am to 6:00pm, Monday to Saturday.</li> <li>• Up to three unladen trucks would arrive at the Project Site between 6:00am and 7:00am, Monday to Saturday and may return to the Project Site between 6:00pm and 8:00pm, Monday to Friday and between 4:00pm and 6:00pm Saturday.</li> <li>•</li> </ul> <p>3.3 Maintenance-related activities</p> <ul style="list-style-type: none"> <li>• 7:00am to 6:00pm, Monday to Saturday.</li> </ul>	Continuous

(Cont'd)  
Statement of Commitments for the Nowra Brickworks Quarry

Page 2 of 10

Desired Outcome	Action	Timing
<b>4. Hydrology (Surface Water and Groundwater)</b>		
All surface water and ground water managed such that water to be discharged from the Project Site complies with all assessment criteria	4.1 Maintain and progressively relocate the existing surface water diversion and sediment containment structures.	As required
	4.2 Construct, maintain and relocate, as required, surface water diversion structures to ensure that all surface water flows within disturbed sections of the Project Site are directed to the extraction area. The maximum catchment area would be required to be less than 5.9ha. To achieve this, the Proponent would ensure that progressive rehabilitation is undertaken as soon as practicable on sections of the Project Site no longer required for extraction-related operations.	
	4.3 Construct temporary surface water diversion structures on the upslope side of all soil stockpiles or other disturbed areas to limit erosion.	
	4.4 Install sediment fencing adjacent to the down-slope toe of all soil stockpiles or other disturbed areas.	
	4.5 Regularly inspect all surface water and sediment control structures for adequacy and repair or upgrade, where required.	Six monthly and following significant rainfall events
	4.6 Install and maintain a suitably sized sump within the active extraction area to collect all surface water runoff and groundwater inflows to the extraction area.	Following receipt of project approval
	4.7 Preferentially use water within the extraction area sump for dust suppression-related activities. Surplus water within the extraction area sump would be pumped to the water storage facility.	As required
	4.8 Preferentially use water within the water storage facility for rehabilitation-related activities or for irrigation within the irrigation area.	
	4.9 Construct 'grassed buffer areas' adjacent to the site access road and other sealed sections of the Project Site.	Within 6 months of receipt of project approval

(Cont'd)  
Statement of Commitments for the Nowra Brickworks Quarry

Page 3 of 10

Desired Outcome	Action	Timing
<b>5. Ecology</b>		
Minimise Project-related impacts on flora and fauna within and surrounding the Project Site.	5.1 Stage extraction activities such that they preferentially progress from disturbed sections of the Project Site to undisturbed sections.	Continuous
	5.2 Remove native vegetation only from those areas required for operational purposes during the subsequent 12 months.	
	5.3 Mark hollow-bearing trees to ensure they are readily identifiable.	
	5.4 Mark the boundaries of areas of native vegetation to be cleared.	Prior to clearing operations
	5.5 Erect cage traps in the vicinity of hollow-bearing trees for three consecutive nights.	
	5.6 Keep any trapped animal in captivity by animal for the period of clearing of native vegetation.	During clearing operations
	5.7 Clear non-hollow-bearing trees before clearing other vegetation.	During clearing operations
	5.8 Ensure a qualified fauna consultant is present during clearing of hollow-bearing trees.	
	5.9 Release any trapped animal adjacent to the Project Site.	Following clearing operations
	5.10 Break or cut cleared vegetation into manageable sections to be placed on areas undergoing rehabilitation or within other areas of native vegetation surrounding the Project Site.	Following clearing operations
	5.11 Undertake weed control programs within the Project Site.	Annually
	5.12 Strip, stockpile and spread topsoil and subsoil in accordance with Section 2.3.5.	During soil stripping programs
	5.13 Progressively rehabilitate all areas of disturbance no longer required for extraction or placement activities.	Following completion of extraction operations
	5.14 Implement the proposed biodiversity offset strategy	

(Cont'd)

**Statement of Commitments for the Nowra Brickworks Quarry**

Page 4 of 10

Desired Outcome	Action	Timing
<b>6. Traffic and Transportation</b>		
Limit the impact of Project-related traffic	6.1. Adhere to the approved hours of operation.	Continuous
	6.2. Adhere to all speed limits.	
Allow concerned residents or motorists to report any traffic-related incidents, unsafe operation or general concerns.	6.3. Establish a complaints register, advertised in the local telephone directory.	On receipt of project approval
	6.4. Investigate all complaints and act decisively on substantiated incidents.	
Ensure all weight restrictions are adhered to	6.5. Weigh all entering and exiting laden trucks.	Continuous
Limit the tracking of material onto the Princes Highway to minimise dust, particulate matter and debris emissions.	6.6. Seal a 150m section of the site access road from the entrance gate and construct a wheel wash facility.	Prior to the amount of quarry products despatched from the Project Site exceeding 250 000t per year
	6.7. Ensure all loads are covered.	Continuous
	6.8. Provide a safe area for covering loads.	
Ensure all drivers adhere to the Projects Code of Conduct	6.9. Require all truck drivers to sign a Driver's Code of Conduct.	Prior to each driver leaving site for the first time
<b>7. Air Quality</b>		
Site activities are undertaken without exceeding DECC air quality criteria or goals.	7.1. Utilise water sprays and water trucks in all areas of potential dust lift-off to minimise potential dust emissions.	Continuous
	7.2. Utilise a chemical dust lift-off suppression system along unsealed roads, tracks and working areas, as well as with the mobile processing plant(s).	
	7.3. Utilise efficient mist sprays and wind sheltering equipment on processing equipment.	
	7.4. Maintain a maximum speed limit within the Project Site of 10km/h.	
	7.5. Stabilise the unsealed shoulders of the site access road.	Prior to the amount of quarry products despatched from the Project Site exceeding 250 000t per year
	7.6. Install a wheel wash on the site access road to limit tracking of material onto the Princes Highway	
	7.7. Disturb only the minimum area required for operation of the quarry during the subsequent 12 months.	Continuous
	7.8. Stabilise soil stockpiles to be in place for more than 10 days through the application of cleared vegetation, hydroseeding, hydromulching or equivalent.	Following soil stripping activities

(Cont'd)

Statement of Commitments for the Nowra Brickworks Quarry

Page 5 of 10

Desired Outcome	Action	Timing
<b>7. Air Quality (Cont'd)</b>		
Site activities are undertaken without exceeding DECC air quality criteria or goals. (Cont'd)	7.9. Minimise the creation of minor roads and access tracks.	Continuous
	7.10. Utilise dust aprons, dust extraction systems and/or water injection or sprays during drilling operations.	During drilling operations
	7.11. Adequately stem all blast holes with aggregates.	During blasting operations
	7.12. Commence rehabilitation as soon as practicable.	Once an area is no longer required for extraction or placement-related operations
<b>8. Noise</b>		
Project-related noise impacts on surrounding residences minimised.	8.1. Adhere to the approved hours of operation.	Continuous
	8.2. Use noise-mitigated mobile and processing equipment.	
	8.3. Undertake all processing operations within the deepest section of the quarry.	
	8.4. Maintain all mobile and processing equipment in accordance with the manufacturer's specifications.	
	8.5. Preferential selection of equipment with lower sound power levels over equipment with higher sound power levels.	As equipment renewal is required
	8.6. Progressively install frequency modulated reversing alarms on mobile equipment.	
<b>9. Blasting</b>		
Project-related blasting impacts within assessment guidelines.	9.1. Design and implement blasts by a suitably qualified blasting engineer and experienced shot-firer.	Each blast
	9.2. Design blasts to ensure the assessment criteria described in Section 4.7.4.5 are complied with at all residential and commercial receivers.	
	9.3. Modify blast designs, mitigation measures and operating procedures on the basis of monitoring results.	As required
	9.4. Limit blasting operations to between the hours of 9:00am and 4:00pm, Monday to Saturday.	Each blast
	9.5. Negotiate an appropriate arrangement with the owner of Residence A.	Prior to completion of Stage 1 of the Project

(Cont'd)

Statement of Commitments for the Nowra Brickworks Quarry

Page 6 of 10

Desired Outcome	Action	Timing
<b>9. Blasting (Cont'd)</b>		
Project-related blasting impacts within assessment guidelines. (Cont'd)	9.6. Notify the following organisations verbally of each blast. <ul style="list-style-type: none"><li>▪ Shoalhaven City Council.</li><li>▪ NSW Police.</li><li>▪ NSW Roads and Traffic Authority.</li><li>▪ The owner of Residence A.</li><li>▪ Environment Protection Authority.</li><li>▪ The South Coast Correctional Facility (when constructed).</li></ul>	On the working day prior to the blast being initiated
	9.7. Maintain the existing main telephone number (02 4421 7766) for the quarry as an environmental complaints line.	Continuous
	9.8. Maintain a register of complaints.	
	9.9. Respond promptly to any issue of concern.	
<b>10. Aboriginal Cultural Heritage</b>		
Unidentified Aboriginal sites are not disturbed by the Proponent's activities.	10.1. Ensure representatives of the Aboriginal community are present during activities that would disturb the upper 10cm of soil in the area marked on <b>Figure 5.1</b> .	During soil stripping operations in the area indicated
	10.2. Cease all work in the event that an item of suspected Aboriginal cultural heritage is discovered, establish a 20m x 20m buffer around the item and consult with the Department of Environment, Climate Change and Water.	As required
	10.3. Cease all work in the event that suspected human remains are discovered, establish a 50m x 50m buffer around the item(s) and consult with NSW Police and the Department of Environment, Climate Change and Water.	As required
<b>11. Soils</b>		
The Proponent's activities do not result in soil degradation or loss.	11.1. Strip soils only when they are moist.	During soil stripping operations
	11.2. Strip topsoils using a scraper, excavator or bulldozer to a depth of between 180mm and 250mm below the surface.	
	11.3. Strip subsoils to a depth of between 175mm and 500mm below the base of the topsoil.	
	11.4. Place soils directly on areas undergoing progressive rehabilitation, where practicable.	During rehabilitation operations

(Cont'd)

Statement of Commitments for the Nowra Brickworks Quarry

Page 7 of 10

Desired Outcome	Action	Timing
<b>11. Soils (Cont'd)</b>		
The Proponent's activities do not result in soil degradation or loss. (Cont'd)	11.5. Place Virgin Excavated Natural Material (VENM) in the manner described in Section 2.9.5.	During VENM placement operations
	11.6. Place subsoil over the VENM to a thickness of approximately 250mm.	During soil placement operations
	11.7. Place topsoil to a thickness of approximately 200mm.	
	11.8. Apply biosolids to the topsoil at a rate of less than 20 dry tonnes per hectare.	
	11.9. Spread between 20mm to 40mm of mulched native vegetation, broken tree debris or bitumen sprayed straw mulch over the topsoil.	During soil stockpiling operations
	11.10. Locate soil stockpiles, where required, at least 2m from existing vegetation, areas of concentrated surface water flows, roads or other hazardous areas.	
	11.11. Construct soil stockpiles as low (less than 2m high), flat, elongated mounds with side slopes no greater than 1:3(V:H). Where practicable, topsoil stockpiles would be less than 1m high.	
	11.12. Stabilise stockpiles to be in place for more than 10 days through the application of mulched or broken vegetation, hydroseeding, hydromulching or equivalent.	During soil stockpiling operations
	11.13. Erect a sediment fence approximately 1m from the toe on the downslope side of soil stockpiles.	
	11.14. Use stockpiled soil material for rehabilitation-related operations within 6 months of being stockpiled.	Continuous
Ensure sediment-laden surface water is not permitted to flow off site.	11.15. Maintain and relocate an earth bank to divert all 'clean' surface water to a sediment retention structure and level spreader.	
	11.16. Divert all surface water flows from disturbed areas to the water storage facility where practicable.	
	11.17. Divert all other potentially sediment-laden surface water flows to a sump within the extraction area.	

(Cont'd)

Statement of Commitments for the Nowra Brickworks Quarry

Page 8 of 10

Desired Outcome	Action	Timing
<b>11. Soils (Cont'd)</b>		
Ensure sediment-laden surface water is not permitted to flow off site. (Cont'd)	11.18. Preferentially use water from the extraction area sump for dust suppression and watering of roads and other areas.	
	11.19. Construct a bio-infiltration facility in accordance with the specifications in Section 4.9.3.	Prior to discharge of surface water to Nowra Creek
	11.20. Preferentially use water within the water storage facility for rehabilitation-related activities.	Continuous
	11.21. Pump excess water from the extraction area sump to the water storage facility.	As required
	11.22. Pump water from the water storage facility to a bio-infiltration facility when the concentration of total suspended solids within the water storage facility is less than 50mg/L.	
	11.23. Pump water from the bio-infiltration facility to Nowra Creek.	
<b>12. Visibility</b>		
Limit impacts to the visual amenity of the area surrounding the Project Site.	12.1. Maintain the existing perimeter bunds.	Continuous
	12.2. Maintain the existing mature trees on the eastern boundary of the Project Site.	
	12.3. Adopt a high standard of house keeping.	
<b>13. Socio-Economic</b>		
Ensure Project-related adverse impacts are minimised and benefits are maximised.	13.1. Give preference to suppliers of equipment, services or consumables located within the Shoalhaven Local Government Area or Illawarra Region, where ever practicable.	Continuous
	13.2. Give preference, where reasonable to do so, when engaging new employees to candidates who live within the Shoalhaven Local Government Area.	
	13.3. Continue to support local junior sporting clubs through sponsorship or in kind support.	
	13.4. Review any request by a community organisation for support or assistance during the life of the Project.	As required

(Cont'd)

Statement of Commitments for the Nowra Brickworks Quarry

Page 9 of 10

Desired Outcome	Action	Timing
<b>13. Socio-Economic (Cont'd)</b>		
Ensure Project-related adverse impacts are minimised and benefits are maximised. (Cont'd)	13.5. Consult with the residents and community surrounding the Project Site.	Continuous
	13.6. Advertise and maintain a community complaints telephone line.	
	13.7. Develop and maintain a Complaints Management Plan to ensure prompt response to issues identified by the public.	
<b>14. Environmental Monitoring</b>		
Ongoing monitoring of surface and groundwater-related impacts.	14.1. Monitor groundwater levels within Piezometers P1 to P8 ( <b>Figure 5.1</b> ).	Monthly.
	14.2. Monitor and record groundwater quality within piezometers P2, P3, P5, P6 and P7 ( <b>Figure 5.1</b> ).	Quarterly
	14.3. Monitor and record groundwater seepage on rock faces. To be undertaken by a geotechnical engineer.	Six monthly
	14.4. Monitor and record surface water quality within the extraction area sump, the water storage facility, the sediment containment structure and within Nowra Creek upstream and downstream of the Project-site discharge point.	Monthly
	14.5. Determine and record the quality of water pumped from the water storage facility to the bio-infiltration facility.	During each pumping campaign
	14.6. Determine and record the quality of water discharged from the bio-infiltration facility to Nowra Creek.	
	14.7. Determine and record the quality of water flowing from the sediment containment structure to Nowra Creek.	During or immediately following significant rainfall events
	14.8. Determine, using in-line meters, and record the volumes of water pumped: <ul style="list-style-type: none"><li>• from the extraction area sump to the water storage facility;</li><li>• from the water storage facility to the bio-infiltration facility; and</li><li>• from the bio-infiltration facility to Nowra Creek.</li></ul>	During pumping programs

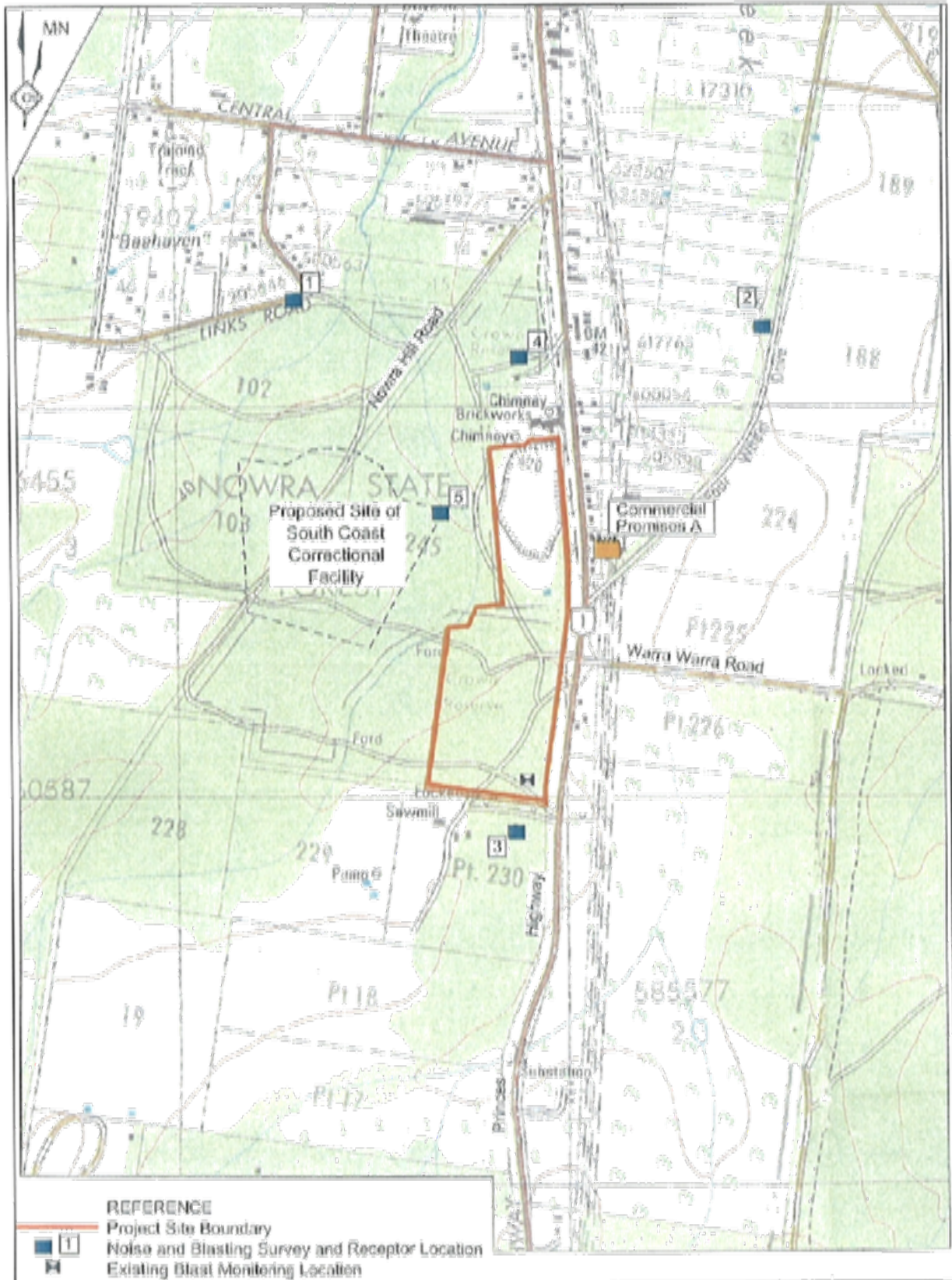
(Cont'd)

## Statement of Commitments for the Nowra Brickworks Quarry

Page 10 of 10

Desired Outcome	Action	Timing
<b>14. Environmental Monitoring (Cont'd)</b>		
Ongoing monitoring of surface and groundwater-related impacts. (Cont'd)	14.9. Determine and record the volume of water used for extraction, processing, placement and rehabilitation-related operations.	Daily
Ongoing monitoring of ecology-related impacts.	14.10. Undertake regular monitoring of areas undergoing rehabilitation to determine the success or otherwise of the management, mitigation and ameliorative measures and the rehabilitation programs.	Six monthly
	14.11. Take photographs from fixed points to document activities within the Project Site, including rehabilitation progress.	Six monthly
	14.12. Undertake weed inspection programs.	Annually
Ongoing monitoring of air quality-related impacts.	14.13. Maintain the existing network of deposited dust monitoring gauges and determine and record dust deposition rates.	Monthly
	14.14. Establish a meteorological station capable of measuring temperature at the surface and at a height of 10m, wind direction and speed and rainfall.	Within 3 months of receipt of project approval
Ongoing monitoring of blasting-related impacts.	14.15. Monitor all blasts at the blast monitoring locations indicated on <b>Figure 5.1</b> .	Each blast
<b>15. Environmental Documentation</b>		
A systematic set of documents are in place to guide the planning and implementation of all environmental management strategies.	15.1. Incorporate the environmental procedures in an on-site management system.	Prior to relevant activity.
	15.2. Update the Mining Operations Plan.	As required.
	15.3. Incorporate relevant environmental data / information in Annual Environmental Management Reports.	Annually.
	15.4. Prepare the following environmental plans for the Project. <ul style="list-style-type: none"> <li>- Air Quality Monitoring Program.</li> <li>- Noise Monitoring Program.</li> <li>- Blast Monitoring Program.</li> <li>- Flora and Fauna Management Plan.</li> <li>- Site Water Management Plan.</li> <li>- Groundwater Management Plan.</li> <li>- Rehabilitation and Landscape Management Plan</li> </ul>	Variously.
	15.5. Incorporate the environmental procedures in an on-site management system.	Prior to relevant activity.

### APPENDIX 3 NOISE AND DUST MONITORING LOCATIONS



## APPENDIX 4 CONCEPTUAL FINAL LANDFORM



BOUNDARY

POWER POLE

TRUCKS TURN FROM DECELERATION LANE

POWER POLE

QUARRY ACCESS - OPTION 2

NOTES

- ADDITIONAL PAVEMENT AREA = 315m<sup>2</sup>
- ADDITIONAL PROPERTY ACQUISITION = 125m<sup>2</sup>
- RELOCATE POWER POLE

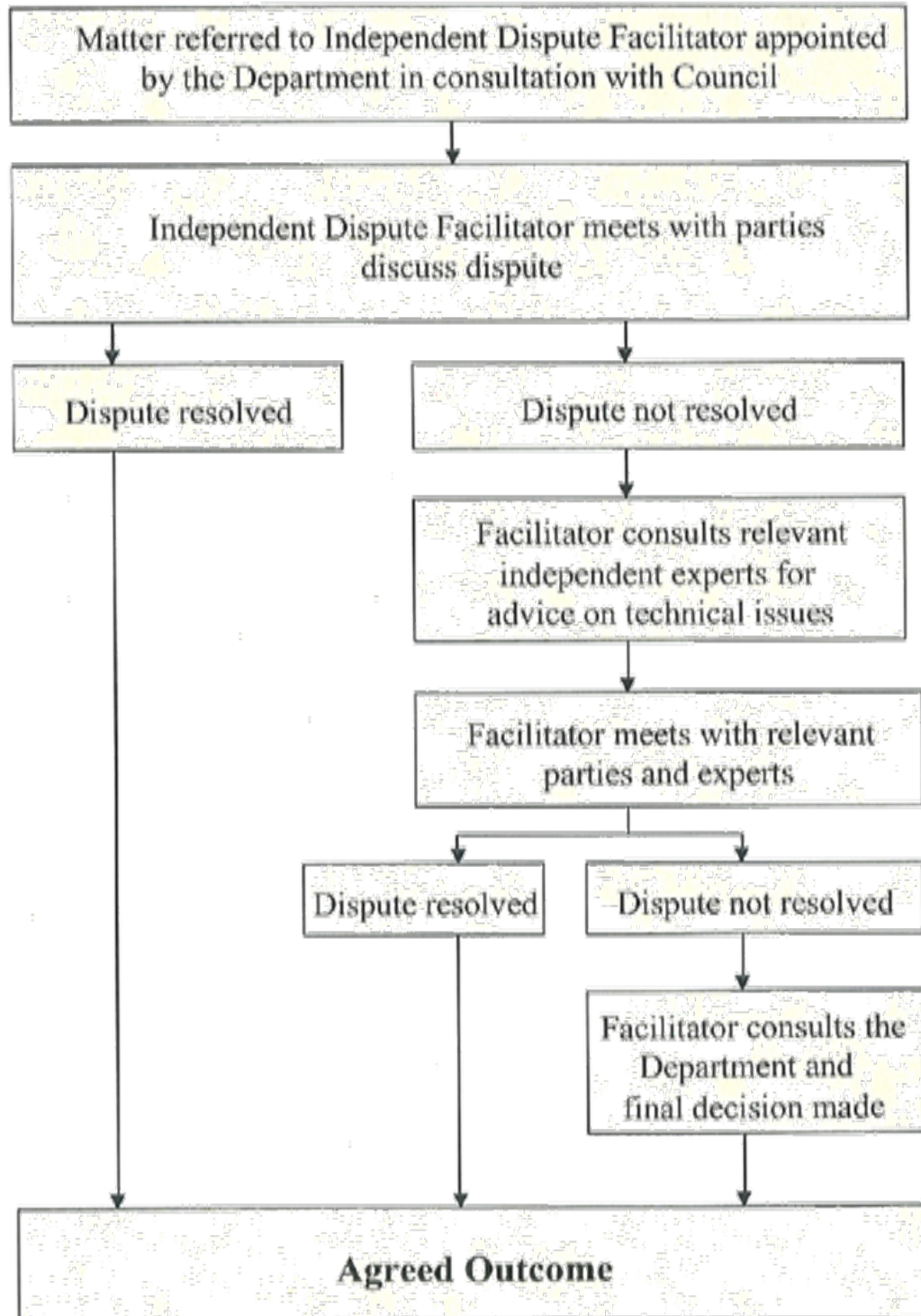
HW1 - PRINCES HIGHWAY UPGRADE  
SOUTH NOWRA  
PRELIMINARY CONCEPT DESIGN

30 May 2009

0 10 20 30 40 50 60  
METRE

APPENDIX 6  
INDEPENDENT DISPUTE RESOLUTION PROCESS

**Independent Dispute Resolution Process  
(Indicative only)**



## APPENDIX C – CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

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### ***Shoalhaven Local Environmental Plan 1985***

Under the current LEP the land to which the project applies is zoned 1(b) – Rural Arterial and Main Road Protection, with a small section zoned 1(f) – Forest. Extractive industries are permissible in both zones, subject to consent.

### ***Draft Shoalhaven Local Environmental Plan 2009***

The Draft LEP proposes to re-zone land contained in ML5087 as IN2 – Light Industrial and land contained in ML 6322 as E2 – Environmental Conservation. This may impact on the permissibility of the project, as the E2 zoning would prohibit extractive industry.

### ***State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)***

Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of extractive industries, including:

- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

The Department has considered these matters in its assessment report. Based on this assessment, the Department is satisfied that the project is able to be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

### ***State Environmental Planning Policy (Infrastructure) 2007***

In accordance with clause 104 of the Infrastructure SEPP (and equivalent provisions of the now repealed SEPP 11 *Traffic Generating Developments*), the application was referred to the RTA. Issues raised by the RTA and related traffic impacts are discussed in section 4.3.

### ***State Environmental Planning Policy No. 33 - Hazardous and Offensive Development (SEPP 33)***

SEPP 33 aims to identify proposals with the potential for significant offsite impacts, in terms of risk and/ or offence (odour, noise etc) to people, property or the environment. The Department is satisfied that the project is not potentially hazardous or offensive, and that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

### ***State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)***

SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application. Clause 7 of SEPP 55 states that:

- 7(1) A consent authority must not consent to the carrying out of any development on land unless:
- (a) it has considered whether the land is contaminated, and
  - (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
  - (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The Department is satisfied that existing land contamination is not a significant issue for the site.

## **Air Quality Monitoring**

**The Air Quality is tested in accordance with the Instrument of Approval. This monitoring is carried out by means of Dust Deposition Gauges and Hi-volume Air Samplers recording particulate matter of an Equivalent Aerodynamic Diameter of 10 microns or less (PM10) and Total Suspended Particulate Matter (TSP).**

**The results of these tests are analysed by ALS Group, a NATA accredited laboratory for environmental monitoring.**

**At no time during this reporting period have the maximum allowable levels been exceeded.**

**Below are the results of this monitoring.**

## **DDG Monitoring Results**

**Dust Deposition Gauges were placed within the quarry area and monitored on a monthly basis.**

**At no time did the dust collection results, exceed the limits set out in the above Approval.**



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1001047</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brick Works	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 03-DEC-2010
C-O-C number	: ----	Issue Date	: 15-DEC-2010
Sampler	: BT	No. of samples received	: 4
Site	: ----	No. of samples analysed	: 4
Quote number	: SY/466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

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*Signatories*

Peter Keyte

*Position*

Newcastle Manager

*Accreditation Category*

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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- Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m<sup>2</sup>.mth.



## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				01-DEC-2010 15:00	01-DEC-2010 15:00	01-DEC-2010 15:00	01-DEC-2010 15:00	----
Compound	CAS Number	LOR	Unit	EW1001047-001	EW1001047-002	EW1001047-003	EW1001047-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	1.9	1.7	1.0	1.8	----
Ash Content (mg)	----	1	mg	31	29	17	30	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.9	1.1	0.6	0.9	----
Combustible Matter (mg)	----	1	mg	16	19	10	16	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	2.8	2.9	1.6	2.7	----
Total Insoluble Matter (mg)	----	1	mg	47	48	27	46	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1100656</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Sth Nowra	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-FEB-2011
Sampler	: BT	Issue Date	: 03-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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Peter Keyte

Newcastle Manager

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## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				14-FEB-2011 15:00	14-FEB-2011 15:00	14-FEB-2011 15:00	14-FEB-2011 15:00	----
Compound	CAS Number	LOR	Unit	EW1100656-001	EW1100656-002	EW1100656-003	EW1100656-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	3.9	1.3	0.8	0.6	----
Ash Content (mg)	----	1	mg	73	24	16	12	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	7.6	1.6	0.9	0.7	----
Combustible Matter (mg)	----	1	mg	144	31	16	13	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	11.5	2.9	1.7	1.3	----
Total Insoluble Matter (mg)	----	1	mg	217	55	32	25	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1101028	Page	: 1 of 3
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 25-MAR-2011
Sampler	: BT	Issue Date	: 31-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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Peter Keyte

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- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m<sup>2</sup>.mth. Period sampled: 16/02/2011 - 24/03/2011.**



## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG 1	DDG 2	DDG 3	DDG 4	----
				[24-MAR-2011]	[24-MAR-2011]	[24-MAR-2011]	[24-MAR-2011]	----
Compound	CAS Number	LOR	Unit	EW1101028-001	EW1101028-002	EW1101028-003	EW1101028-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	2.7	1.5	1.7	0.7	----
Ash Content (mg)	----	1	mg	58	31	35	14	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.5	0.2	0.3	0.5	----
Combustible Matter (mg)	----	1	mg	9	4	7	11	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	3.2	1.7	2.0	1.2	----
Total Insoluble Matter (mg)	----	1	mg	67	35	42	25	----



## Environmental Division

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Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 25-MAR-2011
Sampler	: BT	Issue Date	: 31-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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Peter Keyte

Newcastle Manager

Newcastle

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## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG 1	DDG 2	DDG 3	DDG 4	----
				[24-MAR-2011]	[24-MAR-2011]	[24-MAR-2011]	[24-MAR-2011]	----
Compound	CAS Number	LOR	Unit	EW1101028-001	EW1101028-002	EW1101028-003	EW1101028-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	2.7	1.5	1.7	0.7	----
Ash Content (mg)	----	1	mg	58	31	35	14	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.5	0.2	0.3	0.5	----
Combustible Matter (mg)	----	1	mg	9	4	7	11	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	3.2	1.7	2.0	1.2	----
Total Insoluble Matter (mg)	----	1	mg	67	35	42	25	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101364</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brick Works	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 27-APR-2011
Sampler	: ----	Issue Date	: 09-MAY-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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Peter Keyte

Newcastle Manager

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- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m<sup>2</sup>.mth. Period sampled: 21/03/11 - 20/04/11.**



## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				20-APR-2011 15:00	20-APR-2011 15:00	20-APR-2011 15:00	20-APR-2011 15:00	----
Compound	CAS Number	LOR	Unit	EW1101364-001	EW1101364-002	EW1101364-003	EW1101364-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	0.2	0.8	1.4	5.8	----
Ash Content (mg)	----	1	mg	3	15	25	102	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	<0.1	0.3	0.2	0.8	----
Combustible Matter (mg)	----	1	mg	<1	4	3	14	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	0.2	1.1	1.6	6.6	----
Total Insoluble Matter (mg)	----	1	mg	3	19	28	116	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101655</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: South Nowra Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-MAY-2011
Sampler	: ----	Issue Date	: 02-JUN-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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*Accreditation Category*

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Newcastle Manager

Newcastle

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## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				[23-MAY-2011]	[23-MAY-2011]	[23-MAY-2011]	[23-MAY-2011]	----
Compound	CAS Number	LOR	Unit	EW1101655-001	EW1101655-002	EW1101655-003	EW1101655-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	0.4	0.6	0.9	1.2	----
Ash Content (mg)	----	1	mg	7	12	17	24	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	<0.1	<0.1	<0.1	0.3	----
Combustible Matter (mg)	----	1	mg	1	<1	<1	5	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	0.4	0.6	0.9	1.5	----
Total Insoluble Matter (mg)	----	1	mg	8	12	17	29	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102086</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: DUST AND WATER ANALYSIS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-JUL-2011
Sampler	: ----	Issue Date	: 22-JUL-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				20-JUN-2011 15:00	21-JUN-2011 15:00	21-JUN-2011 15:00	21-JUN-2011 15:00	----
Compound	CAS Number	LOR	Unit	EW1102086-001	EW1102086-002	EW1102086-003	EW1102086-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	0.5	1.4	0.7	0.8	----
Ash Content (mg)	----	1	mg	9	24	12	13	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.5	0.4	0.4	0.3	----
Combustible Matter (mg)	----	1	mg	7	6	6	6	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	1.0	1.8	1.1	1.1	----
Total Insoluble Matter (mg)	----	1	mg	16	30	18	19	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102225</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 28-JUL-2011
Sampler	: JG	Issue Date	: 03-AUG-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

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#### Signatories

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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m<sup>2</sup>.mth. Period sampled: 21/06/2011 - 26/07/2011.



## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG1	DDG2	DDG3	DDG4	----
				[26-JUL-2011]	[26-JUL-2011]	[26-JUL-2011]	[26-JUL-2011]	----
Compound	CAS Number	LOR	Unit	EW1102225-001	EW1102225-002	EW1102225-003	EW1102225-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	0.3	1.1	0.9	1.1	----
Ash Content (mg)	----	1	mg	6	22	18	23	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	<0.1	<0.1	<0.1	<0.1	----
Combustible Matter (mg)		1	mg	1	<1	<1	<1	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	0.3	1.1	0.9	1.1	----
Total Insoluble Matter (mg)	----	1	mg	7	22	18	23	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102543</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-AUG-2011
Sampler	: JG	Issue Date	: 05-SEP-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 4
		No. of samples analysed	: 4

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#### Signatories

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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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^ = This result is computed from individual analyte detections at or above the level of reporting

- Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client. Period sampled: 22/07/2011 - 19/08/2011.



## Analytical Results

Sub-Matrix: DUST

Client sample ID

Client sampling date / time

				DDG 1	DDG 2	DDG 3	DDG 4	----
				19-AUG-2011 15:00	19-AUG-2011 15:00	19-AUG-2011 15:00	19-AUG-2011 15:00	----
Compound	CAS Number	LOR	Unit	EW1102543-001	EW1102543-002	EW1102543-003	EW1102543-004	----
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	0.3	1.2	1.5	0.4	----
Ash Content (mg)	----	1	mg	5	20	24	6	----
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.1	0.1	<0.1	0.1	----
Combustible Matter (mg)	----	1	mg	2	2	1	3	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	0.4	1.3	1.5	0.5	----
Total Insoluble Matter (mg)	----	1	mg	7	22	25	9	----

## Hi-volume Sampling Results



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1001180	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 09-DEC-2010
Sampler	: ----	Issue Date	: 22-DEC-2010
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

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Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				PM10	TSP	Blank	----	----
				08-DEC-2010 15:00	08-DEC-2010 15:00	08-DEC-2010 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1001180-001	EW1001180-002	EW1001180-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates (mass per filter)				13.4	18.3	3.6	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1001290</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-DEC-2010
Sampler	: BT	Issue Date	: 30-DEC-2010
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	15-DEC-2010 15:00	15-DEC-2010 15:00	15-DEC-2010 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1001290-001	EW1001290-002	EW1001290-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates (mass per filter)		----	0.1	mg/filter	16.6	20.4	4.6	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1001371</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 23-DEC-2010
Sampler	: BT	Issue Date	: 31-DEC-2010
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	21-DEC-2010 15:00	21-DEC-2010 15:00	21-DEC-2010 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1001371-001	EW1001371-002	EW1001371-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates (mass per filter)		----	0.1	mg/filter	29.8	11.5	4.7	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1100168	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 18-JAN-2011
Sampler	: BT	Issue Date	: 27-JAN-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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*Signatories*

*Position*

*Accreditation Category*

Petro Holowinskyj

Senior Analyst

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				13-JAN-2011 15:00	13-JAN-2011 15:00	13-JAN-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1100168-001	EW1100168-002	EW1100168-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	24.0	14.5	1.5	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1100274</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-JAN-2011
Sampler	: BT	Issue Date	: 02-FEB-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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*Position*

*Accreditation Category*

Petro Holowinskyj

Senior Analyst

Newcastle

signatories indicated below. Electronic signing has been



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Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	21-JAN-2011 15:00	21-JAN-2011 15:00	21-JAN-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1100274-001	EW1100274-002	EW1100274-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates (mass per filter)		----	0.1	mg/filter	8.7	10.5	5.2	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1100411</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BRENDAN TITTERTON</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.titterton@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: ----</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 03-FEB-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 14-FEB-2011</b>
<b>Sampler</b>	<b>: BT</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: SY/466/10 V2</b>		

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Petro Holowinskyj	Senior Analyst	Newcastle

signatories indicated below. Electronic signing has been



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^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				27-JAN-2011 15:00	27-JAN-2011 15:00	27-JAN-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1100411-001	EW1100411-002	EW1100411-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	28.9	28.8	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	42.7	42.6	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1100592</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 21-FEB-2011
Sampler	: BT	Issue Date	: 25-FEB-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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Accredited for compliance with ISO/IEC 17025.

#### Signatories

This document has been electronically signed by the authorized carried out in compliance with procedures specified in 21 CFR

Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				PM10	TSP	BLANK	----	----
				10-FEB-2011 15:00	10-FEB-2011 15:00	10-FEB-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1100592-001	EW1100592-002	EW1100592-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	27.6	26.2	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	14.8	14.2	6.9	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1100647</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Sth Nowra	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-FEB-2011
Sampler	: BT	Issue Date	: 03-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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- Analytical Results



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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client. No atmospheric corrections used in calculation of  $\mu\text{g}/\text{m}^3$  results.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				[22-FEB-2011]	[22-FEB-2011]	[22-FEB-2011]	----	----
Compound	CAS Number	LOR	Unit	EW1100647-001	EW1100647-002	EW1100647-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	9.9	15.5	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	5.4	8.5	2.0	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1100869</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 15-MAR-2011
Sampler	: BT	Issue Date	: 23-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

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Page : 3 of 3  
 Work Order : EW1100869  
 Client : SCCR QUARRIES  
 Project : Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				PM10	TSP	Blank	----	----
				04-MAR-2011 15:00	04-MAR-2011 15:00	04-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1100869-001	EW1100869-002	EW1100869-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	18.2	21.5	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	16.2	19.1	3.6	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1100870	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 15-MAR-2011
Sampler	: BT	Issue Date	: 23-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				10-MAR-2011 15:00	10-MAR-2011 15:00	10-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1100870-001	EW1100870-002	EW1100870-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	22.0	25.4	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	19.9	23.0	2.5	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101029</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: <b>MR BRENDAN TITTERTON</b>	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 25-MAR-2011
Sampler	: BT	Issue Date	: 31-MAR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

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Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1101029-001	EW1101029-002	EW1101029-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		7.5	9.0	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		6.9	8.2	3.3	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1101095	Page	: 1 of 3
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Sth Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 04-APR-2011
Sampler	: BT	Issue Date	: 12-APR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

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*Signatories*

Peter Keyte

*Position*

Newcastle Manager

*Accreditation Category*

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**

Page : 3 of 3  
 Work Order : EW1101095  
 Client : SCCCC QUARRIES  
 Project : Sth Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				30-MAR-2011 15:00	30-MAR-2011 15:00	30-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101095-001	EW1101095-002	EW1101095-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	<b>10.2</b>	<b>12.8</b>	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	<b>9.3</b>	<b>11.6</b>	<b>5.2</b>	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1101095	Page	: 1 of 3
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Sth Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 04-APR-2011
Sampler	: BT	Issue Date	: 12-APR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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#### Signatories

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*Signatories*

Peter Keyte

*Position*

Newcastle Manager

*Accreditation Category*

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Page : 3 of 3  
 Work Order : EW1101095  
 Client : SCCCC QUARRIES  
 Project : Sth Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				30-MAR-2011 15:00	30-MAR-2011 15:00	30-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101095-001	EW1101095-002	EW1101095-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	<b>10.2</b>	<b>12.8</b>	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	<b>9.3</b>	<b>11.6</b>	<b>5.2</b>	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101218</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Bickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 08-APR-2011
Sampler	: BT	Issue Date	: 18-APR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**



Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	08-APR-2011 15:00	08-APR-2011 15:00	08-APR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1101218-001	EW1101218-002	EW1101218-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		12.0	8.3	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		10.9	7.5	5.8	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101292</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickwork Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 15-APR-2011
Sampler	: BG	Issue Date	: 28-APR-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				PM10	TSP	Blank	----	----
				13-APR-2011 15:00	13-APR-2011 15:00	13-APR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101292-001	EW1101292-002	EW1101292-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	22.3	53.9	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	12.1	21.7	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1101363</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brick Works</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 27-APR-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 04-MAY-2011</b>
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: SY/466/10 V2</b>		

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#### Signatories

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Peter Keyte	Newcastle Manager	Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.
- Sample #002 was returned with a corner missing.

Page : 3 of 3  
 Work Order : EW1101363  
 Client : SCCC QUARRIES  
 Project : Nowra Brick Works



## Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				20-APR-2011 15:00	20-APR-2011 15:00	20-APR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101363-001	EW1101363-002	EW1101363-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	18.4	<0.1	----	----	----
Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	----	----	<0.1	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	10.0	<0.1	0.3	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1101422</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brick Works</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 02-MAY-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 09-MAY-2011</b>
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: SY/466/10 V2</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized carried out in compliance with procedures specified in 21 CFR

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Peter Keyte	Newcastle Manager	Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client. No Atmospheric corrections used in calculation of  $\mu\text{g}/\text{m}^3$  results.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID	PM10	TSP	Blank		
				Client sampling date / time	28-APR-2011 15:00	28-APR-2011 15:00	28-APR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1101422-001	EW1101422-002	EW1101422-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		0.2	1.7	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		0.1	0.9	0.7	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101495</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brick Works	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-MAY-2011
Sampler	: ----	Issue Date	: 17-MAY-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**



Analytical Results

Sub-Matrix: AIR

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	05-MAY-2011 15:00	05-MAY-2011 15:00	05-MAY-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1101495-001	EW1101495-002	EW1101495-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		13.8	36.4	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		7.5	19.6	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1101495</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brick Works	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-MAY-2011
Sampler	: ----	Issue Date	: 17-MAY-2011
Site	: ----		
Quote number	: SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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#### Signatories

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*Signatories*

Peter Keyte

*Position*

Newcastle Manager

*Accreditation Category*

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: AIR

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	05-MAY-2011 15:00	05-MAY-2011 15:00	05-MAY-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1101495-001	EW1101495-002	EW1101495-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		13.8	36.4	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		7.5	19.6	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1101629</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brick works</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 20-MAY-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 30-MAY-2011</b>
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: SY/466/10 V2</b>		

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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	BLANK	----	----
				16-MAY-2011 15:00	16-MAY-2011 15:00	16-MAY-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101629-001	EW1101629-002	EW1101629-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	19.6	26.9	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	10.6	15.0	0.9	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1101714	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 01-JUN-2011
Sampler	: BG	Issue Date	: 09-JUN-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Page : 3 of 3  
 Work Order : EW1101714  
 Client : SCCR QUARRIES  
 Project : Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				26-MAY-2011 15:00	26-MAY-2011 15:00	26-MAY-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1101714-001	EW1101714-002	EW1101714-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	<b>20.2</b>	<b>21.0</b>	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	<b>10.7</b>	<b>11.2</b>	<b>2.7</b>	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1101866	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-JUN-2011
Sampler	: ----	Issue Date	: 22-JUN-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

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Page : 3 of 3  
 Work Order : EW1101866  
 Client : SCCR QUARRIES  
 Project : Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				09-JUN-2011 14:42	09-JUN-2011 14:30	09-JUN-2011 14:30	----	----
Compound	CAS Number	LOR	Unit	EW1101866-001	EW1101866-002	EW1101866-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	<b>10.7</b>	<b>10.6</b>	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	<b>5.8</b>	<b>5.7</b>	<b>2.0</b>	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1101901</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 21-JUN-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 29-JUN-2011</b>
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: HVAS SY/466/10 V2</b>		

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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				[17-JUN-2011]	[17-JUN-2011]	[17-JUN-2011]	----	----
Compound	CAS Number	LOR	Unit	EW1101901-001	EW1101901-002	EW1101901-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	7.8	41.5	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	4.2	22.1	1.5	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1101951</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 28-JUN-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 06-JUL-2011</b>
<b>Sampler</b>	<b>: J.G</b>	<b>No. of samples received</b>	<b>: 2</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 2</b>
<b>Quote number</b>	<b>: HVAS SY/466/10 V2</b>		

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Peter Keyte	Newcastle Manager	Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10			
				23-JUN-2011 14:15	23-JUN-2011 14:30	----	----	----
Compound	CAS Number	LOR	Unit	EW1101951-001	EW1101951-002	----	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	23.5	1.8	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	12.7	1.0	----	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102034</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 05-JUL-2011
Sampler	: J.G	Issue Date	: 13-JUL-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 2
		No. of samples analysed	: 2

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*Signatories*

*Position*

*Accreditation Category*

Petro Holowinskyj

Senior Analyst

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time	TSP	PM10		
					30-JUN-2011 15:00	30-JUN-2011 15:00		
Compound	CAS Number	LOR	Unit		EW1102034-001	EW1102034-002		
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³		15.8	12.2	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		8.4	6.6	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102110	Page	: 1 of 3
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 13-JUL-2011
Sampler	: J.G	Issue Date	: 22-JUL-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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#### Signatories

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Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				07-JUL-2011 15:00	07-JUL-2011 15:00	07-JUL-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102110-001	EW1102110-002	EW1102110-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	21.2	4.4	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	11.4	2.4	3.0	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102177	Page	: 1 of 3
Client	: SCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-JUL-2011
Sampler	: JG	Issue Date	: 28-JUL-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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*Signatories*

Peter Keyte

*Position*

Newcastle Manager

*Accreditation Category*

Newcastle

signatories indicated below. Electronic signing has been



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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				14-JUL-2011 15:00	14-JUL-2011 15:00	14-JUL-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102177-001	EW1102177-002	EW1102177-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	38.0	21.7	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	20.6	11.7	2.6	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1102239</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: MR BUDD GREEN</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>: PO Box 121 Oak Flats 2529</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: b.green@jbgcontractors.com.au</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 0421 235 308</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks Quarry</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 28-JUL-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 05-AUG-2011</b>
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: HVAS SY/466/10 V2</b>		

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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



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Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				21-JUL-2011 15:00	21-JUL-2011 15:00	21-JUL-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102239-001	EW1102239-002	EW1102239-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	4.5	9.7	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	2.4	5.2	2.7	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102302	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 02-AUG-2011
Sampler	: ----	Issue Date	: 10-AUG-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				28-JUL-2011 15:00	28-JUL-2011 15:00	28-JUL-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102302-001	EW1102302-002	EW1102302-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	5.2	5.2	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	2.8	2.8	2.5	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102464</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 17-AUG-2011
Sampler	: JG	Issue Date	: 24-AUG-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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ISO/IEC 17025.

#### Signatories

This document has been electronically signed by the  
authorized carried out in compliance with procedures specified in 21 CFR

Signatories

Position

Accreditation Category

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.
- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				04-AUG-2011 15:00	04-AUG-2011 15:00	04-AUG-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102464-001	EW1102464-002	EW1102464-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	20.7	16.9	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	11.2	9.1	0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102465	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 17-AUG-2011
Sampler	: JG	Issue Date	: 24-AUG-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 2
		No. of samples analysed	: 2

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

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*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time	TSP	Blank		
					11-AUG-2011 15:00	11-AUG-2011 15:00		
Compound	CAS Number	LOR	Unit		EW1102465-001	EW1102465-002		
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³		1.5	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		0.8	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102544</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-AUG-2011
Sampler	: JG	Issue Date	: 01-SEP-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 2
		No. of samples analysed	: 2

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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ISO/IEC 17025.

#### Signatories

This document has been electronically signed by the  
authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10			
				Client sampling date / time	19-AUG-2011 15:00	19-AUG-2011 15:00	----	----	----
Compound	CAS Number	LOR	Unit		EW1102544-001	EW1102544-002	----	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		15.1	<0.1	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		8.1	<0.1	----	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102602	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 26-AUG-2011
Sampler	: JG	Issue Date	: 07-SEP-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
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#### Signatories

This document has been electronically signed by the  
authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Petro Holowinskyj

Senior Analyst

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID				
				Client sampling date / time				
				TSP	PM10	Blank	----	----
				26-AUG-2011 15:00	26-AUG-2011 15:00	26-AUG-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102602-001	EW1102602-002	EW1102602-003	----	----
EA143: Total Suspended Particulates								
^ Total Suspended Particulates	----	0.1	µg/m³	29.0	17.9	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	15.5	9.7	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1102673</b>	Page	: 1 of 3
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 02-SEP-2011
Sampler	: ----	Issue Date	: 14-SEP-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the  
authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

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^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.
- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.

Page : 3 of 3  
 Work Order : EW1102673  
 Client : SCCR QUARRIES  
 Project : Nowra Brickworks



## Analytical Results

Sub-Matrix: **FILTER**

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				02-SEP-2011 15:00	02-SEP-2011 15:00	02-SEP-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1102673-001	EW1102673-002	EW1102673-003	----	----
<b>EA143: Total Suspended Particulates</b>								
^ Total Suspended Particulates	----	0.1	µg/m <sup>3</sup>	18.6	41.6	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	9.9	22.2	1.4	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1102903	Page	: 1 of 3
Client	: SCCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 28-SEP-2011
Sampler	: JG	Issue Date	: 05-OCT-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 3
		No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the  
authorized carried out in compliance with procedures specified in 21 CFR

*Signatories*

*Position*

*Accreditation Category*

Peter Keyte

Newcastle Manager

Newcastle

signatories indicated below. Electronic signing has been



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.



Analytical Results

Sub-Matrix: FILTER

				Client sample ID	TSP	PM10	Blank		
				Client sampling date / time	23-SEP-2011 15:00	23-SEP-2011 15:00	23-SEP-2011 15:00	----	----
Compound	CAS Number	LOR	Unit		EW1102903-001	EW1102903-002	EW1102903-003	----	----
EA143: Total Suspended Particulates									
^ Total Suspended Particulates	----	0.1	µg/m³		<0.1	<0.1	----	----	----
^ Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		<0.1	<0.1	<0.1	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>EW1103172</b>	Page	: 1 of 5
Client	: <b>SCCCR QUARRIES</b>	Laboratory	: Environmental Division NSW South Coast
Contact	: PKLAB	Contact	: Glenn Davies
Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA	E-mail	: glenn.davies@alsglobal.com
E-mail	: pk.lab@alsglobal.com	Telephone	: 02 4225 3125
Telephone	: ---	Facsimile	: 02 4225 3128
Facsimile	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Project	: Nowra Brickworks	Date Samples Received	: 24-OCT-2011
Order number	: ---	Issue Date	: 02-NOV-2011
C-O-C number	: ---	No. of samples received	: 11
Sampler	: JG	No. of samples analysed	: 11
Site	: ---		
Quote number	: HVAS SY/466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Peter Keyte	Newcastle Manager	Newcastle

Environmental Division NSW South Coast

99 Kenny Street, Wollongong 2500  
Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541  
Part of the **ALS Laboratory Group**

A Campbell Brothers Limited Company

---

## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key :            CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting  
                  ^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.**
- **Samples #010 and #011 were returned damaged.**

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	Blank	TSP/2
				20-OCT-2011 15:00	20-OCT-2011 15:00	20-OCT-2011 15:00	13-OCT-2011 15:00	13-OCT-2011 15:00
Compound	CAS Number	LOR	Unit	EW1103172-001	EW1103172-002	EW1103172-003	EW1103172-004	EW1103172-005
Total Suspended Particulates	----	0.1	µg/m³	28.8	73.0	----	----	21.4
Total Suspended Particulates	----	0.1	µg/m³	----	----	<0.1	<0.1	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	15.4	39.3	<0.1	<0.1	11.5

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	Blank	TSP/1	TSP/2	TSP/1
				14-OCT-2011 15:00	06-OCT-2011 15:00	06-OCT-2011 15:00	07-OCT-2011 15:00	29-SEP-2011 15:00
Compound	CAS Number	LOR	Unit	EW1103172-006	EW1103172-007	EW1103172-008	EW1103172-009	EW1103172-010
Total Suspended Particulates	----	0.1	µg/m³	16.2	----	15.0	14.0	<0.1
Total Suspended Particulates	----	0.1	µg/m³	----	<0.1	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.7	<0.1	8.1	7.5	<0.1

Analytical Results

Sub-Matrix: FILTER

Client sample ID Client sampling date / time				TSP 2	----	----	----	----
				30-SEP-2011 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1103172-011	----	----	----	----
Total Suspended Particulates	----	0.1	µg/m³	<0.1	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	<0.1	----	----	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: EW1103172	Page	: 1 of 5
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: PKLAB	Contact	: Glenn Davies
Address	:	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: pk.lab@alsglobal.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: ----	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-OCT-2011
Sampler	: JG	Issue Date	: 02-NOV-2011
Site	: ----		
Quote number	: HVAS SY/466/10 V2	No. of samples received	: 11
		No. of samples analysed	: 11

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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#### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Peter Keyte	Newcastle Manager	Newcastle

Environmental Division NSW South Coast

99 Kenny Street, Wollongong 2500  
Unit 4 / 13 Geary Place, PO Box 3105, North Nowra  
2541

Part of the **ALS Laboratory Group**

---

## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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                  ^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in  $\mu\text{g}/\text{m}^3$ . Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.**
- **Samples #010 and #011 were returned damaged.**

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	Blank	TSP/2
				20-OCT-2011 15:00	20-OCT-2011 15:00	20-OCT-2011 15:00	13-OCT-2011 15:00	13-OCT-2011 15:00
Compound	CAS Number	LOR	Unit	EW1103172-001	EW1103172-002	EW1103172-003	EW1103172-004	EW1103172-005
Total Suspended Particulates	----	0.1	µg/m³	28.8	73.0	----	----	21.4
Total Suspended Particulates	----	0.1	µg/m³	----	----	<0.1	<0.1	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	15.4	39.3	<0.1	<0.1	11.5

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	Blank	TSP/1	TSP/2	TSP/1
				14-OCT-2011 15:00	06-OCT-2011 15:00	06-OCT-2011 15:00	07-OCT-2011 15:00	29-SEP-2011 15:00
Compound	CAS Number	LOR	Unit	EW1103172-006	EW1103172-007	EW1103172-008	EW1103172-009	EW1103172-010
Total Suspended Particulates	----	0.1	µg/m³	16.2	----	15.0	14.0	<0.1
Total Suspended Particulates	----	0.1	µg/m³	----	<0.1	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.7	<0.1	8.1	7.5	<0.1

Analytical Results

Sub-Matrix: FILTER

				TSP 2	----	----	----	----
				30-SEP-2011 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1103172-011	----	----	----	----
Total Suspended Particulates		0.1	Client sample ID	<0.1	----	----	----	----
Total Suspended Particulates (mass per filter)		----	Client sampling bag filter	<0.1	----	----	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1103244</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: PKLAB</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>:</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: pk.lab@alsglobal.com</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: ----</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 28-OCT-2011</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 09-NOV-2011</b>
<b>Sampler</b>	<b>: JG</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Site</b>	<b>: ----</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: HVAS SY/466/10 V2</b>		

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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### Signatories

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Peter Keyte	Newcastle Manager	Newcastle

Environmental Division NSW South Coast

99 Kenny Street, Wollongong 2500  
Unit 4 / 13 Geary Place, PO Box 3105, North Nowra  
2541  
Part of the **ALS Laboratory Group**

---

## General Comments

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- **No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.**

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	Blank	----	----
				28-OCT-2011 15:00	28-OCT-2011 15:00	28-OCT-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	EW1103244-001	EW1103244-002	EW1103244-003	----	----
Total Suspended Particulates	----	0.1	µg/m³	12.2	7.6	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	6.5	4.1	1.7	----	----



## Environmental Division

### CERTIFICATE OF ANALYSIS

<b>Work Order</b>	<b>: EW1103384</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Client</b>	<b>: SCCCR QUARRIES</b>	<b>Laboratory</b>	<b>: Environmental Division NSW South Coast</b>
<b>Contact</b>	<b>: PKLAB</b>	<b>Contact</b>	<b>: Glenn Davies</b>
<b>Address</b>	<b>:</b>	<b>Address</b>	<b>: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</b>
<b>E-mail</b>	<b>: pk.lab@alsglobal.com</b>	<b>E-mail</b>	<b>: glenn.davies@alsglobal.com</b>
<b>Telephone</b>	<b>: ---</b>	<b>Telephone</b>	<b>: 02 4225 3125</b>
<b>Facsimile</b>	<b>: ---</b>	<b>Facsimile</b>	<b>: 02 4225 3128</b>
<b>Project</b>	<b>: Nowra Brickworks</b>	<b>QC Level</b>	<b>: NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Order number</b>	<b>: ---</b>	<b>Date Samples Received</b>	<b>: 09-NOV-2011</b>
<b>C-O-C number</b>	<b>: ---</b>	<b>Issue Date</b>	<b>: 17-NOV-2011</b>
<b>Sampler</b>	<b>: ---</b>	<b>No. of samples received</b>	<b>: 2</b>
<b>Site</b>	<b>: ---</b>	<b>No. of samples analysed</b>	<b>: 2</b>
<b>Quote number</b>	<b>: HVAS SY/466/10 V2</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

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- Analytical Results



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### Signatories

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Peter Keyte	Newcastle Manager	Newcastle

Environmental Division NSW South Coast

Part of the **ALS Laboratory Group**  
99 Kenny Street, Wollongong 2500  
Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541

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---

## General Comments

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- **No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.**

Analytical Results

Sub-Matrix: FILTER

Client sample ID

Client sampling date / time

				TSP	PM10	----	----	----
				[03-NOV-2011]	[03-NOV-2011]	----	----	----
Compound	CAS Number	LOR	Unit	EW1103384-001	EW1103384-002	----	----	----
Total Suspended Particulates	----	0.1	µg/m³	9.1	7.8	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	4.9	4.2	----	----	----



Environmental Division

**CERTIFICATE OF ANALYSIS**

Work Order	: EW1103410	Page	: 1 of 3
Client	: SCCOR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
Email	: graham.tranter@gmail.com	Email	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ---	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---	Date Samples Received	: 11-NOV-2011
C&C number	: ---	Issue Date	: 17-NOV-2011
Sampler	: ---	No. of samples received	: 3
Site	: ---	No. of samples analysed	: 3
Quote number	: HVAS SY/466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

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- Analytical Results



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**Signatories**

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Signatories	Position	Accreditation Category
Peter Keyte	Newcastle Manager	Newcastle

Page : 2 of 3  
Work Order : EW1103410  
Client : SCCOR QUARRIES  
Project : Nowra Brickworks



### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.

Page : 3 of 3  
 Work Order : EW1103410  
 Client : SCOR QUARRIES  
 Project : Nowra Brickworks



### Analytical Results

SubMatrix: FILTER				Client sample ID	TSP	PM10	Blank	---	---
				Client sampling date / time	10-NOV-2011 15:00	10-NOV-2011 15:00	10-NOV-2011 15:00	---	---
Compound	CAS Number	LOR	Unit		EW1103410-001	EW1103410-002	EW1103410-003	---	---
<b>BA143: Total Suspended Particulates</b>									
Total Suspended Particulates	---	0.1	µg/m <sup>3</sup>		7.0	4.3	---	---	---
Total Suspended Particulates (mass per filter)	---	0.1	mg/filter		3.8	2.3	2.2	---	---

## CERTIFICATE OF ANALYSIS

Work Order	: EW1103588	Page	: 1 of 4
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: graham.tranter@gmail.com	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ---	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---	Date Samples Received	: 30-NOV-2011
C/O number	: ---	Issue Date	: 08-DEC-2011
Sampler	: ---	No. of samples received	: 6
Site	: ---	No. of samples analysed	: 6
Quote number	: HVAS SY/466/10 V2		

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### Signatories

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Signatories	Position	Accreditation Category
Dianne Blane	Laboratory Supervisor	Newcastle

Address: 99 Kenny Street, Wollongong 2500

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Environmental

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Page : 2 of 4  
Work Order : EW1103588  
Client : SOCCR QUARRIES  
Project : Nowra Brickworks



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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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LOR = Limit of reporting

A = This result is computed from individual analyte detections at or above the level of reporting

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- No atmospheric corrections were used in the calculation of the  $\mu\text{g}/\text{m}^3$  results.

Page : 3 of 4  
 Work Order : EW1103588  
 Client : SOCCOR QUARRIES  
 Project : Nowra Brickworks



# **Analytical Results**

				Client sample ID	TSP 17/11	PM10 17/11	Blank 17/11	TSP 24/11	PM10 24/11
				Client sampling date / time	17-NOV-2011 15:00	17-NOV-2011 15:00	17-NOV-2011 15:00	24-NOV-2011 15:00	24-NOV-2011 15:00
Compound	CAS Number	LOR	Unit		EW1103588-001	EW1103588-002	EW1103588-003	EW1103588-004	EW1103588-005
<b>EA143: Total Suspended Particulates</b>									
Total Suspended Particulates	---	0.1	µg/m³		24.1	21.7	---	20.6	21.6
Total Suspended Particulates (mass per filter)	---	0.1	mg/filter		13.0	11.6	3.1	11.0	11.5

# Water Test Results From Piezometers

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

## CERTIFICATE OF ANALYSIS

Work Order	: EW1101084	Page	: 1 of 6
Client	: SCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
Email	: b.titterton@bgcontractors.com.au	Email	: glenn.davies@alsglobal.com
Telephone	: ---	Telephone	: 02 4225 3125
Facsimile	: ---	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---	Date Samples Received	: 29-MAR-2011
C&C number	: ---	Issue Date	: 05-APR-2011
Sampler	: Craig Wilson	No. of samples received	: 8
Site	: ---	No. of samples analysed	: 8
Quote number	: Nowra Brickworks Quarry SY/466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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- Analytical Results



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### Signatories

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Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celina Conzelmann	Spectroscopist	Sydney Inorganics
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics

Environmental Division NSW South Coast  
Part of the **ALS Laboratory Group**  
99 Kenny Street, Wollongong 2500  
Unit 4 / 13 Geary Place PO Box 3105, North Nowra 2541  
A Campbell Brothers Limited Company

Page : 2 of 6  
Work Order : EW1101084  
Client : SOCOR QUARRIES  
Project : Nowra Brickworks Quarry



### General Comments

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- EK055G LOR raised for NH3 on the sample ID(P3, P7) due to sample matrix.
- Site P8 - Not Accessible.



## Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				Client sampling date / time				
Compound	CAS Number	LOR	Unit	P1 29-MAR-2011 09:45 EW1101084-001	P2 29-MAR-2011 10:10 EW1101084-002	P3 29-MAR-2011 09:55 EW1101084-003	P4 29-MAR-2011 10:00 EW1101084-004	P5 29-MAR-2011 10:45 EW1101084-005
<b>EA025: Suspended Solids</b>								
^ Suspended Solids (SS)	---	1	mg/L	---	21	28	---	3
<b>ED037P: Alkalinity by PC Titrator</b>								
Hydroxide Alkalinity as CaCO <sub>3</sub>	DMD-210-001	1	mg/L	---	<1	<1	---	<1
Carbonate Alkalinity as CaCO <sub>3</sub>	3812-32-6	1	mg/L	---	<1	<1	---	<1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	71-52-3	1	mg/L	---	328	504	---	668
Total Alkalinity as CaCO <sub>3</sub>	---	1	mg/L	---	328	504	---	668
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA</b>								
Sulfate as SO <sub>4</sub> - Turbidimetric	14808-79-8	1	mg/L	---	516	546	---	408
<b>ED045G: Chloride Discrete analyser</b>								
Chloride	16887-00-6	1	mg/L	---	1330	4290	---	3160
<b>ED093F: Dissolved Major Cations</b>								
Calcium	7440-70-2	1	mg/L	---	108	232	---	117
Magnesium	7439-95-4	1	mg/L	---	143	380	---	210
Sodium	7440-23-5	1	mg/L	---	976	2270	---	1980
Potassium	7440-09-7	1	mg/L	---	21	22	---	28
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Iron	7439-89-6	0.05	mg/L	---	0.16	<0.05	---	<0.05
<b>EG020T: Total Metals by ICP-MS</b>								
Aluminium	7429-90-6	0.01	mg/L	---	0.26	0.16	---	0.04
Arsenic	7440-38-2	0.001	mg/L	---	<0.001	0.001	---	<0.001
Zinc	7440-66-6	0.005	mg/L	---	0.054	0.117	---	0.012
Iron	7439-89-6	0.05	mg/L	---	0.51	2.65	---	<0.05
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	---	0.31	<0.10	---	0.20
<b>EK059G: Nitrite plus Nitrate as N (NO<sub>x</sub>) by Discrete Analyser</b>								
Nitrite + Nitrate as N	---	0.01	mg/L	---	0.03	0.04	---	<0.01
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Total Kjeldahl Nitrogen as N	---	0.1	mg/L	---	1.0	0.8	---	0.6
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
Total Phosphorus as P	---	0.01	mg/L	---	0.06	0.07	---	0.06
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
Reactive Phosphorus as P	---	0.01	mg/L	---	0.03	0.01	---	0.03
<b>EN055: Ionic Balance</b>								
^ Total Anions	---	0.01	meq/L	---	54.8	142	---	111
^ Total Cations	---	0.01	meq/L	---	60.2	142	---	110
^ Ionic Balance	---	0.01	%	---	4.66	0.06	---	0.54

Page : 4 of 6  
 Work Order : EW1101084  
 Client : SOCCOR QUARRIES  
 Project : Nowra Brickworks Quarry



## Analytical Results

Sub-Matrix: WATER				Client sample ID	P1	P2	P3	P4	P5
Client sampling date / time					29-MAR-2011 09:45	29-MAR-2011 10:10	29-MAR-2011 09:55	29-MAR-2011 10:00	29-MAR-2011 10:45
Compound	CAS Number	LOR	Unit		EW1101084-001	EW1101084-002	EW1101084-003	EW1101084-004	EW1101084-005
<b>BN67 PK: Field Tests</b>									
pH	---	0.1	pH Unit	---	---	7.2	6.7	---	7.2
Electrical Conductivity (Non Compensated)	---	1	µS/cm	---	---	5220	12300	---	9860
Dissolved Oxygen	---	0.01	mg/L	---	---	3.28	4.24	---	3.08
Redox Potential	---	0.1	mV	---	---	+80.5	156	---	+138
Temperature	---	0.1	°C	---	---	18.9	18.4	---	19.5
Depth	---	0.01	m	---	15.32	15.01	9.96	2.64	8.16

Page : 5 of 6  
 Work Order : EW1101084  
 Client : SCCOR QUARRIES  
 Project : Nowra Brickworks Quarry



## Analytical Results

SubMatrix: WATER				Client sample ID	P6	P7	P8	---	---
				Client sampling date / time	29-MAR-2011 10:15	29-MAR-2011 09:35	29-MAR-2011 09:50	---	---
Compound	CAS Number	LOR	Unit		EW1101084-006	EW1101084-007	EW1101084-008	---	---
<b>EA025: Suspended Solids</b>									
^ Suspended Solids (SS)	---	1	mg/L		---	48	---	---	---
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMD-210-001	1	mg/L		---	<1	---	---	---
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		---	<1	---	---	---
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		---	480	---	---	---
Total Alkalinity as CaCO3	---	1	mg/L		---	480	---	---	---
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		---	308	---	---	---
<b>ED045G: Chloride Discrete analyser</b>									
Chloride	16887-00-6	1	mg/L		---	4110	---	---	---
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L		---	199	---	---	---
Magnesium	7439-95-4	1	mg/L		---	378	---	---	---
Sodium	7440-03-6	1	mg/L		---	2040	---	---	---
Potassium	7440-09-7	1	mg/L		---	24	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Iron	7439-89-6	0.05	mg/L		---	15.6	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-6	0.01	mg/L		---	0.02	---	---	---
Arsenic	7440-38-2	0.001	mg/L		---	0.001	---	---	---
Zinc	7440-66-6	0.005	mg/L		---	0.014	---	---	---
Iron	7439-89-6	0.05	mg/L		---	19.4	---	---	---
<b>BK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7804-41-7	0.01	mg/L		---	<0.10	---	---	---
<b>BK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	---	0.01	mg/L		---	0.07	---	---	---
<b>BK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	---	0.1	mg/L		---	1.5	---	---	---
<b>BK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	---	0.01	mg/L		---	0.03	---	---	---
<b>BK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	---	0.01	mg/L		---	<0.01	---	---	---
<b>BN055: Ionic Balance</b>									
^ Total Anions	---	0.01	meq/L		---	132	---	---	---
^ Total Cations	---	0.01	meq/L		---	130	---	---	---
^ Ionic Balance	---	0.01	%		---	0.70	---	---	---



Environmental Division

**CERTIFICATE OF ANALYSIS**

Work Order	: EW1101962	Page	: 1 of 6
Client	: SCCC QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BRENDAN TITTERTON	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.titterton@bgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: ---	Telephone	: 02 4225 3125
Facsimile	: ---	Facsimile	: 02 4225 3126
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---	Date Samples Received	: 28-JUN-2011
C-O-C number	: ---	Issue Date	: 05-JUL-2011
Sampler	: Craig	No. of samples received	: 8
Site	: ---	No. of samples analysed	: 8
Quote number	: Nowra Brickworks Quarry SY466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

**Signatories**

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
Raymond Commodore	Instrument Chemist	Sydney Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Wisam Marassa	Metals Coordinator	Sydney Inorganics



### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

A = This result is computed from individual analyte detections at or above the level of reporting

- EK055G LOR raised for NH3 on the various samples due to sample matrix.
- Sampling data supplied by ALS Wollongong. NATA Accreditation No. 992



## Analytical Results

Sub-Matrix: WATER				Client sample ID	P1	P2	P3	P4	P5
Client sampling date / time					28-JUN-2011 10:50	28-JUN-2011 10:15	28-JUN-2011 11:10	28-JUN-2011 11:00	28-JUN-2011 11:30
Compound	CAS Number	LOR	Unit		EW1101962-001	EW1101962-002	EW1101962-003	EW1101962-004	EW1101962-005
<b>EA025: Suspended Solids</b>									
^ Suspended Solids (SS)	---	1	mg/L		---	33	12	---	10
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO <sub>3</sub>	DMD-210-001	1	mg/L		---	<1	<1	---	<1
Carbonate Alkalinity as CaCO <sub>3</sub>	3812-32-6	1	mg/L		---	<1	<1	---	<1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	71-52-3	1	mg/L		---	402	507	---	671
Total Alkalinity as CaCO <sub>3</sub>	---	1	mg/L		---	402	507	---	671
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA</b>									
Sulfate as SO <sub>4</sub> 2- Turbidimetric	14808-79-8	1	mg/L		---	510	584	---	418
<b>ED045G: Chloride Discrete analyser</b>									
Chloride	16887-00-6	1	mg/L		---	3520	4380	---	3240
<b>ED093P: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L		---	188	226	---	114
Magnesium	7439-95-4	1	mg/L		---	302	353	---	195
Sodium	7440-23-5	1	mg/L		---	1740	2200	---	1940
Potassium	7440-09-7	1	mg/L		---	28	19	---	24
<b>EG020P: Dissolved Metals by ICP-MS</b>									
Iron	7439-89-6	0.05	mg/L		---	2.69	3.41	---	<0.05
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L		---	0.26	0.13	---	0.13
Arsenic	7440-38-2	0.001	mg/L		---	<0.001	<0.001	---	<0.001
Zinc	7440-66-6	0.005	mg/L		---	0.047	0.029	---	0.030
Iron	7439-89-6	0.05	mg/L		---	3.23	3.92	---	0.13
<b>BK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L		---	<0.10	<0.10	---	<0.10
<b>BK059G: Nitrite plus Nitrate as N (NO<sub>x</sub>) by Discrete Analyser</b>									
Nitrite + Nitrate as N	---	0.01	mg/L		---	0.02	0.14	---	<0.01
<b>BK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	---	0.1	mg/L		---	<0.1	0.1	---	<0.1
<b>BK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	---	0.01	mg/L		---	0.02	0.03	---	0.07
<b>BK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	---	0.01	mg/L		---	<0.01	0.02	---	0.03
<b>BN055: Ionic Balance</b>									
^ Total Anions	---	0.01	meq/L		---	118	146	---	114
^ Total Cations	---	0.01	meq/L		---	111	136	---	107
^ Ionic Balance	---	0.01	%		---	3.21	3.32	---	3.09



## Analytical Results

Sub-Matrix: WATER

				Client sample / ID	P1	P2	P3	P4	P5
				Client sampling date / time	28-JUN-2011 10:50	28-JUN-2011 10:15	28-JUN-2011 11:10	28-JUN-2011 11:00	28-JUN-2011 11:30
Compound	CAS Number	LOR	Unit		EW1101962-001	EW1101962-002	EW1101962-003	EW1101962-004	EW1101962-005
<b>BN67 PK: Field Tests</b>									
pH	---	0.1	pH Unit	---	---	6.9	6.7	---	7.2
Electrical Conductivity (Non Compensated)	---	1	µS/cm	---	---	8000	11800	---	9170
Dissolved Oxygen	---	0.01	mg/L	---	---	1.95	1.41	---	1.98
Redox Potential	---	0.1	mV	---	---	+80.5	+55.5	---	+110
Temperature	---	0.1	°C	---	---	18.0	17.6	---	18.2
Depth	---	0.01	m	---	15.4	14.9	9.94	---	7.73
Field Observations	---	0.01	--	---	---	---	---	Sample Point Dry	---



## Analytical Results

SubMatrix: WATER			Client sample / ID		P6	P7	P8		
			Client sampling date / time		28-JUN-2011 11:20	28-JUN-2011 10:45	28-JUN-2011 10:55		
Compound	CAS Number	LOR	Unit		EW1101962-006	EW1101962-007	EW1101962-008		
EA025: Suspended Solids									
^ Suspended Solids (SS)	---	1	mg/L		---	66	---	---	---
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMQ-210-001	1	mg/L		---	<1	---	---	---
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		---	<1	---	---	---
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		---	523	---	---	---
Total Alkalinity as CaCO3	---	1	mg/L		---	523	---	---	---
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		---	352	---	---	---
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		---	4230	---	---	---
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		---	212	---	---	---
Magnesium	7439-95-4	1	mg/L		---	344	---	---	---
Sodium	7440-23-5	1	mg/L		---	1970	---	---	---
Potassium	7440-09-7	1	mg/L		---	19	---	---	---
EG020F: Dissolved Metals by ICP-MS									
Iron	7439-89-6	0.05	mg/L		---	19.6	---	---	---
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		---	0.05	---	---	---
Arsenic	7440-38-2	0.001	mg/L		---	<0.001	---	---	---
Zinc	7440-66-6	0.005	mg/L		---	0.032	---	---	---
Iron	7439-89-6	0.05	mg/L		---	22.6	---	---	---
BK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		---	1.08	---	---	---
BK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	---	0.01	mg/L		---	0.22	---	---	---
BK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	---	0.1	mg/L		---	1.2	---	---	---
BK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	---	0.01	mg/L		---	0.13	---	---	---
BK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	---	0.01	mg/L		---	<0.01	---	---	---
BN055: Ionic Balance									
^ Total Anions	---	0.01	meq/L		---	137	---	---	---
^ Total Cations	---	0.01	meq/L		---	125	---	---	---
^ Ionic Balance	---	0.01	%		---	4.60	---	---	---

Page : 6 of 6  
 Work Order : EW1101962  
 Client : SCCOR QUARRIES  
 Project : Nowra Brickworks Quarry



## Analytical Results

Sub-Matrix: WATER				Client sample ID	P6	P7	P8	----	----
				Client sampling date / time	28JUN2011 11:20	28JUN2011 10:45	28JUN2011 10:55	----	----
Compound	CAS Number	LOR	Unit		EW1101962-006	EW1101962-007	EW1101962-008	---	---
<b>BN67 PK: Field Tests</b>									
pH	---	0.1	pH Unit		---	7.2	---	---	---
Electrical Conductivity (Non Compensated)	---	1	µS/cm		---	11100	---	---	---
Dissolved Oxygen	---	0.01	mg/L		---	1.57	---	---	---
Redox Potential	---	0.1	mV		---	-136	---	---	---
Temperature	---	0.1	°C		---	17.9	---	---	---
Depth	---	0.01	m		---	11.7	16.6	---	---
Field Observations	---	0.01	--		No Access	---	---	---	---



Environmental Division

**CERTIFICATE OF ANALYSIS**

Work Order	: EW1102857	Page	: 1 of 6
Client	: SCCCR QUARRIES	Laboratory	: Environmental Division NSW South Coast
Contact	: GRAHAM TRANTER	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
Email	: graham.tranter@gmail.com	Email	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ---	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---	Date Samples Received	: 22-SEP-2011
CO-C number	: ---	Issue Date	: 04-OCT-2011
Sampler	: Glenn Davies	No. of samples received	: 8
Site	: ---	No. of samples analysed	: 8
Quote number	: Nowra Brickworks Quarry SY/466/10 V2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



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This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

**Signatories**

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics

Page : 2 of 6  
Work Order : EW1102857  
Client : SOCOR QUARRIES  
Project : Nowra Brickworks Quarry



### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- EK055G: LOR raised for Ammonia on sample ID (P3 and P5) due to sample matrix.
- Site P6 - Not Accessible.
- Site P4 - Sample point dry.



## Analytical Results

Sub-Matrix: WATER

				Client sample ID	P1	P2	P3	P4	P5
				Client sampling date / time	22-SEP-2011 10:35	22-SEP-2011 10:00	22-SEP-2011 11:20	22-SEP-2011 11:25	22-SEP-2011 09:40
Compound	CAS Number	LOR	Unit		EW1102857-001	EW1102857-002	EW1102857-003	EW1102857-004	EW1102857-005
<b>BA025: Suspended Solids</b>									
^ Suspended Solids (SS)	---	1	mg/L		---	60	34	---	26
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMD-210-001	1	mg/L		---	<1	<1	---	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		---	<1	<1	---	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		---	376	509	---	674
Total Alkalinity as CaCO3	---	1	mg/L		---	376	509	---	674
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14809-79-8	1	mg/L		---	381	407	---	346
<b>ED048G: Chloride Discrete analyser</b>									
Chloride	16887-00-6	1	mg/L		---	2280	4530	---	3190
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L		---	138	187	---	63
Magnesium	7439-95-4	1	mg/L		---	223	362	---	186
Sodium	7440-23-5	1	mg/L		---	1350	2250	---	1890
Potassium	7440-09-7	1	mg/L		---	25	19	---	25
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Iron	7439-89-6	0.05	mg/L		---	0.78	2.64	---	0.07
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L		---	0.53	0.30	---	0.38
Arsenic	7440-38-2	0.001	mg/L		---	0.003	0.005	---	0.004
Zinc	7440-66-6	0.005	mg/L		---	0.068	0.076	---	0.033
Iron	7439-89-6	0.05	mg/L		---	1.24	3.97	---	0.47
<b>BK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L		---	0.50	<0.10	---	<0.10
<b>BK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	---	0.01	mg/L		---	0.14	0.05	---	0.02
<b>BK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	---	0.1	mg/L		---	1.2	0.1	---	0.2
<b>BK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	---	0.01	mg/L		---	<0.01	0.03	---	0.04
<b>BK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	---	0.01	mg/L		---	<0.01	<0.01	---	0.03
<b>BN055: Ionic Balance</b>									
^ Total Anions	---	0.01	meq/L		---	79.8	146	---	111
^ Total Cations	---	0.01	meq/L		---	84.6	137	---	101
^ Ionic Balance	---	0.01	%		---	2.93	3.16	---	4.44



## Analytical Results

Sub-Matrix: WATER

				Client sample ID	P1	P2	P3	P4	P5
				Client sampling date / time	22-SEP-2011 10:35	22-SEP-2011 10:00	22-SEP-2011 11:20	22-SEP-2011 11:25	22-SEP-2011 09:40
Compound	CAS Number	LOR	Unit		EW1102857-001	EW1102857-002	EW1102857-003	EW1102857-004	EW1102857-005
<b>EN67 PK: Field Tests</b>									
pH	---	0.1	pH Unit		---	7.1	6.7	---	7.3
Electrical Conductivity (Non Compensated)	---	1	µS/cm		---	8120	12900	---	9750
Dissolved Oxygen	---	0.01	mg/L		---	2.60	3.58	---	2.94
Redox Potential	---	0.1	mV		---	+105	+43.0	---	+104
Temperature	---	0.1	°C		---	19.0	19.5	---	18.7
Depth	---	0.01	m		15.8	14.8	9.94	---	7.33
Field Observations	---	0.01	--		---	---	---	DRY	---



## Analytical Results

Sub-Matrix: WATER				Client sample ID		Client sampling date / time		P6	P7	P8	----	----
Compound				CAS Number	LOR	Unit		[22-SEP-2011]	22-SEP-2011 10:15	22-SEP-2011 11:10	----	----
								EW1102857-006	EW1102857-007	EW1102857-008	----	----
<b>EA025: Suspended Solids</b>												
^ Suspended Solids (SS)				----	1	mg/L		----	118	----	----	----
<b>ED037P: Alkalinity by PC Titrator</b>												
Hydroxide Alkalinity as CaCO <sub>3</sub>				DMO-210-001	1	mg/L		----	<1	----	----	----
Carbonate Alkalinity as CaCO <sub>3</sub>				3812-32-6	1	mg/L		----	<1	----	----	----
Bicarbonate Alkalinity as CaCO <sub>3</sub>				71-52-3	1	mg/L		----	520	----	----	----
Total Alkalinity as CaCO <sub>3</sub>				----	1	mg/L		----	520	----	----	----
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA</b>												
Sulfate as SO <sub>4</sub> - Turbidimetric				14808-79-8	1	mg/L		----	300	----	----	----
<b>ED045G: Chloride Discrete analyser</b>												
Chloride				16887-00-6	1	mg/L		----	4460	----	----	----
<b>ED093F: Dissolved Major Cations</b>												
Calcium				7440-70-2	1	mg/L		----	185	----	----	----
Magnesium				7439-95-4	1	mg/L		----	378	----	----	----
Sodium				7440-23-5	1	mg/L		----	2100	----	----	----
Potassium				7440-09-7	1	mg/L		----	21	----	----	----
<b>EG020F: Dissolved Metals by ICP-MS</b>												
Iron				7439-89-6	0.05	mg/L		----	25.3	----	----	----
<b>EG020T: Total Metals by ICP-MS</b>												
Aluminium				7429-90-5	0.01	mg/L		----	0.21	----	----	----
Arsenic				7440-38-2	0.001	mg/L		----	0.004	----	----	----
Zinc				7440-66-6	0.005	mg/L		----	0.060	----	----	----
Iron				7439-89-6	0.05	mg/L		----	25.7	----	----	----
<b>EK055G: Ammonia as N by Discrete Analyser</b>												
Ammonia as N				7664-41-7	0.01	mg/L		----	1.01	----	----	----
<b>EK059G: Nitrite plus Nitrate as N (NO<sub>x</sub>) by Discrete Analyser</b>												
Nitrite + Nitrate as N				----	0.01	mg/L		----	0.04	----	----	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>												
Total Kjeldahl Nitrogen as N				----	0.1	mg/L		----	1.6	----	----	----
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>												
Total Phosphorus as P				----	0.01	mg/L		----	0.03	----	----	----
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>												
Reactive Phosphorus as P				----	0.01	mg/L		----	<0.01	----	----	----
<b>EN055: Ionic Balance</b>												
^ Total Anions				----	0.01	meq/L		----	142	----	----	----
^ Total Cations				----	0.01	meq/L		----	132	----	----	----
^ Ionic Balance				----	0.01	%		----	3.73	----	----	----

Page : 6 of 6  
 Work Order : EW1102857  
 Client : SOCCR QUARRIES  
 Project : Nowra Brickworks Quarry



## Analytical Results

SubMatrix: WATER				Client sample ID	P6	P7	P8		
Client sampling date / time					[22-SEP-2011]	22-SEP-2011 10:15	22-SEP-2011 11:10		
Compound	CAS Number	LOR	Unit		EW1102857-006	EW1102857-007	EW1102857-008		
<b>EN67 PK: Field Tests</b>									
pH	---	0.1	pH Unit		---	7.2	---	---	---
Electrical Conductivity (Non Compensated)	---	1	µS/cm		---	12200	---	---	---
Dissolved Oxygen	---	0.01	mg/L		---	2.58	---	---	---
Redox Potential	---	0.1	mV		---	+156	---	---	---
Temperature	---	0.1	°C		---	18.8	---	---	---
Depth	---	0.01	m		---	11.7	16.2	---	---
Field Observations	---	0.01	**		NOT ACCESSIBLE	---	---	---	---

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# **Blasting Work Method Statement**



## **DRILLING SERVICES Pty. Ltd**

\* Drilling & Blasting \* Quarry Consultant \* Rock Excavation  
A.B.N. 64053 839 197

P.O. Box 925  
Nowra, NSW  
(phone) 0244478640  
(Fax) 0244478644  
(Mobile) 0417 47 8640  
jrfraser2@optusnet.com.au

## **SOUTH COAST CONCRETE CRUSHING and RECYCLING**

### **BRICKWORKS PIT**

### **WORK METHOD STATEMENT**

#### **Work Method.**

Prior to the commencement of drilling an inspection of the proposed area will take place for the purpose of safety and blast design. (See page 20 of the Mines and Construction Plan).

Blast Design will be carried out in accordance with J.S.A. (Section 8 page 19), and Safe Work Procedure (Section 9 page 38)

The explosives to be used will be an emulsion supplied by Maxam, (Rioflex A.N. Suspension)

The loading of the holes will be carried out in accordance with Mines and Construction Safety Procedures Manual. (Loading Blast Holes Page 42)

Prior to initiating the blast a tool box meeting will be held and the Blasting Safety Procedure will be introduced and activated. (See Attachments)

The **Mine Manager** will nominate the access points to be secured and these will be recorded in the space provided in the Blasting Safety Procedure.

**After Initiation:** - The blast site will be inspected for any misfires or unexploded product.

If misfires are located they will be dealt with in accordance with the Mines and Construction Plan. (Page 46)

After the blast site has been inspected and all explosives initiated the all clear will be given.

#### **ATTACHMENTS**

- a) James Fraser- Explosives Users Permit
- b) Public Risk Insurance (\$20,000,000)
- c) Workers Compensation Insurance
- d) Mine and Construction Safety Manual
- e) SCCR Blasting Safety Procedure



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(Fax) 0244478644  
(Mobile) 0417 47 8640  
jrfraser2@optusnet.com.au

#1

# SOUTH COAST CONCRETE CRUSHING and RECYCLING

## BLASTING PROCEDURE BRICKWORKS PIT

### THE DECISION OF THE SHOTFIRER IS FINAL ON ALL MATTERS RELATING TO SAFETY

1. All communications relating to this procedure will be conducted on Channel 6UHF.
2. On days when blasting is to occur, the Shotfirer will advise the Mine Manager by 7.30 a.m.
3. The loading of the blast holes will be carried out by persons possessing Explosive Unsupervised Handling Tickets and initiated by a qualified Powderman possessing an Explosive Users Permit
4. If necessary a Fire tender will be present when blasting in case the blast causes a fire
5. Signs will be located at each end of the blast area to indicate:
  - (a) The presence of explosives
  - (b) The limit of the blast
6. Personnel other than the blast crew are not permitted in the area being loaded with explosives unless approved by the Shotfirer.  
The only other person who should have a need to be on the blast site is:  
**Mine Manager**
7. Smoking is not permitted on the blast site or within 6 metres of vehicles containing explosives.
8. Electric detonators will not be used on site hence there is no restriction of the use of twoway radios on the site



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jrfraser2@optusnet.com.au

#2

9. No explosives will be stored on site.
10. All detonators and boosters will be brought out to the site by a licensed explosive vehicle.
11. Bulk explosives will be used for the blasts and brought on site by approved vehicles.
12. A qualified first aid person will be on site at all times when drilling and blasting is taking place.
13. Immediately prior to blasting the **Mine Manager** will instruct the guards to block all access roads to the blast site

The roads are to be physically blocked with vehicles or earthmoving equipment and Blasting "Stop" signs.

Guards should be advised of the need to locate equipment so that vehicles are not able to bypass the barricade.

14. Blast guards will be located at: –
  - (a) Road : ..... Guard: .....
  - (b) Road: ..... Guard: .....
  - (c) Road: ..... Guard: .....
  - (d) Road: ..... Guard: .....

15. **A warning siren sequence will be used as follows:**

15 minutes before blasting – a 20 second siren blast will sound (including briefly over the radio).

Immediately prior to the blasting a continuous siren will sound until the blast is detonated.

16. When each location is blocked the guard is to advise the **Mine Manager** by radio with the words "**in position and the road is secured**".

**Do not use the words "All Clear".**

17. When satisfied that the site is secured and the access roads barricaded the **Mine Manager** will advise the Shotfirer by radio that it is clear to fire the shot.



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(Fax) 0244478644  
(Mobile) 0417 47 8640  
jrfraser2@optusnet.com.au

#3

18. The Shotfirer will then sound a continuous siren and initiate the blast by fuse and safety cap with a 2 minute delay or if agreed to by a Nonel lead in line for instant initiation.
19. After the blast the Shotfirer will return to the blast area to check for misfires.  
If the site is safe the "All Clear" will be given by three short blasts of the siren and by radio to the **Mine Manager** who in turn will inform the guards it is safe to open the roads.
- If a misfire has occurred the Shotfirer will instruct all personnel to hold their positions and will decide if it is feasible to refire the misfire immediately.
- If so he will discuss by radio with the **Mine Manager** the timing required.
- A statement will be made by the **Mine Manager** by radio to the guards and other personnel of the intention to:
- (a) Refire immediately.
  - (b) Reopen the site
- NO PERSON IS TO LEAVE THEIR POSITION UNTIL THE SHOTFIRER ADVISES THE MINE MANAGER BY RADIO AND SIREN THAT THE SITE IS SAFE AND THE MINE MANAGER INSTRUCTS THEM TO DO SO.**
20. If a misfire is to be refired at a later time, the area will be quarantined by the Shotfirer using flags, hazard mesh, top hats etc.
- The Shotfirer will discuss with the **Mine Manager** and agree and implement any restrictions to work in the area adjacent to the misfire.
- If a major misfire occurs, the area will be cordoned off and the Mines Inspector at the Department of Primary Industries will be notified.
- The Blasting Safety Procedure is to be signed by the Shotfirer and returned to the Mine Manager with the Blast Report.

### **SHOTFIRER:**

**NAME:** .....

**SIGNATURE:**.....

## **Blasting Results**

**Date/Time** Vert at 14:29:13 February 4, 2011  
**Trigger Source** Geo: 0.130 mm/s  
**Range** Geo : 31.7 mm/s  
**Record Time** 5.0 sec at 1024 sps  
**Notes**

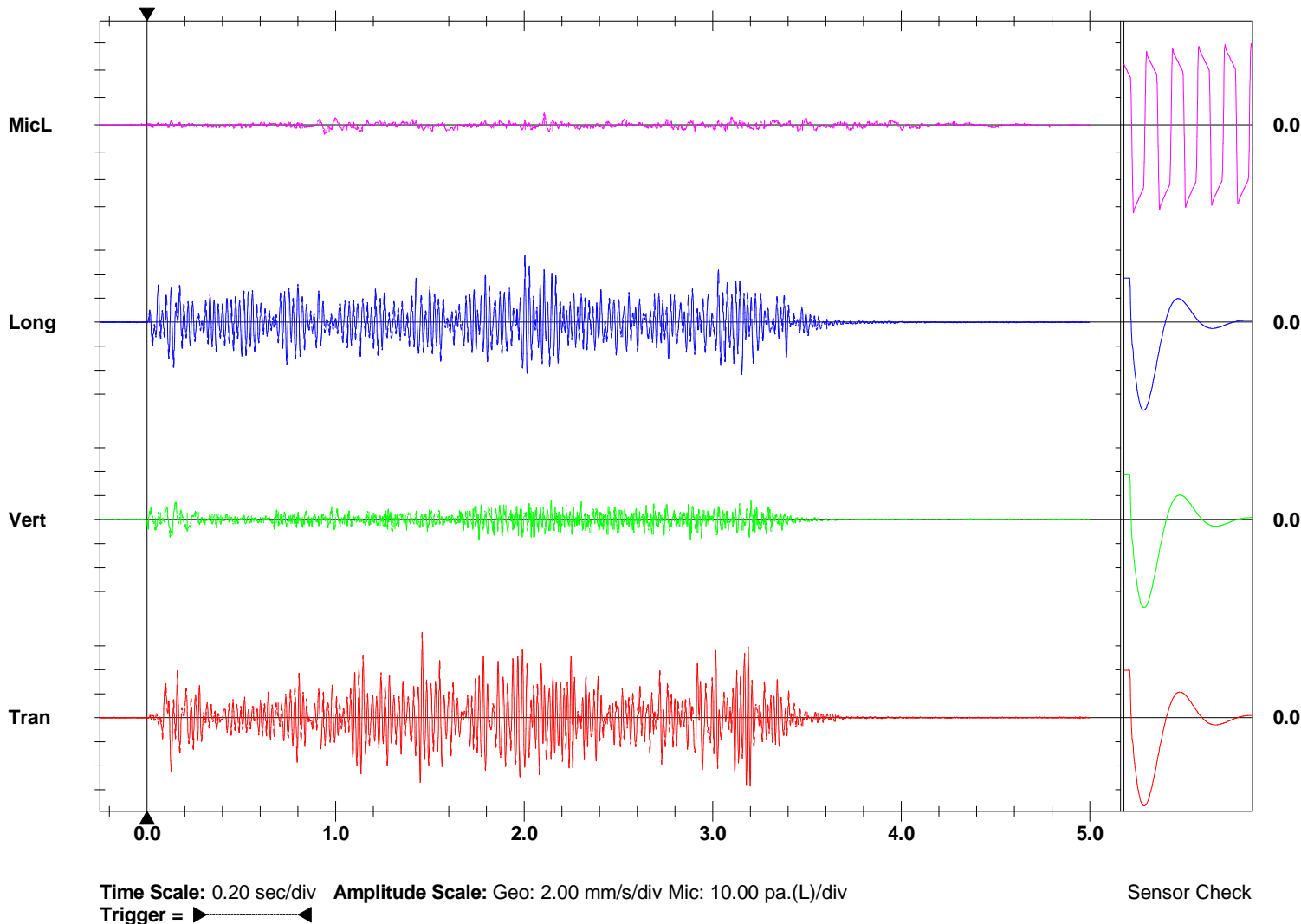
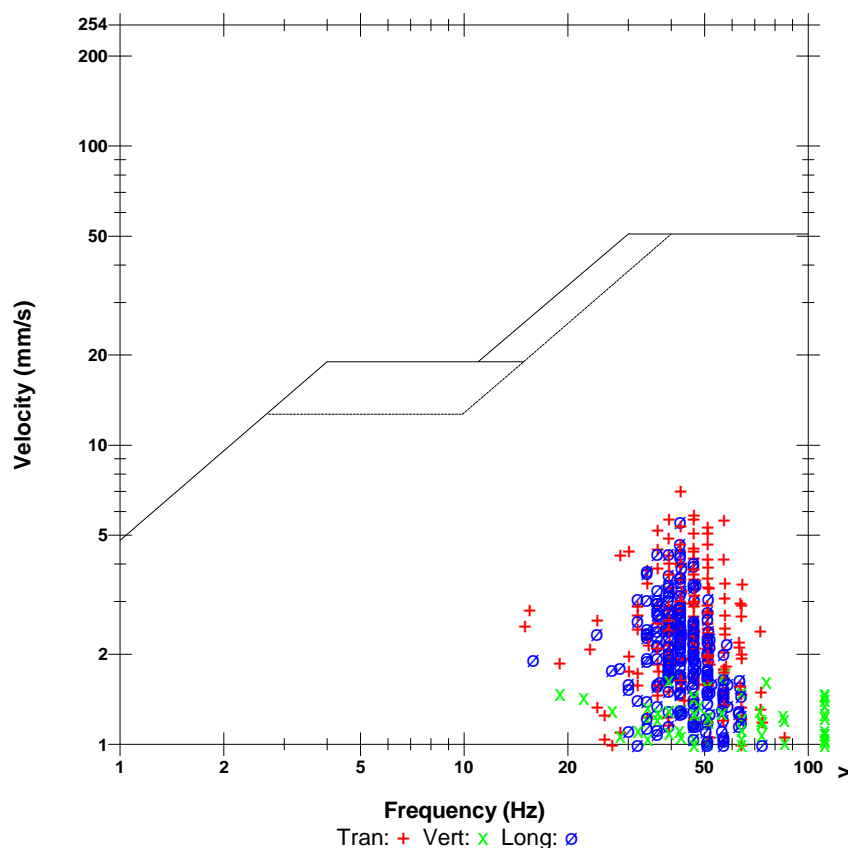
**Serial Number** BE15569 V 10.06-1.1 Minimate Blaster  
**Battery Level** 6.7 Volts  
**Unit Calibration** February 19, 2010 by Instantel inc.  
**File Name** \_\_TEMP.EVT

**Microphone** Linear Weighting  
**PSPL ZC** 107.0 dB(L) 4.50 pa.(L) at 2.106 sec  
**Freq Channel** 23 Hz  
**Test** Passed (Freq = 20.1 Hz Amp = 483 mv)

	Tran	Vert	Long	
PPV	7.10	1.73	5.56	mm/s
ZC Freq	43	57	43	Hz
Time (Rel. to Trig)	1.459	1.762	2.004	sec
Peak Acceleration	0.196	0.111	0.146	g
Peak Displacement	0.0255	0.0115	0.0198	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.6	Hz
Overswing Ratio	3.5	3.6	3.8	

**Peak Vector Sum** 7.17 mm/s at 1.459 sec

## USBM RI8507 And OSMRE



**Date/Time** Tran at 14:29:24 February 4, 2011  
**Trigger Source** Geo: 0.130 mm/s  
**Range** Geo : 31.7 mm/s  
**Record Time** 5.0 sec at 1024 sps  
**Notes**

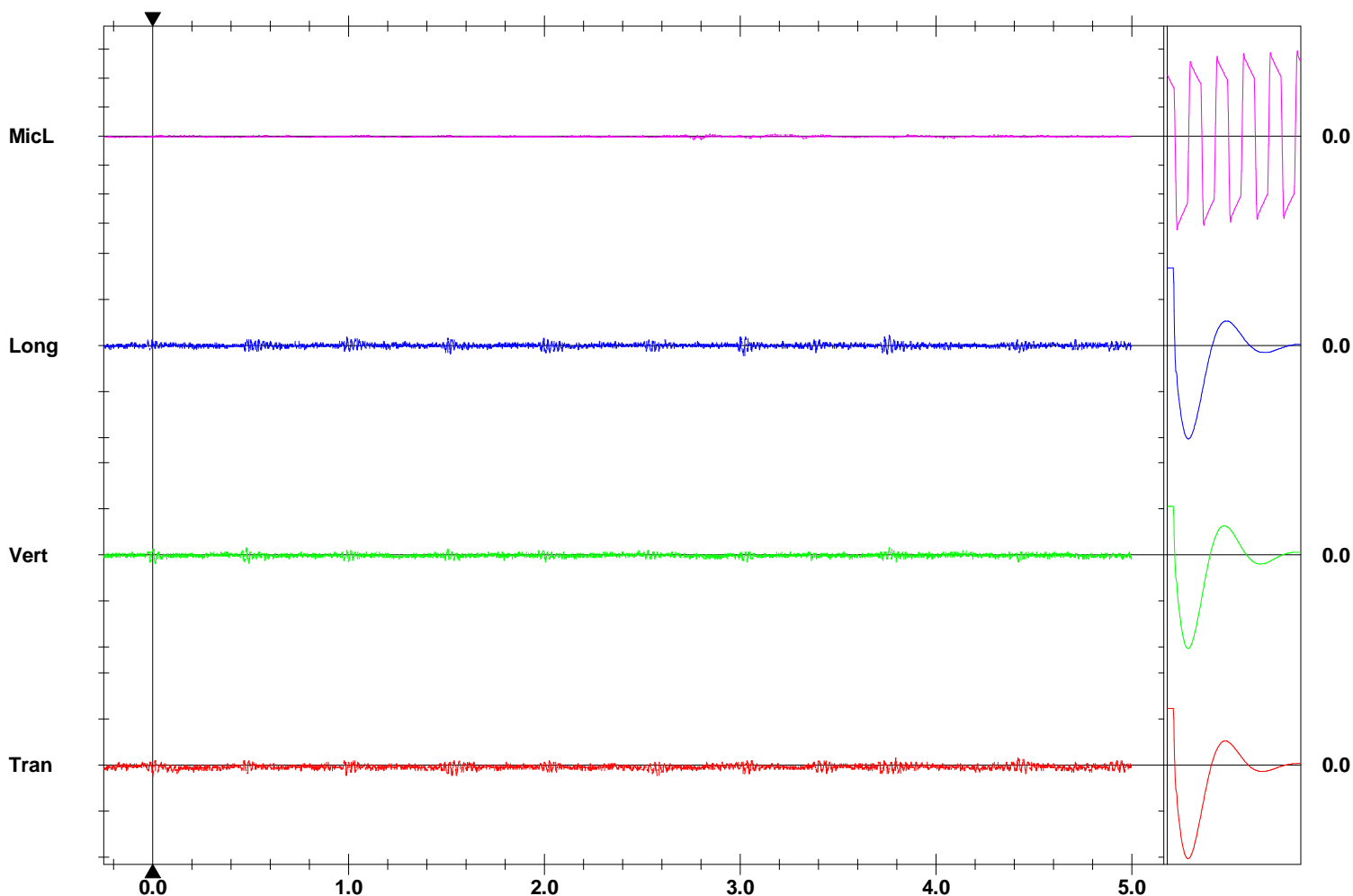
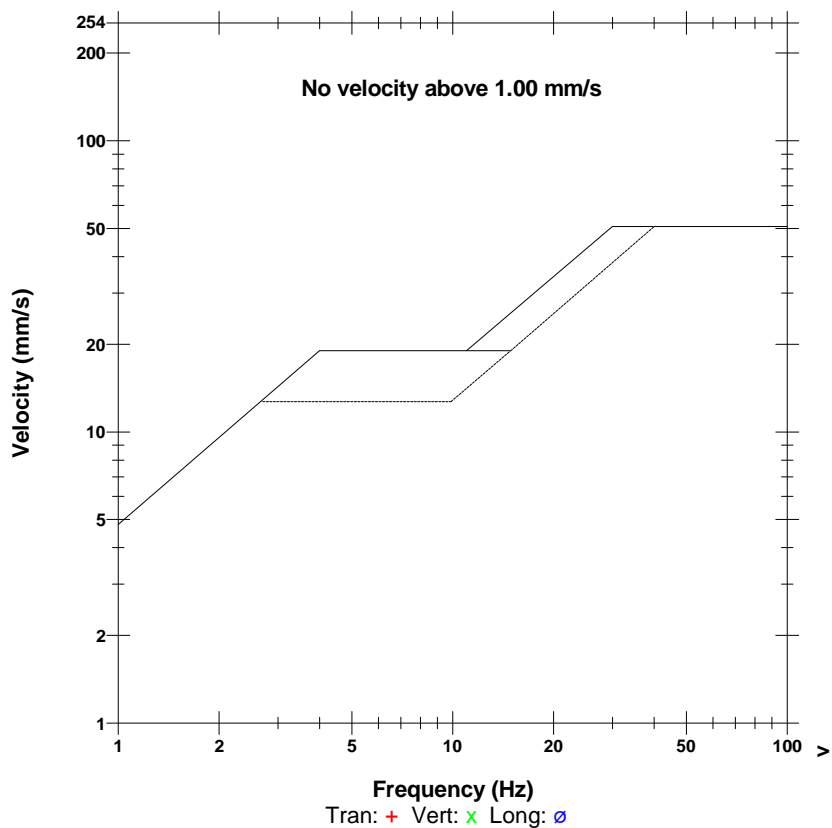
**Serial Number** BE15377 V 10.06-1.1 Minimate Blaster  
**Battery Level** 6.1 Volts  
**Unit Calibration** December 11, 2009 by InstanTEL inc.  
**File Name** \_\_TEMP.EVT

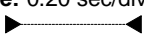
**Microphone** Linear Weighting  
**PSPL ZC** 95.9 dB(L) 1.25 pa.(L) at 2.762 sec  
**Freq Channel** 18 Hz  
**Test** Passed (Freq = 20.5 Hz Amp = 532 mv)

	Tran	Vert	Long	
PPV	0.127	0.0952	0.111	mm/s
ZC Freq	47	43	47	Hz
Time (Rel. to Trig)	0.000	0.012	3.016	sec
Peak Acceleration	0.00663	0.00663	0.00663	g
Peak Displacement	0.00057	0.00036	0.00043	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.7	7.3	Hz
Overswing Ratio	3.9	3.2	3.8	

**Peak Vector Sum** 0.150 mm/s at 0.000 sec

## USBM RI8507 And OSMRE



**Time Scale:** 0.20 sec/div  
**Trigger =** 

**Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div

Sensor Check

**Date/Time** Vert at 14:29:17 February 4, 2011  
**Trigger Source** Geo: 0.130 mm/s  
**Range** Geo : 31.7 mm/s  
**Record Time** 5.0 sec at 1024 sps  
**Notes**

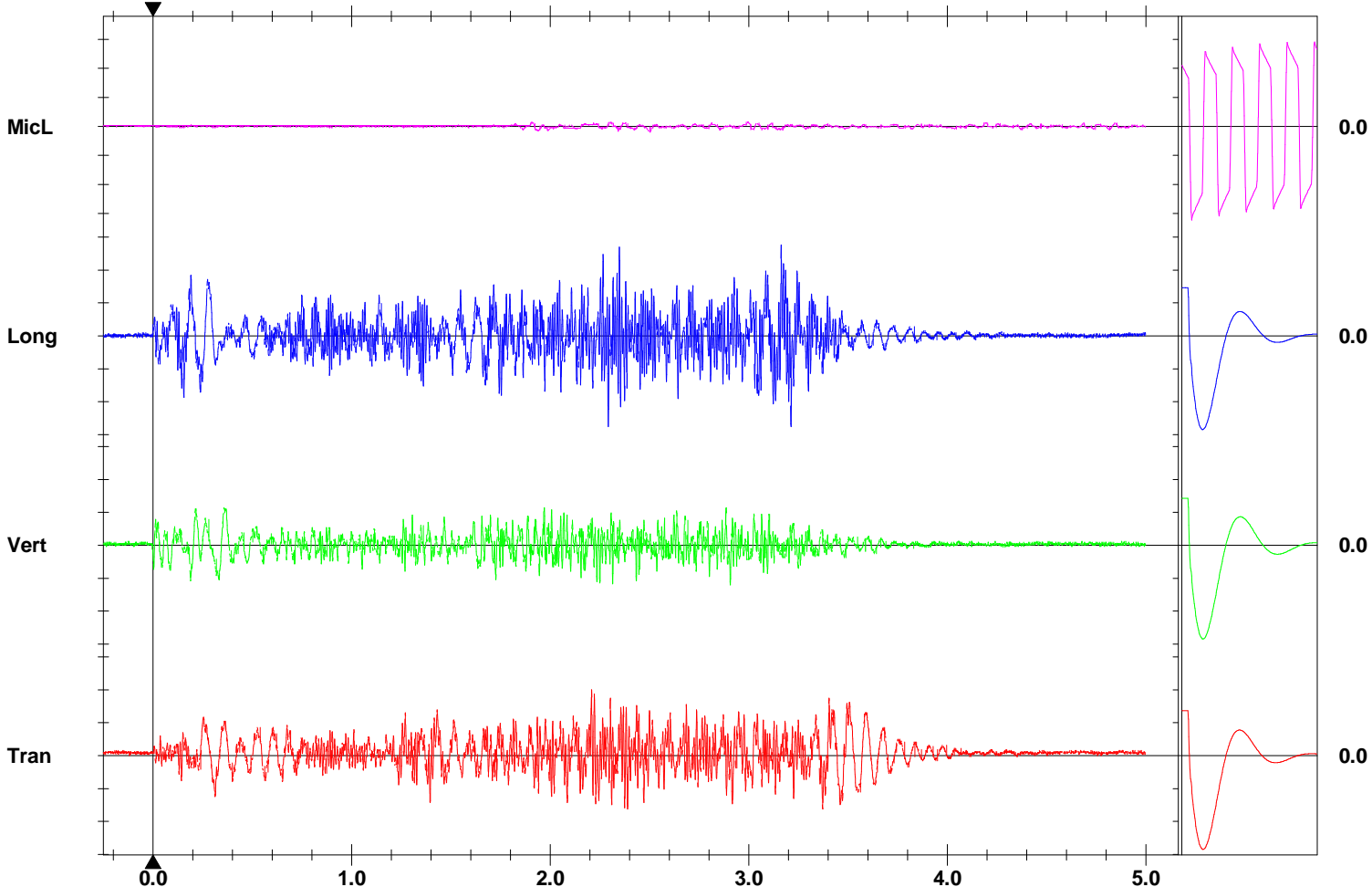
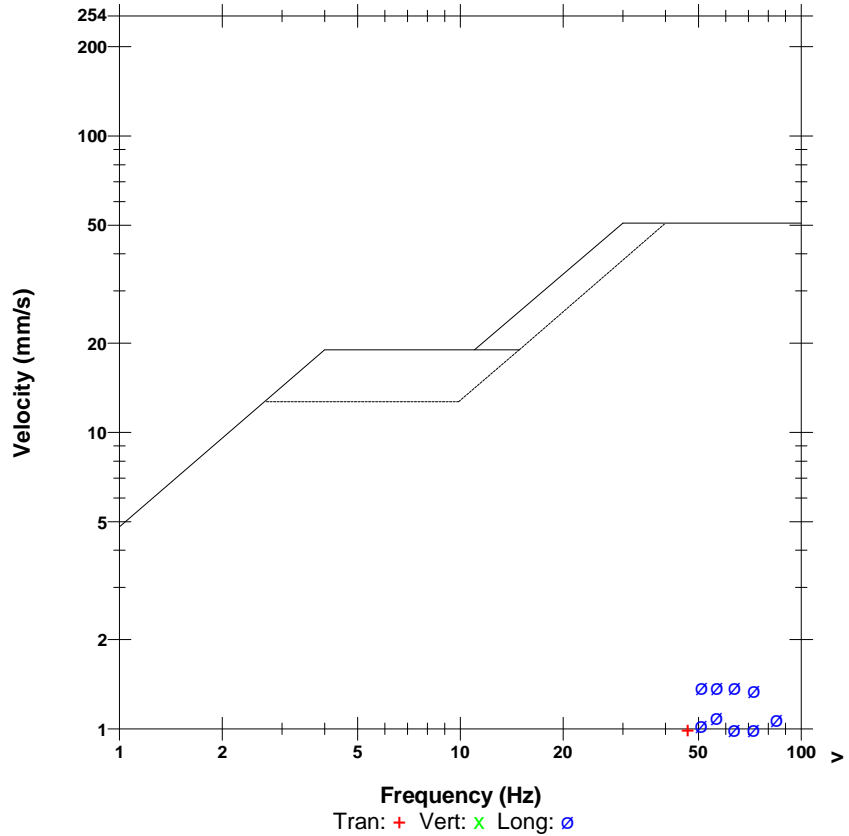
**Serial Number** BE15777 V 10.06-1.1 Minimate Blaster  
**Battery Level** 6.4 Volts  
**Unit Calibration** May 3, 2010 by InstanTel inc.  
**File Name** \_\_TEMP.EVT

**Microphone** Linear Weighting  
**PSPL ZC** 98.8 dB(L) 1.75 pa.(L) at 2.343 sec  
**Freq Channel** 26 Hz  
**Test** Passed (Freq = 20.1 Hz Amp = 486 mv)

	Tran	Vert	Long	
PPV	1.00	0.603	1.38	mm/s
ZC Freq	47	24	64	Hz
Time (Rel. to Trig)	2.208	2.907	2.292	sec
Peak Acceleration	0.0398	0.0365	0.0630	g
Peak Displacement	0.0100	0.00754	0.0104	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.6	7.5	Hz
Overswing Ratio	3.7	3.3	3.9	

**Peak Vector Sum** 1.40 mm/s at 3.213 sec

## USBM R18507 And OSMRE



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div  
**Trigger =** 

Sensor Check

**Date/Time** Vert at 14:29:06 February 4, 2011  
**Trigger Source** Geo: 0.130 mm/s  
**Range** Geo : 31.7 mm/s  
**Record Time** 5.0 sec at 1024 sps  
**Notes**

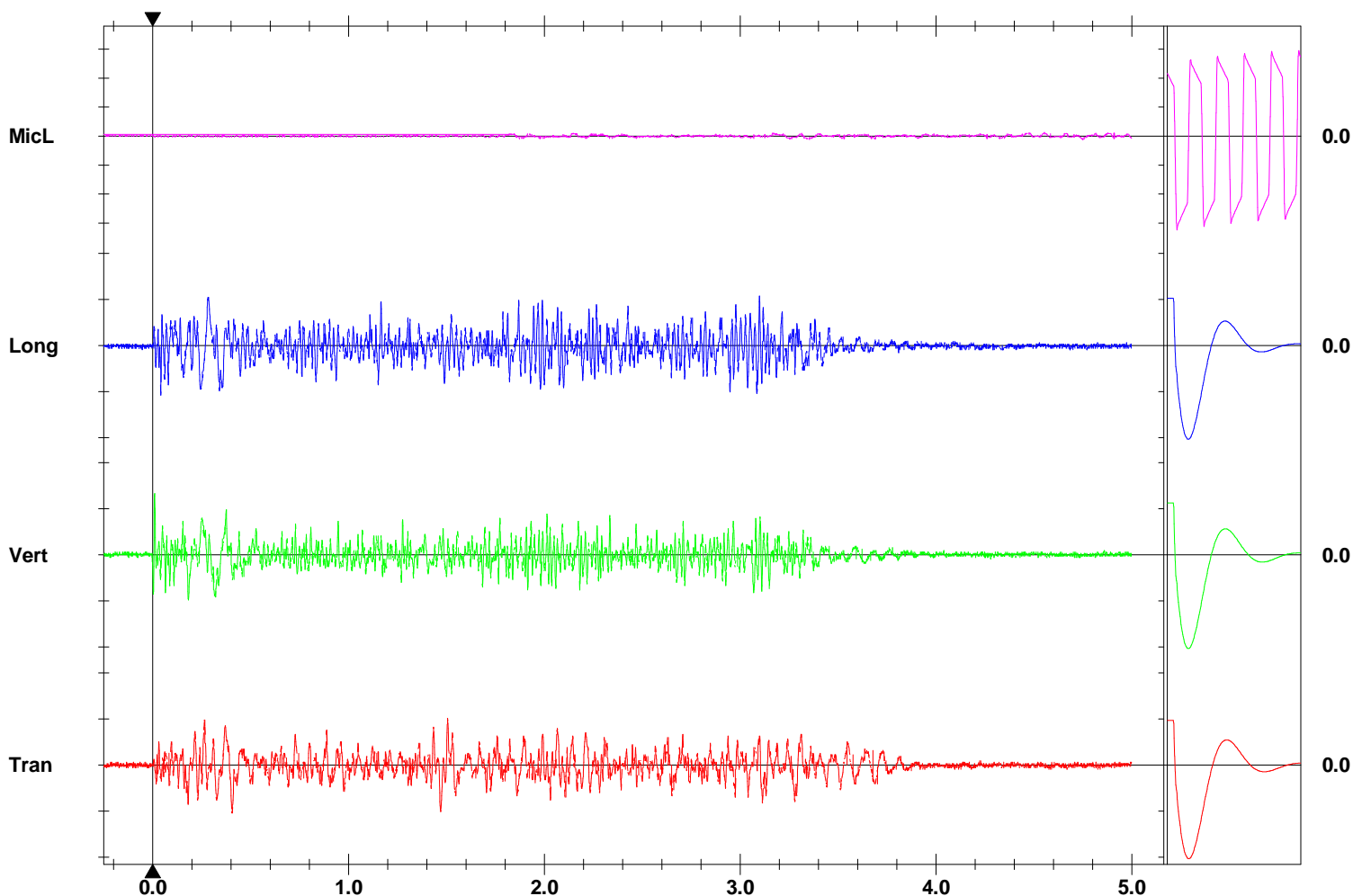
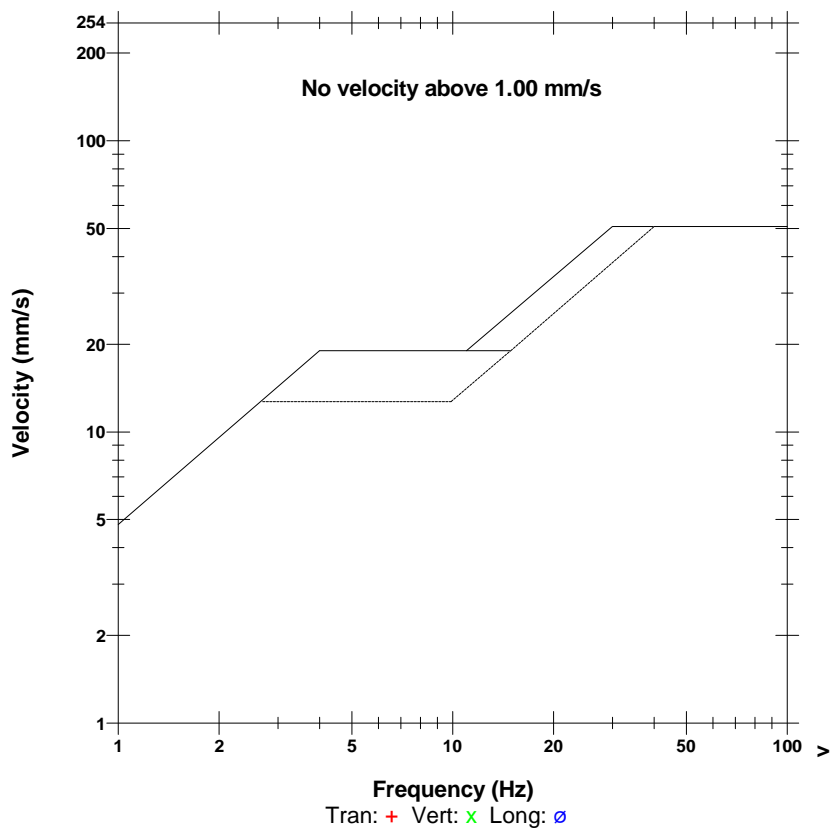
**Serial Number** BE16020 V 10.10-1.1 Minimate Blaster  
**Battery Level** 6.4 Volts  
**Unit Calibration** July 23, 2010 by InstanTEL inc.  
**File Name** \_\_TEMP.EVT

**Microphone** Linear Weighting  
**PSPL ZC** 95.9 dB(L) 1.25 pa.(L) at 4.750 sec  
**Freq Channel** 18 Hz  
**Test** Passed (Freq = 20.1 Hz Amp = 499 mv)

	Tran	Vert	Long	
PPV	0.524	0.667	0.540	mm/s
ZC Freq	11	57	64	Hz
Time (Rel. to Trig)	0.403	0.010	0.041	sec
Peak Acceleration	0.0149	0.0315	0.0249	g
Peak Displacement	0.00505	0.00657	0.00571	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.4	Hz
Overswing Ratio	3.8	3.6	3.9	

**Peak Vector Sum** 0.686 mm/s at 0.010 sec

## USBM RI8507 And OSMRE



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div  
**Trigger** = 

Sensor Check

# Weed Control Report 2011

Weed management has continued throughout 2011 as per the Weed Management Plan 2007. The year has been consistently wet. This has stimulated weed seed germination but where possible all weeds have been treated before they have set seed. It has also reduced suitable herbicide application conditions. There are no new significant outbreaks of any declared or environmental weeds to report. *Cirsium vulgare*, Black thistle and *Bidens pilosa*, Cobblers Pegs are the most frequent weeds. These are both annuals and spray works were undertaken in autumn and spring to contain the spread of these weeds. One small patch - 3 plant of *Xanthium occidentale*, Noogoora Burr was treated and it is in a new weed on the site. During the year Mother of Millions was treated with herbicide for the first time. All woody weeds have been treated with glyphosate and will continue to be monitored.

The native vegetation cover on the bunds has benefited from the wet conditions and continues to increase.

Please find detailed below the weed control measures that have been undertaken during 2011.

Weed	Status	Control Method	Comment
Black Thistle <i>Cirsium vulgare</i>	Annual - abundant	Glyphosate 360– foliar - backpack and splatter gun	Treated in spring and autumn prior to seed set
Turkey Rhubarb <i>Acetosa sagittata</i>	occasional	Glyphosate - foliar	Repeated small outbreaks but no seed found
Mother of Millions <i>Bryophyllum delagoense</i>	Abundant in one area	Glyphosate 360 - foliar	All flowering plants removed
Fire Weed <i>Senecio madagascariensis</i>	Declared Occasional throughout the site	Hand removal	Annual hand removal across the whole site
Cobblers Pegs <i>Bidens pilosa</i>	Annual - abundant	Glyphosate – foliar – backpack and splatter gun	Treated in spring and autumn prior to seed set
Bitou <i>Chrysanthemoides monilifera</i>	Declared Sporadic individuals	Hand removal	None found 2011 – annual monitoring required. Considered eradicated from the site.
Castor Oil Plant <i>Ricinus communis</i>	occasional	Glyphosate - foliar	Repeated small infestations – some seed produced. Control effort to continue.
Yucca <i>Yucca aloifolia</i>	Sporadic individuals	Glyphosate - foliar	One infestation – all individuals treated – requires monitoring
Mustard Weed	Annual - abundant	Glyphosate - foliar	Treated in spring and autumn prior to seed set

Moth Vine <i>Araujia sericifera</i>	occasional	Glyphosate - foliar	Annual monitoring – no seeding plants found.
Senna <i>Senna pendula</i>	Sporadic individuals	Glyphosate - foliar	Annual monitoring
Kikuyu <i>Pennisetum clandestinum</i>	occasional	Glyphosate - foliar	Under control
Montbretia <i>Crocasmia x</i>	occasional	Glyphosate - foliar	Monitor
Crofton weed <i>Ageratina adenophora</i>	occasional	Glyphosate - foliar	Annual treatment
Purple Top Verbena bonariensis	Occasional	Glyphosate - foliar	
Passion fruit <i>Passiflora edulis</i>	Sporadic individuals	Glyphosate - foliar	
Noogoora Burr <i>Xanthium occidentale</i>	One small patch 3 plants	Glyphosate - foliar	Monitor

## Summary

All weed control activity has been in accordance with the priorities identified in the 2007 Weed Management Plan. Weed species are present at the site but they are under control. The site is generally in healthy condition. Control activities will continue during the 2012 and the site will be monitored every 6 months for any new or increase in weed populations.

**Photographs of Nowra Creek After Significant Rain Events**







**Despite heavy rains during the year there was no evidence of any flooding.  
The quarry does not contribute any run-off to Nowra Ck as all water is contained  
within the working and storage areas.**

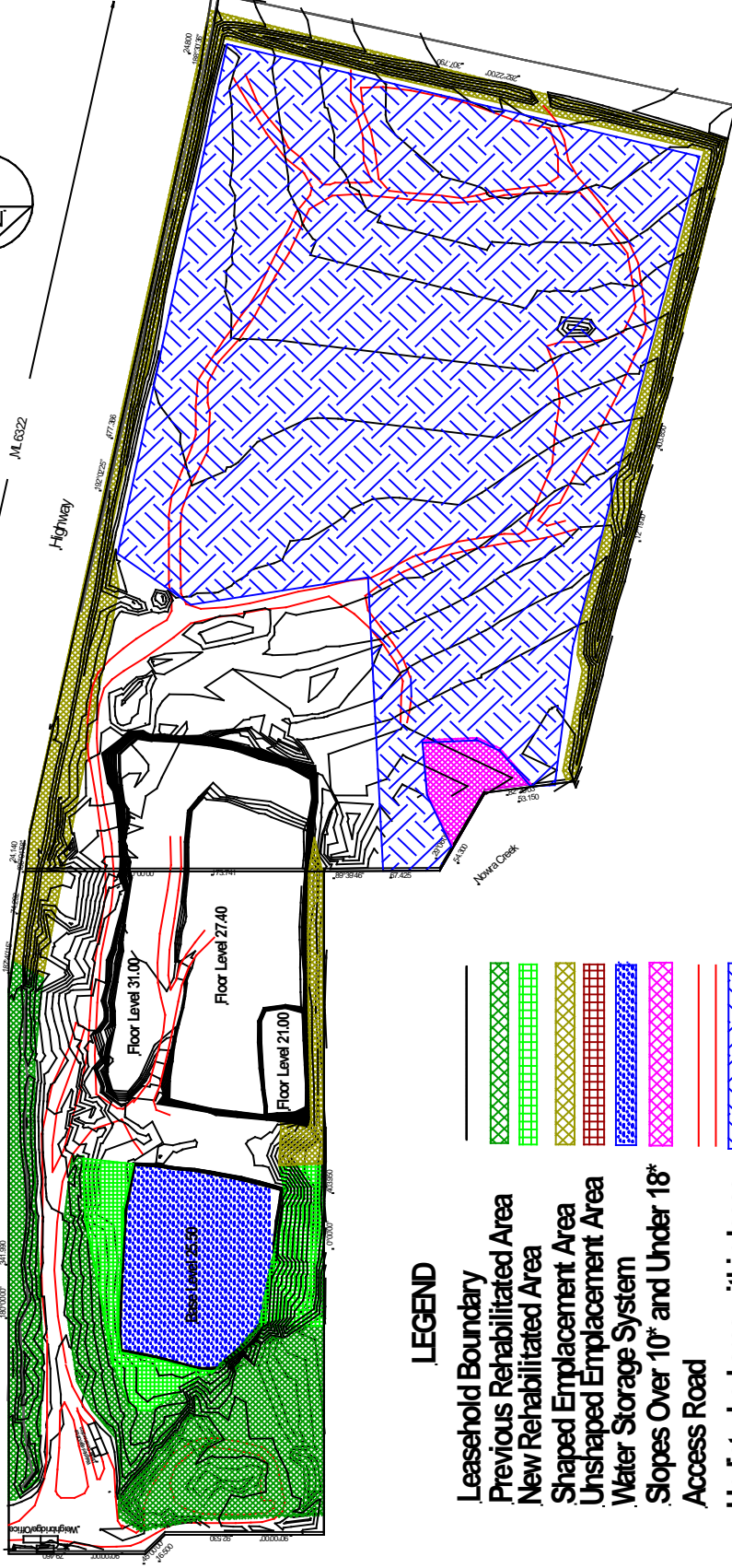
#### **Contour Plans of Brickworks and Flat Rock Quarries**

**No activities have been carried out in Flat Rock Quarry during reporting period.**

**To View these plans in a larger scale access the accompanying cd,  
that contains all plans in AutoCAD DWG format.**

ML5087

Princes

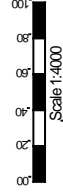


## LEGEND

- Leasehold Boundary
- Previous Rehabilitated Area
- New Rehabilitated Area
- Shaped Emplacement Area
- Unshaped Emplacement Area
- Water Storage System
- Slopes Over 10° and Under 18°
- Access Road
- Undisturbed area within lease.
- All other areas have been disturbed at some time during the last 60 years.

Contour Interval 1.0m

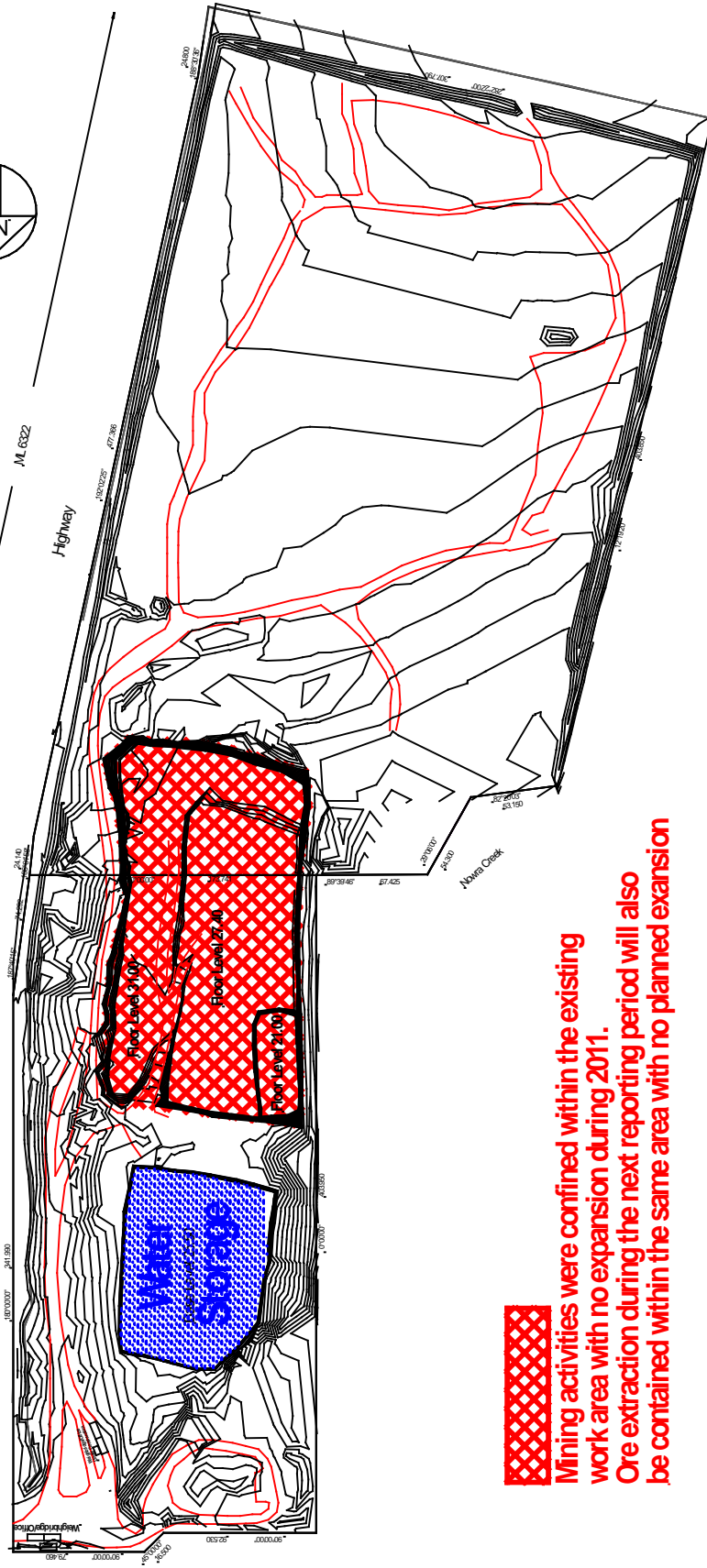
Plan Grid Origin N00, E00= ISG NTCS4625, E263308



Plan of ML5087 and ML6322  
Nowra Brickworks Quarry,  
Princes Highway, South Nowra, NSW  
Scale 1:3500  
Date December 2011

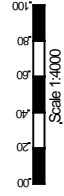
ML 5087

Princes



Mining activities were confined within the existing work area with no expansion during 2011. Ore extraction during the next reporting period will also be contained within the same area with no planned expansion

Contour Interval 1.0m  
Plan Grid Origin N00, E00= IGSN134625, E263328

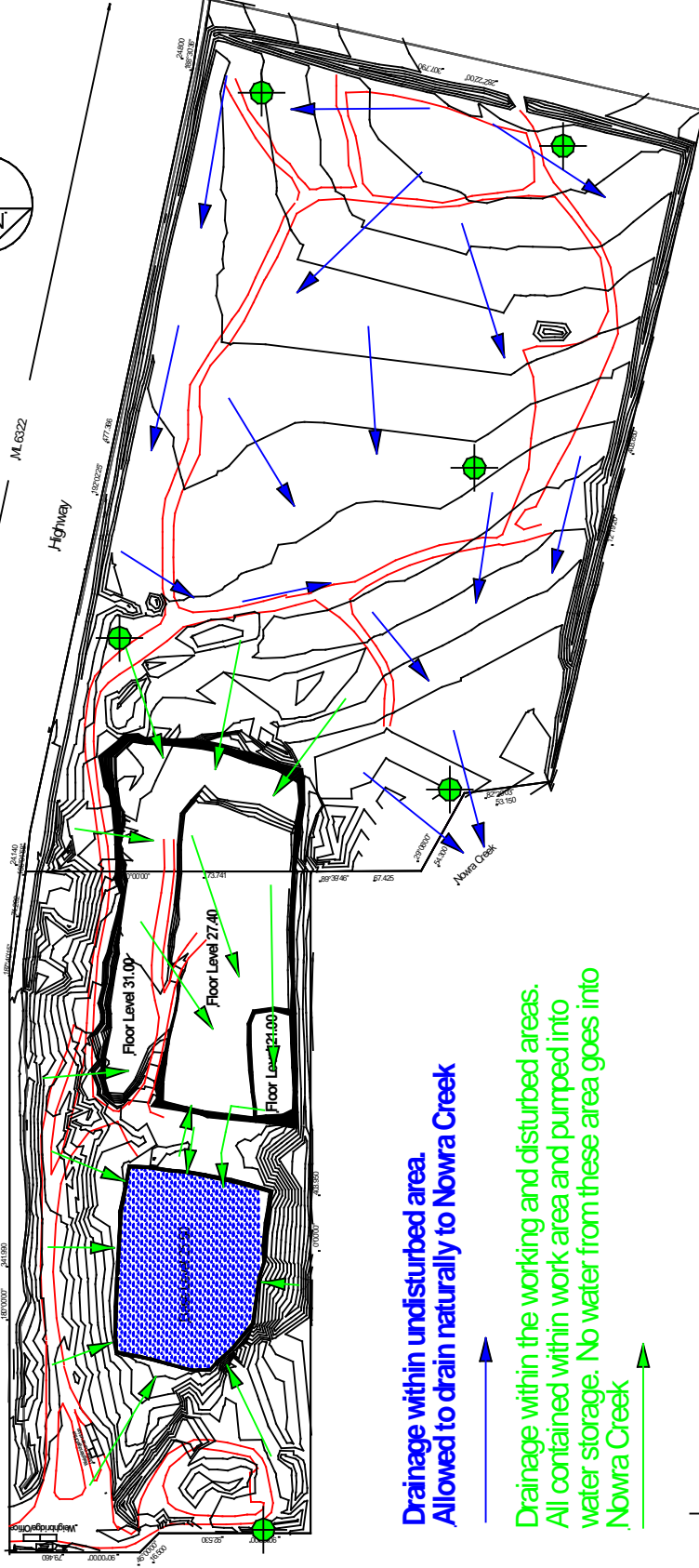


## Mining Activities

Plan of ML5087 and ML6322  
Nowra Brickworks Quarry,  
Princes Highway, South Nowra, NSW  
Scale 1:3500  
Date December 2011

ML5087

Prinos



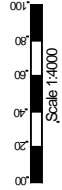
Drainage within undisturbed area.  
Allowed to drain naturally to Nowra Creek

Drainage within the working and disturbed areas.  
All contained within work area and pumped into  
water storage. No water from these area goes into  
Nowra Creek



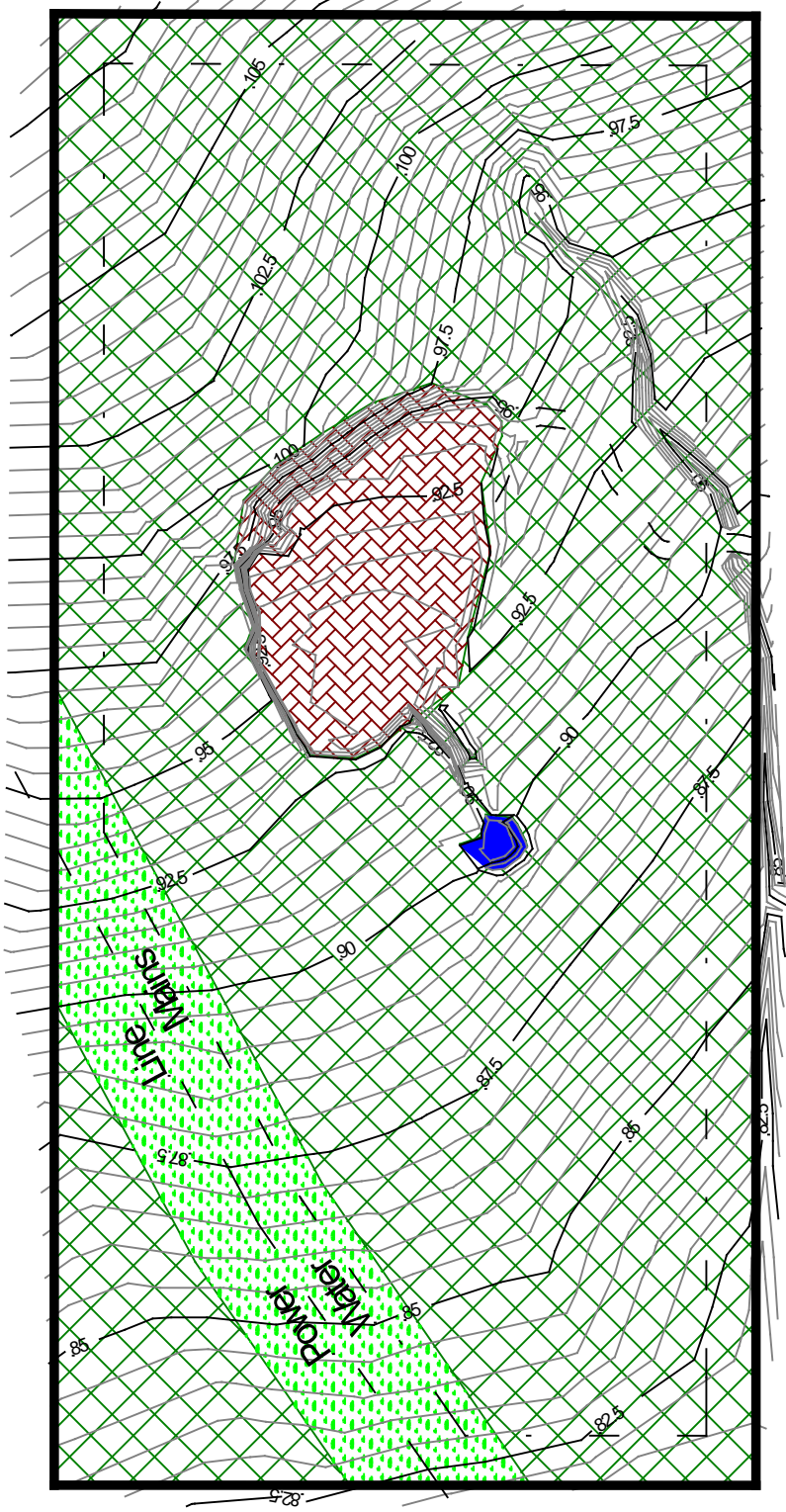
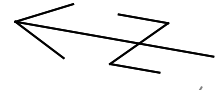
Indicates position of borehole piezometers  
to test subsurface flow and water quality

Contour Interval 1.0m  
Plan Grid Origin N00, E00= IGS N13425, E263228



## Drainage Configuration

Plan of ML5087 and ML6322  
Nowra Brickworks Quarry,  
Prinos Highway, South Nowra, NSW  
Scale 1:3500  
Date December 2011



Yalwal Road

— Lease Boundary  
- - - Limit Of Mining

- Native Grasses
- Native Endemic Forrest
- Sedimentation Pond
- Disturbed Area

Scale 1:2500  
Datum Assumed  
Contour Interval 0.5m

# AEMR Plan December 2011

## Mining Lease No 531

### Flatrock Quarry

#### Yalwal Road

No Mining Activity Was Carried Out During The Reporting Period