

2009 - 2010 Annual Environmental Management Report

for the

Cudgen Lakes Sand Quarry

Prepared by: R.W. CORKERY & CO. PTY. LIMITED This page has intentionally been left blank

Gales-Kingscliff Pty Ltd

ABN: 75 093 540 080

2009 - 2010 Annual Environmental Management Report

for the

Cudgen Lakes Sand Quarry

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2009 – 2010 Annual Environmental Management Report – Distribution

Hard copies and a CD of this document have been sent to the following organisations.

- Department of Planning Sydney
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- Department of Environment Climate, Change and Water NOW Grafton
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- I&I NSW Agriculture Wollongbar
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- Tweed Shire Council Murwillumbah

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SECTION 1. INTRODUCTION

1.1 SCOPE

This report has been prepared to assemble the information nominated in *Condition PA5/5* of Project Approval PA 05_0103 issued by the Minister for Planning on 16 June 2009 (see **Appendix 1**). The Cudgen Lakes Sand Quarry is to be established approximately 1.5km west of Kingscliff and 1.5km south of the Tweed River (see **Figure 1.1**).

This is the first *Annual Environmental Management Report* (AEMR) prepared for the Cudgen Lakes Sand Quarry and covers the period from 16 June 2009 to 15 June 2010. **Appendix 2** records the range of information that the conditional Project Approval PA 05_0103 nominates needs to be addressed in each AEMR, where available. It is noted that given no activities have yet commenced on site, there are numerous references to NYA namely "Not Yet Applicable" throughout this **Appendix 2**.

This document has been assembled generally in accordance with the intended format for all future AEMRs, however, on this occasion, reference is regularly made to the fact that on-site activities have not yet commenced.

This document has been circulated to a range of State Government Agencies and Tweed Shire Council in accordance with the requirements of *Condition* PA5/10 – see distribution list on Page ii.

1.2 APPROVALS, LICENCES AND PERMITS

1.2.1 Approvals

The Cudgen Lake Sand Quarry is an approved project under Part 3A of the *Environmental Planning & Assessment Act 1979* (see **Appendix 1**). Figure 1.2 displays the main components of the approved quarry.

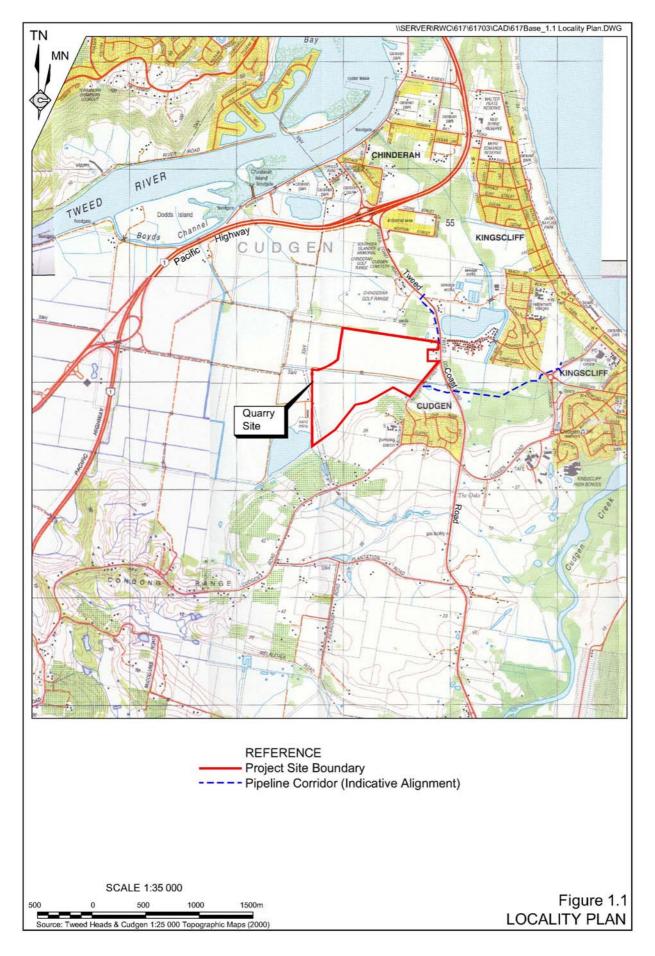
This approval effectively supersedes a Development Consent (DA96/518) issued for the extraction of sand from Lot 2 DP 216705. It is the intention of Gales-Kingscliff Pty Ltd to relinquish this development consent prior to 16 December 2010 in accordance with the requirements of *Condition PA2/2*.

1.2.2 Licences

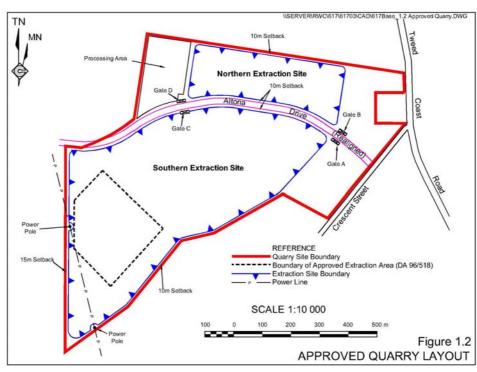
Gales-Kingscliff Pty Ltd currently holds Environment Protection Licence 12385 for the existing sand extraction operation within Lot 2 DP 216705. The company proposes to lodge an application to modify the licence during 2010-2011 following the completion of relevant documentation (see Section 4.2).



GALES-KINGSCLIFF PTY LTD Cudgen Lakes Sand Quarry







During 2010-2011, Gales-Kingscliff Pty Ltd will be lodging an application with the NSW Office of Water for a licence to pump groundwater from a location within its landholding as a contingency replacement water source in the event the sand dredging activities in the Southern Extraction Area cause a level of groundwater drawdown that affects the availability of irrigation water on the property south of the Southern Extraction Area.

1.2.3 Permits

Design work has commenced to assemble the required plans for the Altona Drive re-alignment and intersection with Crescent Street to accompany an application to Tweed Shire Council for a Construction Certificate and Road Construction Permit in accordance with Section 138 of the *Roads Act 1993*.

1.3 ENVIRONMENTAL PERFORMANCE MEASURES

The environmental performance measures that apply to the project are largely criteria set or recommended by the Department of Environment, Climate Change and Water – EP&RG. The various criteria area set out as follows.

Noise

- Condition 3/3 Noise Impact Criteria.
- Condition 3/4- Cumulative Noise Criteria.

Air Quality

• Condition 3/8 – Air Quality Impact Assessment Criteria.

Soil and Water

• Condition 3/11 – Water Quality Objectives.



1.4 ENVIRONMENTAL MANAGEMENT RESPONSIBILITES

The overall management of environmental issues has not yet been finalised. At this stage, it is proposed that the quarry contractor will be responsible for the operational components whilst all surveying and environmental monitoring will remain the responsibility of Gales-Kingscliff Pty Ltd. The responsibilities for environmental management will be presented in the 2010-2011 AEMR.

1.5 MANAGEMENT OF INVESTIGATIONS

This report has been prepared by Mr Robert W Corkery, Principal of RW Corkery & Co Pty Limited in conjunction with:

- Mr Stephen Segal Managing Director Gales-Kingscliff Pty Ltd.
- Mr Bill Knobel Knobel Consulting Pty Ltd.
- Mr Scott Hollamby RW Corkery & Co Pty Ltd (Brisbane Office).

Throughout 2010-2011, the assistance of the following specialist consultants will be obtained to finalise the requirement documentation and to assist with a range of activities on site.

- Australasian Groundwater & Environmental Consultants Pty Ltd Groundwater.
- Stephen N Webb & Associates Flooding.
- HMC Environmental Consulting Pty Ltd Monitoring.
- B&P Surveys Pty Ltd Site Surveying.

SECTION 2. OPERATIONS UNDERTAKEN DURING THE PAST 12 MONTHS

2.1 ON-SITE ACTIVITIES

2.1.1 Extraction Operations

No extraction operations have yet commenced on the Quarry Site.

2.1.2 VENM Receipts

No VENM has yet been received on the Quarry Site.

2.1.3 Processing Operations

No processing operations have commenced within the Quarry Site.

2.1.4 Landscaping and Rehabilitation Activities

No landscaping or rehabilitation activities have been undertaken on the Quarry Site. The planned vegetation screening around the approved extraction areas is programmed to commence in 2010-2011 following the relevant surveying and earthworks to define the boundaries of the extraction areas and acceptance of the Landscape Management Plan by the Director-General.

2.1.5 Other Activities

No other activities have commenced on the Quarry Site.

2.2 DOCUMENTATION

During 2009-2010, Gales Kingscliff Pty Ltd commenced the preparation of the Environmental Management Strategy as required by *Condition PA5/1*. That document in turn has provided for the structured preparation of the remaining documents to enable the quarry to commence operations.

Whilst the preparation of some documents commenced in 2009-2010, each of the documents being prepared, and proposed for completion in 2010-2011, are outlined in Section 4.2.



SECTION 3. ENVIRONMENTAL PERFORMANCE

3.1 INTRODUCTION

The environmental performance of the Cudgen Lakes Sand Quarry will be assessed through:

- 6 -

- i) monitoring a range of parameters with comparison to those criteria referred to in Section 1.4;
- ii) an analysis of complaints; and
- iii) an assessment of compliance with the conditional requirements of all approvals, licences and permits.

This section reviews the status of each of the above for 2009-2010.

3.2 ENVIRONMENTAL MONITORING RESULTS AND ANALYSIS

During 2009-2010, no additional monitoring was undertaken. Reliance for baseline monitoring results will be placed upon the monitoring recorded in the May 2008 *Environmental Assessment*.

3.3 COMPLAINTS

No complaints were received during 2009-2010.

3.4 ASSESSMENT OF COMPLIANCE

The absence of activities on site effectively means that compliance within the bulk of the conditional requirements is "Not Yet Applicable".

Given the Landscape Management Plan required under *Condition PA3/28* has not yet been finalised, the planned vegetation screening nominated in *Condition PA3/41* has not commenced. Gales-Kingscliff Pty Ltd has identified the areas where screen planting is proposed in 2010-2011, ie. following the surveying and definition of the boundaries of the extraction areas and Altona Drive realignment.

The submission of this report satisfies the requirement of *Condition PA5/5*, as nominated.



SECTION 4. OPERATIONS PLANNED DURING THE NEXT 12 MONTHS

4.1 ON-SITE ACTIVITIES

The activities undertaken on site during 2010-2011 will depend largely upon the timing for the appointment of the quarry contractor and the period of time for the contractor to finalise all documentation and to mobilise their equipment. Immediately following the appointment of the quarry contractor, the Community Consultative Committee will be established in accordance with *Condition PA5/9*. A complaints register will also be established following the appointment of the quarry contractor.

4.2 DOCUMENTATION

Gales-Kingscliff Pty Ltd recognises that apart from the overall *Environmental Management Strategy* for the quarry, the bulk of the documentation will be compiled in conjunction with the quarry contractor to ensure that the details of all relevant procedures accurately reflect the practices of the contractor.

It is recognised that the following documentation needs to be prepared and accepted as satisfactory by the Director-General prior to the nominated activity(ies) proceeding.

Prior to Any Development

- Noise Monitoring Program Condition PA 3/7.
- Dust Monitoring Program *Condition PA 3/9*.
- Flood Evacuation Plan Commitment SC6.6.
- Cultural Heritage Information Booklet Commitment SC15.5.

Prior to Commencing Quarrying Operations

- Soil and Water Management Plan (Condition PA 3/19) incorporating:
 - Water Balance;
 - Erosion and Sediment Control Plan;
 - Acid Sulphate Soil Management Plan;
 - Surface Water Monitoring Program; and
 - Groundwater Monitoring Program.
- Landscape Management Plan (Condition PA 3/28) incorporating:
 - Rehabilitation Management Plan; and
 - Long Term Management Strategy.



Prior to Installing Pipelines

• Survey Plans of the pipeline route(s) (*Condition PA 3/2*).

Prior to Commencing Road Construction

• Traffic Safety Plan (*Condition PA 3/36*).

It is proposed that the 2010-2011 AEMR is prepared for the period 16 June 2010 to 30 June 2011 and submitted by 31 July 2011. It is similarly proposed for AEMRs prepared in subsequent years to compile them for the period 1 July to 30 June and submit them within 1 month, ie. by 31 July.



APPENDICES

- Appendix 1: Project Approval PA 05_0103
- Appendix 2: Coverage of AEMR Requirements



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APPENDIX 1

A1 - 1

Project Approval PA 05_0103 (copy on CD only)

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Project Approval

Section 75J of the Environmental Planning and Assessment Act 1979

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

The reason for these conditions is to:

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

The Hon Kristina Keneally MP Minister for Planning

Sydney

2009

SCHEDULE 1

Project Application:

Proponent:

Approval Authority:

Land:

05_0103 Gales-Kingscliff Pty Ltd

Minister for Planning

Extraction Area

Pipeline Routes

- Lot 21 DP 1082482
- Lot 2 DP 216705

Altona Drive road reserve

- Lots 1 & 3 DP 828298
- Lots 26C & 26D DP 10715
- Lots 11 & 12 DP 871753
- Lot 1 DP 1075645
- Tweed Coast Road road reserve
- Crescent Street road reserve
- Lot 4 DP 727425
- road reserve between Lot 26D DP 10715 & Lot 11 DP 871753
- Elrond Drive road reserve
- Turnock Street road reserve

Project:

Cudgen Lakes Sand Extraction Project

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AEMR CCC Council Day DECC Department Director-General DPI DWE EA

EP&A Act EP&A Regulation EPL Evening Extraction area Land

Minister PASS POEO Act Privately-owned land Project Proponent RTA SEPP Shoulder Statement of Commitments Site VENM

DEFINITIONS

Annual Environmental Management Report **Community Consultative Committee** Tweed Shire Council The period from 7.00am to 6.00pm, Monday to Saturday Department of Environment and Climate Change Department of Planning Director-General of the Department of Planning, or delegate Department of Primary Industries Department of Water and Energy Environmental Assessment of the project titled Environmental Assessment of the Cudgen Lakes Sand Extraction Project prepared by R W Corkery & Co. Pty Limited dated May 2008, including the response to issues raised in submissions, dated August 2008, and supplementary information provided by the Proponent on 29 April and 29 May 2009 Environmental Planning and Assessment Act 1979 Environmental Planning and Assessment Regulation 2000 Environment Protection Licence under the POEO Act) The period from 6.00pm to 10.00pm The land defined as the extraction area in Schedule 1 Land means 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 Minister for Planning, or delegate Potential acid sulphate soil Protection of the Environment Operations Act 1997 Land that is not owned by a public agency or a quarrying company The development as described in the EA Gales Kingscliff Pty Ltd, or its successors in title Roads and Traffic Authority State Environmental Planning Policy The period from 6.00am to 7.00am The Proponent's commitments in Appendix 2 Land to which the Project Approval applies Virgin excavated natural material, as defined in the POEO Act

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

 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.

Surrender of Consents

2. Within 18 months of the date of this approval, or as otherwise approved by the Director-General, the Proponent shall surrender all previous development consents for sand extraction on Lot 2 DP 216705 and Lot 21 DP 1082482, to the satisfaction of the Director-General.

Terms of Approval

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

Note: The general layout of the project is shown in the figure in Appendix 1.

- 3. If there is any inconsistency between the documents referred to above, the conditions of this approval shall prevail to the extent of the inconsistency.
- 4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any reports, plans, programs or correspondence that are submitted in accordance with this approval; and
 - (b) the implementation of any actions or measures contained in these reports, plans, programs or correspondence.

Limits on Approval

5. Sand extraction operations may take place until 1 July 2029.

Note: Under this Approval, the Proponent is required to rehabilitate and revegetate 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 and revegetated to a satisfactory standard.

- 6. The Proponent shall not remove from the extraction area, by any means, more than 650,000 cubic metres of material a year.
- 7. The Proponent shall not transport from the extraction area by road more than 300,000 tonnes of material per year.
- The Proponent shall not import to the extraction area more than 45,000 tonnes per year of VENM. The Proponent shall ensure that material imported in compliance with this condition does not contain waste.

Management Plans/Monitoring Programs

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

Protection of Public Infrastructure

- 10. The Proponent shall:
 - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and

(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Note: This condition does not apply where such costs have already been provided by the Proponent through applicable road contribution or S94 plans (see Condition 14 below).

Compliance with Relevant Legislation and Other Approvals

11. The Proponent shall comply with all relevant Australian Standards and Codes (including Building Code of Australia) and obtain all necessary approvals required by State and Commonwealth legislation in undertaking the project.

Notes:

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

Demolition

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

Operation of Plant and Equipment

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

Section 94 Contributions

- 14. Prior to carrying out any development, or as otherwise agreed by Council, the Proponent shall pay Council \$91,761.00 in accordance with Section 7.1 of Council's *Tweed Road Contribution Plan No.4 Version 5.1* and \$399.40 in accordance with Council's *Section 94 Plan No.18*.
- 15. After submission of each AEMR and on receipt of an invoice from Council, the Proponent shall pay to Council an amount calculated by Council to be the Proponent's contribution under Section 7.2 of Council's *Tweed Road Contribution Plan No.4 Version 5.1* in respect of the heavy haulage of VENM to the site.

SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

GENERAL EXTRACTION AND PROCESSING PROVISIONS

Identification of Boundaries

- 1. Within 1 month of the date of approval of the Landscape Management Plan (see condition 28 below), the Proponent shall:
 - (a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction;
 - (b) submit a survey plan of these boundaries to the Director-General; and
 - (c) ensure that these boundaries are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.

Note: The limit of extraction includes the areas described in the EA and shown conceptually on the plans in Appendix 1.

Pipeline Corridor

- 2. Prior to commencing work to install pipelines in the pipeline corridors (shown conceptually in Appendix 1), the Proponent shall submit for the approval of the Director-General:
 - (a) a survey plan of the route of the pipeline;
 - (b) evidence that this route does not require native vegetation clearing;
 - (c) evidence that the fill sites have approval for filling; and
 - (d) in relation to the eastern pipeline:
 - evidence that any vegetation cleared from the eastern pipeline corridor following the date of this approval has been lawfully carried out in accordance with another approval;
 - (ii) details of proposed measures to protect vegetation during pipeline installation, operation and removal; and
 - (iii) details of measures, developed in consultation with DECC, to provide opportunities for the Wallum Froglet to cross the eastern pipeline.

NOISE

Impact Assessment Criteria

3. The Proponent shall ensure that the noise generated by the project during the operating hours specified in condition 5, does not exceed the noise impact assessment criteria in Table 1.

Receiver Location	Day and Evening	Shoulder	
	L _{Aeq (15 min)} dB(A)	L _{Aeq (15 min)} dB(A)	
Residences on privately owned land	47	44	

Table 1: Noise Impact Assessment Criteria

Notes:

- Noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy.
- The noise limits do not apply if the Proponent has an agreement with the relevant owner/s of the residence/land to generate higher noise levels, and the Proponent has advised the department in writing of the terms of the agreement.

Cumulative Noise Criteria

- 4. The Proponent shall take all reasonable and feasible measures to ensure that noise generated by the project combined with the noise generated by other industrial development does not exceed the following amenity criteria on any privately owned land, to the satisfaction of the Director-General:
 - L_{Aeg (11 hour)} 50 dB(A) Day;
 - LAeg (4 hour) 45 dB(A) Evening and
 - L_{Aeq(9 hour)} 40 dB(A) Night

Hours of Operation

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

Activity	Day	Time
Site establishment, sand or soil	Monday – Friday	7:00am to 6:00pm
extraction by excavator, dry processing, product transport by	Saturday	7:00am to 1:00pm
road, VENM receipts, other quarry related activities, maintenance (if audible at neighbouring residences)	Sunday and Public Holidays	Nil
Sand extraction by dredging and	Monday – Friday	7:00am to 10:00pm
pumping to the processing plant, wet processing.	Saturday	7:00am to 4:00pm
processing.	Sunday and Public Holidays	Nil
Sand extraction by dredging and	Monday – Friday	7:00am to 6:30pm
pumping to fill sites.	Saturday	7:00am to 1:00pm
	Sunday and Public Holidays	Nil
Operation of dredge to fill pipeline	Monday – Friday	6.30am to 7.00pm
with water or pipeline flushing	Saturday	6.30am to 1.30pm
	Sunday and Public Holidays	Nil
Maintenance (if inaudible at neighbouring residences)	Any day	Any time

Table 2: Operating Hours

Continuous Improvement

- 6. The Proponent shall:
 - (a) implement all reasonable and feasible best practice noise mitigation measures;
 - (b) investigate ways to reduce the noise generated by the project; and
 - (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR,

to the satisfaction of the Director-General.

Noise Monitoring Program

- 7. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:
 - (a) be submitted to the Director-General for approval prior to carrying out any development on the site;
 - (b) provide details of how the noise performance of the project would be monitored, including monitoring at the following locations:
 - Residence G;
 - Residence DD;
 - Residence F;
 - Residence B; and
 - Residence O, and
 - (c) include a noise monitoring protocol for evaluating compliance with the relevant noise limits in this approval.

Note: For more information on the monitoring locations see Appendix 3.

AIR QUALITY

Impact Assessment Criteria

8. The Proponent shall ensure that dust generated by the project does not cause exceedances of the criteria listed in Tables 3 to 5 at any privately owned land.

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

Table 3: Short Term Impact Assessment Criteria for Particulate Matter

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

Table 4: Long Term Impact Assessment Criteria for Particulate Matter

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

Table 5: Long Term Impact Assessment Criteria for Deposited Dust

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Dust Monitoring Program

- 9. The Proponent shall prepare and implement a Dust Monitoring Program for the project to the satisfaction of the Director-General. This program must:
 - (a) be submitted to the Director-General for approval prior to carrying out any development on the site; and
 - (b) include details of how the air quality performance of the project would be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.

SOIL AND WATER

Discharges

10. Except as may be expressly provided for by an EPL, the Proponent shall not discharge any water from the project or ancillary operational areas. The Proponent shall ensure that the extraction pits subject to sand excavation are maintained and operated to prevent discharges of any surface water.

Water Quality Objectives

11. The Proponent shall aim to meet the water quality objectives in Table 6 for water in the dredge pond and in groundwater adjacent the dredge pond, unless otherwise approved by the Director-General.

Pollutant	Unit of Measure	Water Quality Objectives
Turbidity	NTU	5 - 20
pН	pН	6.5 - 8.5
Oil and Grease	mg/L	10
Salinity	μS/cm	<3,000
Dissolved oxygen	mg/L	>6
Chlorophyll-a	µg/L	2-10
Faecal coliforms	Median No./100mL	<1000
Enterococci	Median No./100mL	<230
Algae and blue-green algae	No. of cells/mL (M.aeruginosa)	<50,000
	mm ³ /L (total biovolume)	<4
Sodium	mg/L	<500
Potassium ion	mg/L	<40
Magnesium ion	mg/L	<100
Chloride ion	mg/L	<1000
Sulphate ion	mg/L	<800
Bicarbonate ion	mg/L	<400
Soluble Iron ion	mg/L	<20
Soluble aluminium ion	mg/L.	<0.5
Ammonium ion	mg/L	<20

Table 6: Water Quality Objectives

Notes:

- The objectives for dissolved oxygen, turbidity and algae are relevant to surface water only.
- The Department acknowledges that short term exceedances of these objectives may occur during
 natural events such as heavy rainfall or flooding.
- The Department acknowledges that pre-existing water quality may not meet the objectives for some analytes, including salinity. The Proponent shall strive to meet the water quality objectives through implementation of the Soil and Water Management Plan (see condition 19 below), as far as is reasonable and feasible and within the Proponent's control, to the satisfaction of the Director-General.

PASS Fines Management

- 12. The Proponent shall ensure that all excavated PASS fines material is returned to below the watertable as soon as possible to prevent oxidation, unless adequately neutralised in accordance with methods approved under the Soil and Water Management Plan (see condition 19 below).
- 13. The Proponent must not remove material from the site that:
 - (a) has a Chromium reducible Sulfur level exceeding 0.03% Sulfur; or
 - (b) contains a pH less than 5.5 in 1:5 water suspension.
- 14. The Proponent shall ensure that PASS material to be interred in the excavation is discharged into the pond at a depth of no less than 3 metres from the water surface, and that all fines are deposited to a final depth of at least 8 metres below the water surface, unless an alternative method is approved by DWE and the Director-General.

Note: Material that would settle to a depth of at least 8 metres may be placed in the pond at a depth of less than 3 metres by excavator or similar equipment.

Flood Management

- 15. All earthworks, including drainage and bunding works, shall be contained wholly within the site.
- 16. The Proponent shall cease sand extraction and processing activities not less than 24 hours prior to the commencement of overflow from any extraction pond or as soon as notification is received of an impending flood, if notification is provided less than 24 hours prior. No sand extraction or processing shall occur while an extraction pond is overflowing.
- 17. The Proponent shall ensure that the flood storage capacity of the site is not less than the pre-existing flood storage capacity at all stages of the project. Details of the available flood storage capacity shall be reported in each AEMR.
- 18. The top of the earth bunding around the northern and southern extraction ponds shall not exceed 1.8 m AHD. Spillways shall be provided at the eastern and western extents of each bund and shall be a minimum of 50 m wide and not exceed 1.3 m AHD. Bunds and spillways shall be suitably surfaced (for example grassed or rock lined) to avoid scour and erosion during storm and flood events.

Management and Monitoring

- 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 DWE and DECC;
 - (b) include a:
 - Water Balance;
 - Erosion and Sediment Control Plan;
 - Acid Sulfate Soil Management Plan;
 - Blue-Green Algae Management Plan;
 - Surface Water Monitoring Program; and
 - Groundwater Monitoring Program; and
 - (c) be submitted to the Director-General prior to starting quarrying operations, and prior to carrying out any development on the site in the case of the Erosion and Sediment Control Plan.
- 20. The Water Balance shall include:
 - (a) details of all water extracted, transferred, used and/or discharged by the quarry;
 - (b) the source of all water collected or stored on the site, including rainfall, stormwater and groundwater; and
 - (c) measures to minimise water use or water loss by the project.
- 21. The Erosion and Sediment Control Plan shall:
 - (a) be consistent with the relevant requirements of Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004 (Landcom), and Council's codes including its Code of Practice for Soil and Water Management on Construction Sites, Development Design Specification D7 – Stormwater Quality and Tweed Urban Stormwater Quality Management Plan, except that should an inconsistency occur between these documents, the higher standard shall apply;
 - (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 to downstream waters;
 - (d) describe the location, function, and capacity of erosion and sediment control structures; and
 - (e) describe what measures would be implemented to maintain these structures over time.
- 22. The Acid Sulfate Soil Management Plan shall:
 - (a) be consistent with the NSW Acid Sulphate Soil Advisory Committee's Acid Sulfate Soil Manual; and
 - (b) define procedures for managing the potential acid sulfate soils on the site, including sample testing and procedures.
- 23. The Blue-Green Algae Management Plan shall:
 - be prepared by a suitably qualified blue-green algae expert, whose appointment has been approved by the Director-General;

- (b) be consistent with extant guidelines for blue-green algae management including the NHMRC's *Guidelines for Managing Risks in Recreational Water*,
- (c) describe the measures that would be implemented to prevent and control the sources of algal blooms over the short, medium and long term; and
- (d) define procedures for the management and notification of identified algal blooms.
- 24. The Surface Water Monitoring Program shall include:
 - (a) detailed baseline data on surface water quality;
 - (b) surface water impact assessment criteria;
 - (c) a program to monitor surface water levels and quality;
 - (d) a program to manage any water releases from the site;
 - (e) a program to monitor bank and bed stability; and
 - (f) a protocol for the investigation, notification and mitigation of identified exceedances of the surface water impact assessment criteria.
- 25. The Groundwater Monitoring Program shall include:
 - (a) detailed baseline data on groundwater levels and quality, based on statistical analysis;
 - (b) groundwater impact assessment criteria;
 - (c) a program to monitor groundwater levels and quality;
 - (d) a program to monitor groundwater level effects on groundwater dependent vegetation, and on groundwater supply to adjoining properties;
 - (e) a protocol for the investigation, notification and mitigation of identified exceedances of the groundwater impact assessment criteria; and
 - (f) a protocol for making good any adverse effect of changes to groundwater levels or quality associated with the project on water use on surrounding properties.

Pipeline Management

26. For the life of the pipelines, the Proponent shall maintain the pipelines, ensuring that any leaks or maintenance issues are detected and repaired to the satisfaction of the Director-General.

REHABILITATION AND LANDSCAPING

Rehabilitation

27. The Proponent shall progressively rehabilitate the site to the satisfaction of the Director-General.

Landscape Management Plan

- 28. The Proponent shall prepare and implement a Landscape Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be prepared:
 - by suitably qualified consultants, including a specialist hydrologist, coastal engineer, wetlands ecologist and landscape architect;
 - in consultation with Council, DWE and DPI-Fisheries; and
 - in accordance with extant guidelines including the DWE's Constructed Wetlands Manual, Volumes 1 and 2 and the DPI's Policy and Guidelines: Aquatic Habitat Management, 1999;
 - (b) be submitted to the Director-General prior to starting quarrying operations on the site; and
 - (c) include a:
 - Rehabilitation Management Plan; and
 - Long Term Management Strategy.

Note: The Department accepts that the initial Landscape 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.

- 29. The Rehabilitation Management Plan must include:
 - (a) the rehabilitation objectives for the site and pipeline corridors;
 - (b) a description of the short, medium, and long term measures that would be implemented to:
 - rehabilitate and stabilise the site and pipeline corridors; and
 - manage the restored vegetation and wetland habitat established on the site;

- (c) detailed performance and completion criteria for the rehabilitation and stabilisation of the site;
- (d) consideration of outcomes if VENM material received for backfilling is less than optimum;
 (e) a detailed description of how the performance of the rehabilitation of the site would be
- monitored over time to achieve the stated objectives;
- (f) a detailed description of what measures would be implemented over the next 5 years to rehabilitate and manage the landscape of the site and revegetation areas 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 vegetation adjoining pipelines;
 - managing impacts on fauna, including measures to enable Wallum Froglet to cross the eastern pipeline;
 - controlling terrestrial and aquatic weeds and pests;
 - controlling access; and
 - reducing the visual impacts of the project;
- (g) a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
- (h) details of who is responsible for monitoring, reviewing, and implementing the plan.
- 30. The Long Term Management Strategy must:
 - (a) define the objectives and criteria for quarry closure and post-extraction management;
 - (b) investigate options for the future use of the site;
 - (c) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
 - (d) describe how the performance of these measures would be monitored over time.

Rehabilitation Bond

- 31. Prior to starting quarrying operations on the site, the Proponent shall lodge a rehabilitation bond for the project with the Director-General. The sum of the bond shall be calculated at:
 - (a) \$2.50/m² for the total area to be disturbed and/or revegetated in each 5 year review period (see condition 32 below); and
 - (b) \$1.50/m² for the total area of land previously disturbed and/or rehabilitated by the project,
 - to the satisfaction of the Director-General.

Notes:

- If the rehabilitation and revegetation works are completed to the satisfaction of the Director-General, the Director-General will release the rehabilitation bond.
- If the rehabilitation and revegetation works are not completed to the satisfaction of the Director-General, the Director-General will call in all or part of the rehabilitation bond, and arrange for the satisfactory completion of the relevant works.
- 32. Within 6 months of each Independent Environmental Audit (see condition 6 of schedule 5) excluding the inaugural audit, unless the Director-General directs otherwise, the Proponent shall review, and if necessary revise, the sum of the rehabilitation bond to the satisfaction of the Director-General. This review must consider:
 - (a) the effects of inflation;
 - (b) any changes to the total area of disturbance; and
 - (c) the performance of the rehabilitation and revegetation to date.

ABORIGINAL CULTURAL HERITAGE

Aboriginal Cultural Heritage Management Plan

- 33. 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 the relevant Aboriginal communities;
 - (b) be submitted to the Director-General for approval prior to carrying out any development; and
 - (c) include a:
 - description of the Aboriginal cultural heritage induction protocol for employees;

- description of the process for Aboriginal inspection of excavations for the northern pipeline corridor;
- description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the project either within or beyond the area of disturbance; and
- description of the process for identifying a long-term storage location should Aboriginal relics be discovered within the project site requiring salvage.

TRAFFIC AND TRANSPORTATION

Road Works

- 34. Prior to despatch of sand by road, the Proponent shall:
 - (a) upgrade the intersection of Tweed Coast Road and Crescent Street for right turning vehicles to AUSTROADS CHR treatment; and
 - (b) upgrade the intersection of Tweed Coast Road and Crescent Street for left turning vehicles to AUSTROADS Figure 6.24 left turn treatment,

to the satisfaction of Council.

Note: In the event that the Tweed Coast Road is upgraded prior to the commencement of the despatch of sand by road, the Proponent shall pay \$105,000 (indexed annually by CPI) to Tweed Shire Council as a contribution to intersection works on Tweed Coast Road and Crescent Street for trucks entering onto Tweed Coast Road from Crescent Street.

Road Haulage

35. Trucks are not permitted to enter the site prior to 7.00am on any day.

Note: 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 DECC and the affected residents as soon as possible, or within a reasonable period in the case of emergency.

- 36. The Proponent shall prepare and implement a Traffic Safety Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be prepared in consultation with the RTA and Tweed Shire Council;
 - (b) include measures to minimise the risk to other road users from project-related vehicles on public roads during construction and operation, including vehicles proceeding across Altona Drive between the southern and northern parts of the site;
 - (c) prohibit trucks departing the site from turning right from Crescent Street to Tweed Coast Road; and
 - (d) be submitted to the Director-General prior to commencing construction work.
- 37. Product and VENM trucks are not to utilise Altona Drive west of the site or Crescent Street south of Altona Drive, except for the purpose of delivery or collection local to those streets.
- 38. The Proponent shall ensure that all loaded vehicles:
 - (a) entering or leaving the site have their loads covered; and
 - (b) leaving the site are cleaned of materials that may fall on the road before they are allowed to leave the site.

Parking

39. The Proponent shall provide sufficient parking on-site for all project-related traffic and visitors, in accordance with Council's parking codes and to the satisfaction of the Director-General. No on street parking shall be undertaken.

VISUAL IMPACT

Visual Amenity

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

41. The Proponent shall establish and subsequently maintain the vegetation screen around the extraction area within 12 months of the date of this approval.

Note: The vegetation screen_shall be detailed in the Landscape Management Plan required under condition 28.

Lighting Emissions

- 42. The Proponent shall:
 - (a) take all practicable measures to mitigate off-site lighting impacts from the project; and
 - (b) ensure that all external lighting associated with the project complies with Australian Standard AS4282 (INT) 1995 Control of Obtrusive Effects of Outdoor Lighting,
 - to the satisfaction of the Director-General.

Advertising

- 43. The Proponent shall not erect or display any advertising structure(s) or signs on the site without the written approval of the Director-General.
 - Note: This does not include business identification, traffic management and safety or environmental signs.

WASTE MANAGEMENT

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

EMERGENCY AND HAZARDS MANAGEMENT

Dangerous Goods

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

Safety

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

Bushfire Management

- 47. 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 as much as possible if there is a fire onsite.

PRODUCTION DATA

- 48. The Proponent shall:
 - (a) provide annual production data to the DPI 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, affected landowners, and/or existing or future tenants accordingly, 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

 If a landowner considers that the project is exceeding 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.
- 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 4).

SCHEDULE 5 ENVIRONMENTAL MANAGEMENT AND MONITORING CONDITIONS

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 prior to starting quarrying operations on the site;
 - (b) provide the strategic context for environmental management of the project;
 - (c) identify the statutory requirements that apply to the project;
 - (d) describe in general how the environmental performance of the project would be monitored and managed;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the construction, operation and environmental performance of the project;
 - · receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the life of the project;
 - respond to any non-compliance;
 - manage cumulative impacts; and
 - respond to emergencies; and
 - (f) describe the role, responsibility, authority, and accountability of the key personnel involved in the environmental management of the project.

ENVIRONMENTAL MONITORING PROGRAM

2. The Proponent shall prepare an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must be submitted to the Director-General prior to starting quarrying operations on the site, and consolidate the various monitoring requirements in schedule 3 of this approval into a single document.

INCIDENT REPORTING

- 3. 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.
- 4. 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:
 - (a) describes the date, time, and nature of the exceedance/incident;
 - (b) identifies the cause (or likely cause) of the exceedance/incident;
 - (c) describes what action has been taken to date; and
 - (d) describes the proposed measures to address the exceedance/incident.

ANNUAL REPORTING

- 5. 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 including Council. 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;
 - (c) describe the works that will be carried out in the next 12 months;
 - (d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
 - (e) include a summary of the monitoring results for the project during the past year;
 - (f) include an analysis of these monitoring results against the relevant:
 - impact assessment criteria/limits;
 - monitoring results from previous years; and
 - predictions in the EA;
 - (g) identify any trends in the monitoring results over the life of the project;
 - (h) identify any non-compliance during the previous year;
 - (i) describe what actions were, or are being, taken to ensure compliance; and
 - (j) list the sources of VENM material received at the site and the tonnage of materials received from each source during the period to which the AEMR refers.

INDEPENDENT ENVIRONMENTAL AUDIT

- 6. Within 2 years of the start of quarrying operations on site, and every 5 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 person(s) whose appointment has been approved by the Director-General;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the project, and its effects on the surrounding environment;
 - (d) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;
 - (e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
 - (f) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.
- 7. 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 all of the recommendations in the audit report.
- 8. Following each Independent Environmental Audit, the Proponent shall review and if necessary revise each of the environmental management and monitoring strategies/plans/programs in schedules 3 and 5, to the satisfaction of the Director-General. The revised strategies/plans/programs shall be submitted to the Director-General within 6 months of completing the audit.

COMMUNITY CONSULTATIVE COMMITTEE

9. Prior to starting quarrying operations on the site, the Proponent shall establish a CCC for the project. This CCC must be established and operated in accordance with the *Guideline for Establishing and Operating Community Consultative Committees for Mining Developments*, and to the satisfaction of the Director-General.

Note: With the approval of the Director-General, the Proponent may combine the CCC with the CCC for the Hanson Tweed sand extraction operation.

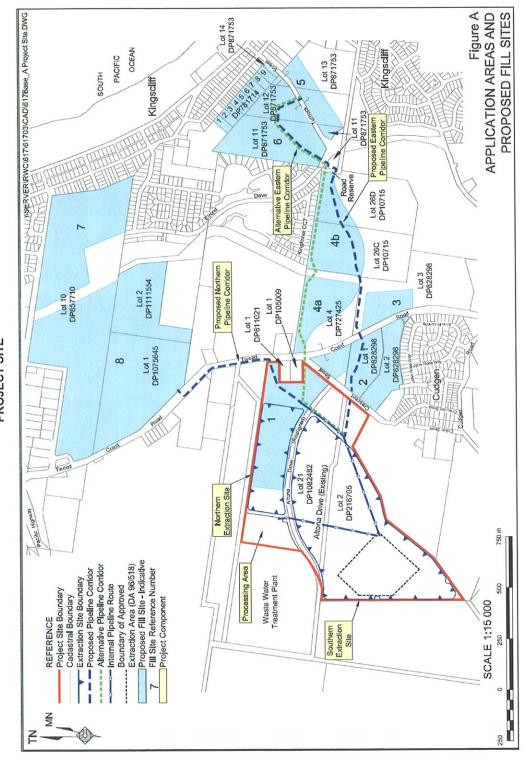
ACCESS TO INFORMATION

- 10. Within 1 month of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), or the completion of any independent environmental audit or AEMR, the Proponent shall:
 - (a) provide a copy of the relevant document/s to Council and relevant agencies; and
 - (b) ensure that a copy of the relevant document/s is made publicly available on site and/or at the Proponent's regional office and on the Proponent's website,

to the satisfaction of the Director-General.

- 11. During the project, the Proponent shall:
 - (a) make a summary of monitoring results required under this approval publicly available at the Proponent's regional office and on the Proponent's website; and
 - (b) update these results regularly (at least every 3 months),

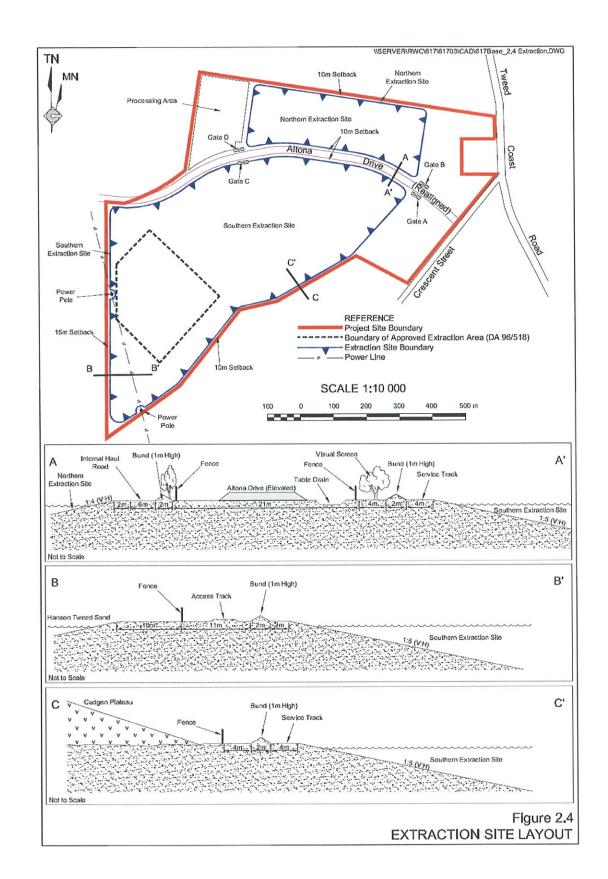
to the satisfaction of the Director-General.



APPENDIX 1 PROJECT SITE

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APPENDIX 2

Coverage of AEMR Requirements

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COVERAGE OF AEMR REQUIREMENTS

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Condition/ Commitment No	AEMR Requirement	Covered in Section*	
PA2/3	Include an Annual Compliance Review.	3.4	
PA 2/6	Production Schedules.	NYA	
PA 2/7	Product Transportation Records.	NYA	
PA 2/8	Incoming VENM Transportation Records.	NYA	
PA 2/15	Payment of Contribution to Council for VENM haulage to site.	NYA	
PA 3/48	Annual Production to I&I NSW.	NYA	
PA 3/48	Submit AEMR to the Director-General.	1.1	
PA 5/10	Distribution of AEMR.	1.1	
SC 2.4	• Report quantity of sand produced (<300 000tonnes) per year.	NYA	
PA 3/27	Report upon rehabilitation progress.	NYA	
SC 5.3	Document all earthworks in each AEMR.	NYA	
SC 5.3	Include photographs of rehabilitation.	NYA	
SC 5.4	Record the maintenance activities throughout the reporting period.	NYA	
PA3/17	Details of on-site flood storage capacity.	NYA	
SC 8.1	SC 8.1 • Record works undertaken if water quality in the extraction pond deteriorates.		
SC 7.10	Present a summary of all monitoring results.	NYA	
SC 9.20	 SC 9.20 Record the extent of sand washed for use as concrete sand (re removal of fines potentially containing pyrite). 		
SC 9.21	Record extent of sand treated with alkaline amendments.	NYA	
SC 9.24	 Record the pH of water into which VENM(b) is placed (needs to be >6.5). 	NYA	
SC 9.25	Records of VENM(b) testing (as per EA Table 4.10).	NYA	
SC 9.26	 Records of pH of VENM(b) immediately prior to under-water disposal (needs to be >5.5). 	NYA	
PA3/10	Records of any discharges from site.	NYA	
SC 10.6	• Records of replacement trees (if any) along the pipeline corridor(s).	NYA	
PA 3/6	 Report on the effectiveness of the noise mitigation measures implemented. 	NYA	
PA 3/4, 3/6, 3/26, 3/27, 3/32, 3/42, 3/44, 3/46, 5/8, 5/10, and 5/11	Correspondence from Director-General confirming acceptance of AEMR.	NYA	



COVERAGE OF AEMR REQUIREMENTS

Page 2 of 2

Condition/ Commitment No	AEMR Requirement	Covered in Section*
SC 13.3	 Record (through a photograph) presence of an acoustic fence or the processing area bund (see EA Figure 2.6). 	NYA
SC 13.4	 Record extent (if any) of partial or full enclosure of noisy equipment (and before/after noise measurements). 	NYA
SC 13.5	 Record effectiveness of the controls to limit noise from reversing alarms from earthmoving equipment and trucks on site. 	NYA
SC 14.1	• Record locations of water sprays to reduce dust during screening and dry processing.	NYA
PA 3/41	Record the status of the vegetation screen around the extraction area.	2.1.4
PA 3/42	Record measures taken to mitigate off-site lighting impacts.	NYA
SC 16.1	 Photographic record of vegetated 3m bund around the processing area. 	NYA
SC 16.4	Include photographs to demonstrate the site is kept clean and tidy.	NYA
SC 16.5	Record air quality controls implemented.	NYA
PA 3/44	Record waste volumes despatched to landfill or recycling/reuse.	NYA
SC 4.2	Record volume of oversize materials placed within VENM(a) receival area.	NYA
PA 3/46	Report upon any public safety issues.	NYA
* NYA = Not Yet A	pplicable	-

