

APPENDIX F – Current Environmental Discharge & Monitoring Locations

APPENDIX G - Summary of On-site Meteorological Conditions for 2011, 2012 & 2013

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:
 ELEV: 80 m LAT: LONG:

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=32	MAX <=0	MIN <=0	MIN <=-18
11	1	30.7	19.4	26.4	0.0	0	99	41.1	31	13.5	30	10	0	0	0
11	2	30.5	20.0	26.7	0.0	0	110	41.3	1	13.7	24	10	0	0	0
11	3	27.1	17.8	23.6	0.0	1	64	34.8	1	13.0	8	2	0	0	0
11	4	22.4	13.1	19.4	0.0	8	20	27.3	9	6.4	12	0	0	0	0
11	5	19.4	12.0	17.0	0.0	5	1	22.2	1	3.6	28	0	0	0	0
11	6	17.0	8.0	14.4	0.0	41	0	20.3	21	1.8	7	0	0	0	0
11	7	19.3	8.2	14.6	0.0	59	4	27.0	22	0.0	8	0	0	1	0
11	8	19.2	7.6	15.7	0.0	39	7	25.3	4	1.3	10	0	0	0	0
11	9	22.0	9.4	17.7	0.0	29	23	31.1	23	2.9	13	0	0	0	0
11	10	23.0	12.9	19.6	0.0	18	34	33.4	24	6.1	12	1	0	0	0
11	11	27.5	17.1	23.7	0.0	4	76	36.8	14	12.2	2	7	0	0	0
11	12	23.3	16.6	20.7	0.0	6	37	29.9	25	10.3	5	0	0	0	0
		23.7	13.7	20.2	0.0	211	476	41.3	FEB	0.0	JUL	30	0	1	0

PRECIPITATION (mm)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.2	2	20
11	1	2.0	0.0	1.2	23	2	0	0
11	2	5.2	0.0	4.0	12	4	1	0
11	3	10.0	0.0	3.4	20	7	2	0
11	4	4.0	0.0	2.0	26	6	1	0
11	5	0.4	0.0	0.2	2	2	0	0
11	6	6.6	0.0	3.0	14	5	2	0
11	7	0.0	0.0	0.0	1	0	0	0
11	8	4.6	0.0	2.8	19	4	1	0
11	9	22.4	0.0	21.4	25	3	1	1
11	10	14.4	0.0	9.0	2	5	3	0
11	11	14.8	0.0	6.0	23	9	2	0
11	12	13.6	0.0	7.6	8	4	2	0
		97.9	0.0	21.4	SEP	51	15	1

WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM
					DIR
11	1	1.1	30.6	27	S
11	2	1.4	40.2	3	S
11	3	1.5	45.1	30	NNE
11	4	1.4	41.8	12	NNW
11	5	1.1	27.4	5	N
11	6	2.1	59.5	21	NNW
11	7	1.8	61.2	5	NE
11	8	1.2	45.1	19	SE
11	9	2.4	59.5	20	SE
11	10	1.4	40.2	2	SSW
11	11	1.5	51.5	14	SE
11	12	1.4	33.8	11	SSW
		1.6	61.2	JUL	SSW

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:
 ELEV: 80 m LAT: LONG:

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN	MEAN	MEAN	DEP.	HEAT	COOL	HI	DATE	LOW	DATE	MAX	MAX	MIN	MIN
		MAX	MIN		FROM	DEG	DEG								
				NORM	NORM	DAYS	DAYS								
12	1	27.4	18.1	23.9	0.0	1	89	35.3	4	11.2	13	3	0	0	0
12	2	26.7	18.1	23.5	0.0	1	68	31.8	27	14.6	12	0	0	0	0
12	3	24.8	16.4	21.9	0.0	3	52	30.4	16	10.3	24	0	0	0	0
12	4	23.6	13.6	20.3	0.0	9	34	29.0	3	7.9	13	0	0	0	0
12	5	19.7	8.0	16.2	0.0	32	8	27.0	11	2.8	23	0	0	0	0
12	6	16.6	8.2	14.0	0.0	40	0	19.8	15	1.3	24	0	0	0	0
12	7	16.4	6.8	13.6	0.0	52	1	21.7	13	0.8	2	0	0	0	0
12	8	19.5	5.4	15.2	0.0	46	6	29.1	23	0.0	8	0	0	1	0
12	9	23.3	7.7	18.4	0.0	28	28	33.3	28	1.2	1	1	0	0	0
12	10	25.2	12.5	20.9	0.0	15	52	34.6	5	5.6	13	5	0	0	0
12	11	26.4	17.9	23.2	0.0	2	66	37.8	30	12.7	12	5	0	0	0
12	12	28.5	21.1	25.3	0.0	0	89	39.1	24	17.5	10	8	0	0	0
		23.2	12.8	19.7	0.0	229	492	39.1	DEC	0.0	AUG	22	0	1	0

PRECIPITATION (mm)

YR	MO	TOTAL	DEP.	MAX	DATE	DAYS OF RAIN		
			FROM	OBS.		OVER		
			NORM	DAY	.2	2	20	
12	1	33.4	0.0	18.0	25	10	4	0
12	2	30.4	0.0	6.8	29	12	5	0
12	3	12.0	0.0	7.4	2	8	1	0
12	4	2.2	0.0	1.2	18	4	0	0
12	5	4.4	0.0	4.0	24	3	1	0
12	6	3.0	0.0	1.2	12	5	0	0
12	7	2.4	0.0	1.0	12	4	0	0
12	8	0.0	0.0	0.0	1	0	0	0
12	9	0.0	0.0	0.0	1	0	0	0
12	10	9.2	0.0	9.0	12	2	1	0
12	11	5.6	0.0	4.2	26	3	1	0
12	12	0.2	0.0	0.2	9	1	0	0
		102.8	0.0	18.0	JAN	52	13	0

WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM
					DIR
12	1	1.7	54.7	11	S
12	2	0.7	33.8	12	S
12	3	1.2	35.4	8	S
12	4	1.0	40.2	24	NW
12	5	0.9	43.5	13	NNE
12	6	0.8	38.6	17	NE
12	7	1.5	38.6	20	NNW
12	8	2.3	67.6	17	NE
12	9	2.2	56.3	7	SSW
12	10	2.0	46.7	12	SSW
12	11	1.9	51.5	1	WSW
12	12	2.3	46.7	5	W
		1.5	67.6	AUG	S

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:
 ELEV: 80 m LAT: 33° 48' 00" S LONG: 151° 18' 00" E

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP.	HEAT	COOL	HI	DATE	LOW	DATE	MAX >=32	MAX <=0	MIN <=0	MIN <=-18
					FROM NORM	DEG DAYS	DEG DAYS								
13	1	31.3	22.3	27.6	0.0	0	120	45.6	18	17.6	14	15	0	0	0
13	2	27.5	20.2	24.8	0.0	0	78	35.2	8	15.7	2	3	0	0	0
13	3	27.4	21.2	25.1	0.0	0	76	32.6	28	16.8	2	3	0	0	0
13	4	23.3	14.5	20.3	0.0	5	25	29.0	14	9.7	23	0	0	0	0
13	5	20.0	15.4	18.4	0.0	1	1	23.2	8	10.8	5	0	0	0	0
13	6	15.5	12.0	14.1	0.0	10	0	18.3	26	6.9	22	0	0	0	0
13	7	18.1	6.5	14.5	0.0	45	2	22.1	17	1.2	23	0	0	0	0
13	8	19.5	7.5	16.0	0.0	26	6	24.6	30	4.1	21	0	0	0	0
13	9	25.2	10.4	20.6	0.0	16	48	32.2	25	5.7	28	1	0	0	0
13	10	27.3	11.8	22.2	0.0	13	71	36.7	21	5.1	15	6	0	0	0
13	11	25.4	16.0	22.0	0.0	5	53	35.3	28	11.2	6	4	0	0	0
13	12	29.6	19.0	25.7	0.0	0	114	41.8	20	11.8	7	6	0	0	0
		25.2	15.0	21.7	0.0	121	595	45.6	JAN	1.2	JUL	38	0	0	0

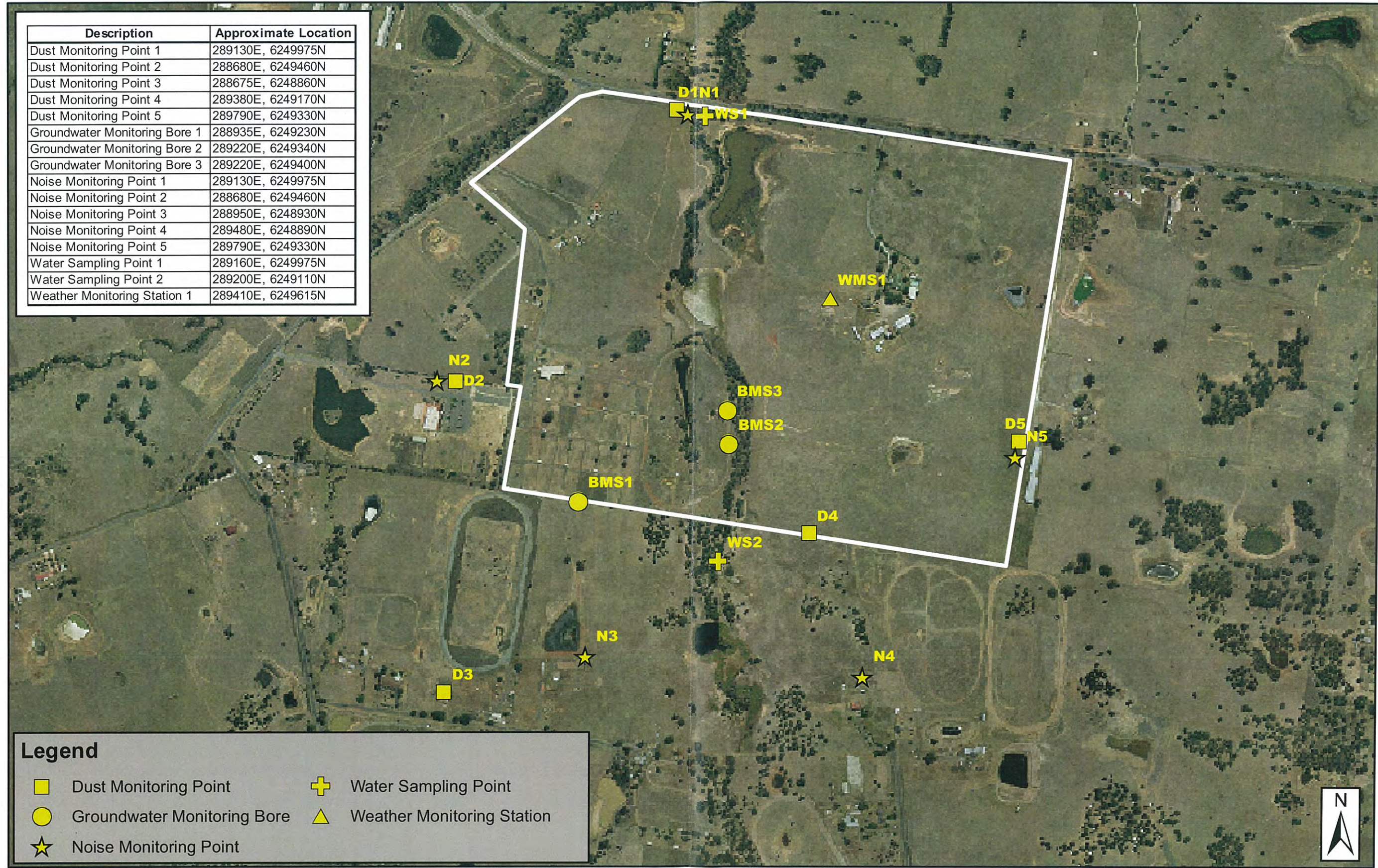
PRECIPITATION (mm)

YR	MO	TOTAL	DEP.	MAX	DATE	DAYS OF RAIN OVER		
			FROM NORM	OBS. DAY		.2	2	20
13	1	3.4	0.0	1.8	29	5	0	0
13	2	27.0	0.0	24.2	23	6	1	1
13	3	2.8	0.0	2.8	2	1	1	0
13	4	4.4	0.0	2.0	20	7	1	0
13	5	0.0	0.0	0.0	1	0	0	0
13	6	7.6	0.0	2.6	25	7	1	0
13	7	0.0	0.0	0.0	1	0	0	0
13	8	0.0	0.0	0.0	1	0	0	0
13	9	1.2	0.0	1.0	20	2	0	0
13	10	0.2	0.0	0.2	23	1	0	0
13	11	23.2	0.0	8.2	11	8	3	0
13	12	5.6	0.0	5.6	25	1	1	0
		75.4	0.0	24.2	FEB	38	8	1

WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM
					DIR
13	1	2.1	64.4	18	W
13	2	1.9	40.2	23	WSW
13	3	1.1	37.0	28	W
13	4	0.9	40.2	19	NE
13	5	0.3	17.7	5	WSW
13	6	0.6	25.7	26	N
13	7	1.0	43.5	5	SSE
13	8	2.0	53.1	6	NE
13	9	2.2	67.6	26	ENE
13	10	3.1	70.8	17	SW
13	11	2.1	53.1	3	N
13	12	1.8	48.3	5	WSW
		1.8	70.8	OCT	WSW

Description	Approximate Location
Dust Monitoring Point 1	289130E, 6249975N
Dust Monitoring Point 2	288680E, 6249460N
Dust Monitoring Point 3	288675E, 6248860N
Dust Monitoring Point 4	289380E, 6249170N
Dust Monitoring Point 5	289790E, 6249330N
Groundwater Monitoring Bore 1	288935E, 6249230N
Groundwater Monitoring Bore 2	289220E, 6249340N
Groundwater Monitoring Bore 3	289220E, 6249400N
Noise Monitoring Point 1	289130E, 6249975N
Noise Monitoring Point 2	288680E, 6249460N
Noise Monitoring Point 3	288950E, 6248930N
Noise Monitoring Point 4	289480E, 6248890N
Noise Monitoring Point 5	289790E, 6249330N
Water Sampling Point 1	289160E, 6249975N
Water Sampling Point 2	289200E, 6249110N
Weather Monitoring Station 1	289410E, 6249615N



Legend

- Dust Monitoring Point
- Groundwater Monitoring Bore
- Noise Monitoring Point
- Water Sampling Point
- Weather Monitoring Station

Plan for indicative purposes only. Not for detailed measurement. Monitoring and sample locations are approximate and have not been fixed by land survey. Subject site boundary subject to final survey.



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0 100 200 300 400 500 m

1:10,000 Approximate at A4

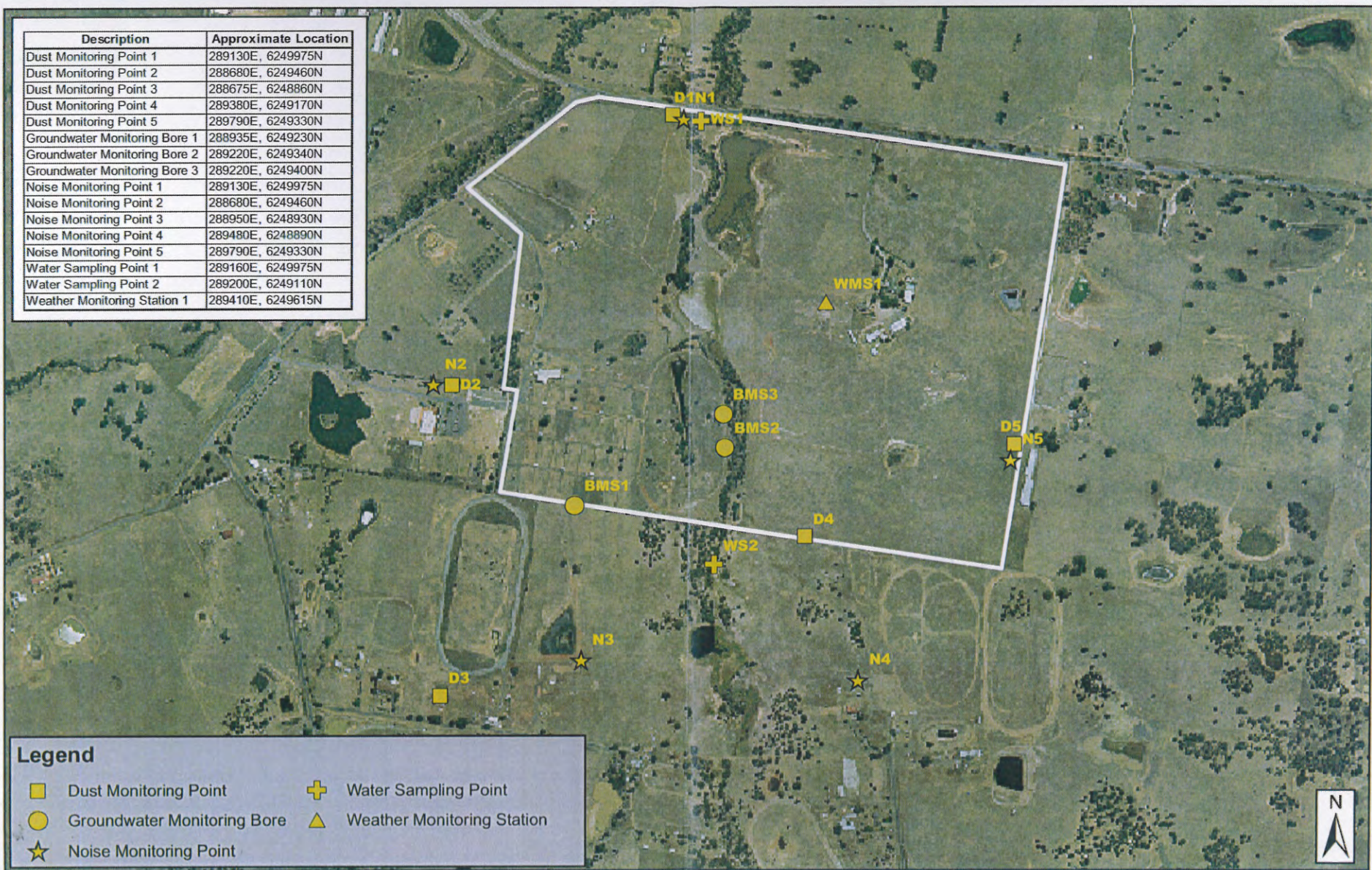
Original plan produced in A colour

Drawing No.	8102	Date	
Drawn By	JM	Date	06/05/09
Amendment		Date	
A			
B			
C			

Figure 1
Monitoring Sites
 Luddenham Clay / Shale Quarry

Source: Aerial © Department of Lands 2009

Description	Approximate Location
Dust Monitoring Point 1	289130E, 6249975N
Dust Monitoring Point 2	288680E, 6249460N
Dust Monitoring Point 3	288675E, 6248860N
Dust Monitoring Point 4	289380E, 6249170N
Dust Monitoring Point 5	289790E, 6249330N
Groundwater Monitoring Bore 1	288935E, 6249230N
Groundwater Monitoring Bore 2	289220E, 6249340N
Groundwater Monitoring Bore 3	289220E, 6249400N
Noise Monitoring Point 1	289130E, 6249975N
Noise Monitoring Point 2	288680E, 6249460N
Noise Monitoring Point 3	288950E, 6248930N
Noise Monitoring Point 4	289480E, 6248890N
Noise Monitoring Point 5	289790E, 6249330N
Water Sampling Point 1	289160E, 6249975N
Water Sampling Point 2	289200E, 6249110N
Weather Monitoring Station 1	289410E, 6249615N



Legend

■ Dust Monitoring Point	⊕ Water Sampling Point
● Groundwater Monitoring Bore	▲ Weather Monitoring Station
★ Noise Monitoring Point	



Plan for indicative purposes only. Not for detailed measurement. Monitoring and sample locations are approximate and have not been fixed by land survey. Subject site boundary subject to final survey.



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0 100 200 300 400 500 m

1:10,000 Approximate at A4

Original plan produced in A colour

Drawing No.	8102	Date	
Drawn By	JM	Date	06/05/09
Amendment		Date	
A			
B			
C			

Figure 1
Monitoring Sites
 Luddenham Clay / Shale Quarry

Source: Aerial © Department of Lands 2009

**APPENDIX H - Epic Mining Pty Limited Revised Mine Operations Plans and Mining & Extraction
Operational Plan**



ADAMS ROAD QUARRY BADGERYS CREEK

**EPIC MINING MINE OPERATIONS PLAN
M(MO)LA No 3
DECEMBER 2013.**

Prepared by: SAMUEL TARABORI

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Report Date: December 2013

Report Number: V 1.3

Report Authorised by: Brad Casey

Reviewed by: Nicolas Israel

National Integrated Creative Solutions

Review Date: October 2014

ABBREVIATIONS

MOP	MINE OPERATIONS PLAN
PMA	PRIVATE MINING AGREEMENT
DPI	DEPARTMENT OF PRIMARY INDUSTRIES
DECCW	DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE & WATER
DA	DEVELOPMENT APPLICATION
EPA	ENVIRONMENT PROTECTION AUTHORITY
LALC	LOCAL ABORIGINAL LAND COUNCIL
LOT 1	LOT 1 DP 838361, 2420 ELIZABETH DRIVE BADGERYS CREEK
LOT 3	LOT 3 DP 823799, 275 ADAMS ROAD LUDDENHAM
M(MO)LA	MINE (MINERAL OWNERS) LEASE APPLICATION
LPI	LAND AND PROPERTY INFORMATION

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QUARRY INFORMATION & DECLARATION

Name of mine:	<i>Epic Quarry</i>
Titles/Mining Leases:	<i>M(MO)LA No 3</i>
MOP Commencement Date:	<i>December 2010</i>
Completion Date :	<i>December 2017</i>
Name of lease holder:	<i>EPIC Mining Pty Ltd</i>
ABN:	<i>86 144 713 931</i>
Name of mine operator (if different):	<i>EPIC Mining Pty Ltd</i>
ABN:	<i>86 144 713 931</i>
Landowner:	<i>Fearndale Holding Pty Ltd</i>
ACN:	<i>123 361 973</i>
Reporting Officer:	<i>Samuel Tarabori</i>
Title:	<i>Operations Manager</i>

Signature:

.....

Date:

STATUTORY DECLARATION

New South Wales

STATUTORY DECLARATION

OATHS ACT, 1900

EIGHTH SCHEDULE

I,....., of in the State of New South Wales, solemnly and sincerely declare as follows:

1. I am the duly appointed(management position)
for(mine name)

2. I am authorised to make this Declaration on behalf of the Lease Holder,
.....(name of leaseholder),
A.C.N.....

3. All works and activities described in the Mining Operations Plan to which this declaration is attached comply with the conditions of the title of the mining lease (or mining leases) shown in the Mining Operations Plan, and with the conditions of Development Consent and all other relevant Government Agency approvals and licences granted in respect of them.

4. I confirm that all of the works and activities referred to in the previous paragraph lie wholly within the area shown in the Mining Operations Plan and that the tenements (mining leases, colliery holdings, land ownership) details of those tenements are correct.

And I make this solemn Declaration, conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

Subscribed and Declared at
in the State of New South Wales this day of.....in the year
(sgd)

before me (sgd)Justice of the Peace

EXECUTIVE SUMMARY

This report has been prepared by Epic Mining Pty Ltd to address the mining, stockpiling, processing and rehabilitation operations on the Epic Quarry (Adams Road) (M(MO)LA No 3) as required by the Department of Primary Industries - Mineral Resources.

The Mine Operations Plan (MOP) identifies issues with Lot 3 DP 823799 (Lot 3) only. Lot 3 is the approved extraction area while Lot 1 DP 838361 (Lot 1) is an ancillary parcel of land for services and utilities.

The period of the MOP is set for a maximum of Seven years to December 2017 and describes all mining and mining related activities, rehabilitation plans and land use outcomes over the MOP period. Any land clearing operations will be undertaken ahead of extraction which will progress in a Westerly direction from Oaky Creek. Progressive rehabilitation activities will follow behind the mining void moving in an East to West direction. It is expected that the mine when at full production will produce approximately 150,000 m³ of Structural Clay-Shale per annum. Minimal exploration activities are planned and no significant infrastructure to be constructed over the MOP period.

The MOP presented does not include the final rehabilitation and closure phase of the mine, rehabilitation beyond the scope of the MOP are dealt with as concepts rather than in detail. An interim closure plan was developed in 2009 and was approved by NSW Department of Planning approved *Site Rehabilitation Plan, Clay/Shale Quarry Adams Road Luddenham April 2009 (Ref 8102) Prepared by Conacher Environmental Group*. A copy of this plan is documented as **Attachment H**.

An independent environmental audit has been conducted by *Australian Workplace Management Pty Ltd on the 17/10/2013*. A copy of this audit is documented as **Attachment I**.

The extent of the Epic Quarry life is dependent on a number of factors which include but not limited to the rate and demand of annual brick production within the NSW housing market. At this stage it is envisaged that mining at the Epic Quarry will extend many years beyond this MOP period.

1 INTRODUCTION

1.1 SCOPE

This report was prepared by Epic Mining in accordance with:

- ✓ Conditions of authority of M(MO)LA No 3.
- ✓ The Guidelines to the Mining, Rehabilitation and Environmental Management Process, issued by the Department of Primary Industries, Version 3 January 2006.
- ✓ Sites DA No 315-7-2003 issued 2004
- ✓ Sites EPA Licence No 12863 issued June 2009
- ✓

1.2 BACKGROUND

Operations of the mine is located off the Elizabeth Drive, Badgerys Creek and falls within Liverpool City Council Local Government boundaries but the quarry is overseen by NSW Planning Department as the project has been elevated to State Significant.

The site is gazetted in the “*Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)*” issued by NSW Government. A copy of this plan is documented as **Attachment J**. The main quarry entrance and service amenities are located off 2420 Elizabeth Drive, Badgerys Creek NSW known as Lot 1. **Figure One** includes a Location Map for **Epic Quarry**. The extraction area is located on Lot 3 which also has a secondary access of Adams Road Luddenham NSW 2525.

Prior to extraction operations beginning on site the land was used as horse training and spelling yards. Prior to this the land was part of much larger parcel that was a large milking dairy.

The then landowners the “*Harpley Family*” also operated a small produce supply store and currently resided on the site. Below is an aerial photo from 2007 showing the **Epic Quarry Pre Extraction Operation and Land Use (Refer to Figure Two)**.

Enquiries with Liverpool Council have indicated that the subject property, Lot 1, is Zoned RU1 Primary Producer under Liverpool Council Local Environment Plan 2008. A NSW LPI Title Search certificate is supplied for both Lot 1 and Lot 3 as **Attachment A**.

Extraction operations began early 2010 by Epic Mining Pty Ltd to supply the Sydney brickworks and surrounding areas with Colour Fired Selectively Mined clays and shales. The Department of Primary Industries holds M(MO)LA No 3 (Mineral Owners Lease) over the site, which is owned by the Fearndale Holdings Pty Ltd. Epic Mining Pty Ltd, extracts the structural clay-shale for brick & paver manufacturing by the major NSW brickmaking companies. Mining operations are conducted by using open cut methods.

1.3 PROPOSED AND FUTURE OPERATIONS

The Epic Quarry supplies Structural clay-shale to the local brick & paver manufacturing market.

The current Mineral Owners Lease (M(MO)LA No 3) will remain current until Epic Mining Pty Ltd is not the Mine Operator. The current Mine Operations Plan (MOP) is due to expire in December 2017.

The proven Structural Clay-Shale resource is not expected to be exhausted by end of the proposed MOP period and it is expected that extraction activities will continue for many years beyond that period.

A detailed clay and shale resource assessment was undertaken by R.W Corkery in 2005. In total, approximately 3.9 million tonnes of material could be extracted from the approved Epic Quarry if extraction proceeds to a common 30m depth. The full report by "R.W Corkery & Co Pty Ltd - Badger Mining Company Estimates of Clay/Shale Resources within the Luddenham Quarry" dated June 2005 is documented as **Attachment K**.

The total mine extraction life is dependent up on several outside parameters. The major consideration being the demand for clay-shale raw materials within the NSW brick production industry. Brick & paver manufacturing varies substantially year to year depending on the strength or weakness of the domestic housing market.

Hours of operation for the site are set out in both the DA and EPA Licence. Hours of extraction and haulage are 7am to 6pm Monday to Friday. On Saturday maintenance activities are allowed between the hours of 7am to 1pm. No works are to be undertaken outside these hours and public holidays.

1.4 MINE CONTACTS DETAILS:

Mine Production Manager:

Samuel Tarabori

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 **Fax:** 02 4774 9338 **Mob:** 041 0411 998

Email: Samuelt@epicmining.com.au

Mine Operator:

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 **Fax:** 02 4774 9338

Email: Info@epicmining.com.au

Mine Lease Holder

Fearndale Holding Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 **Fax:** 02 4774 9338

Environmental Officer:

Nicolas Israel

National Integrated Creative Solutions Pty Ltd

PO Box 150 Seven Hills NSW 2147

Mobile: 0421 776 003 **Email:** 20nicolas15@gmail.com

FIGURE ONE - EPIC QUARRY LOCATION

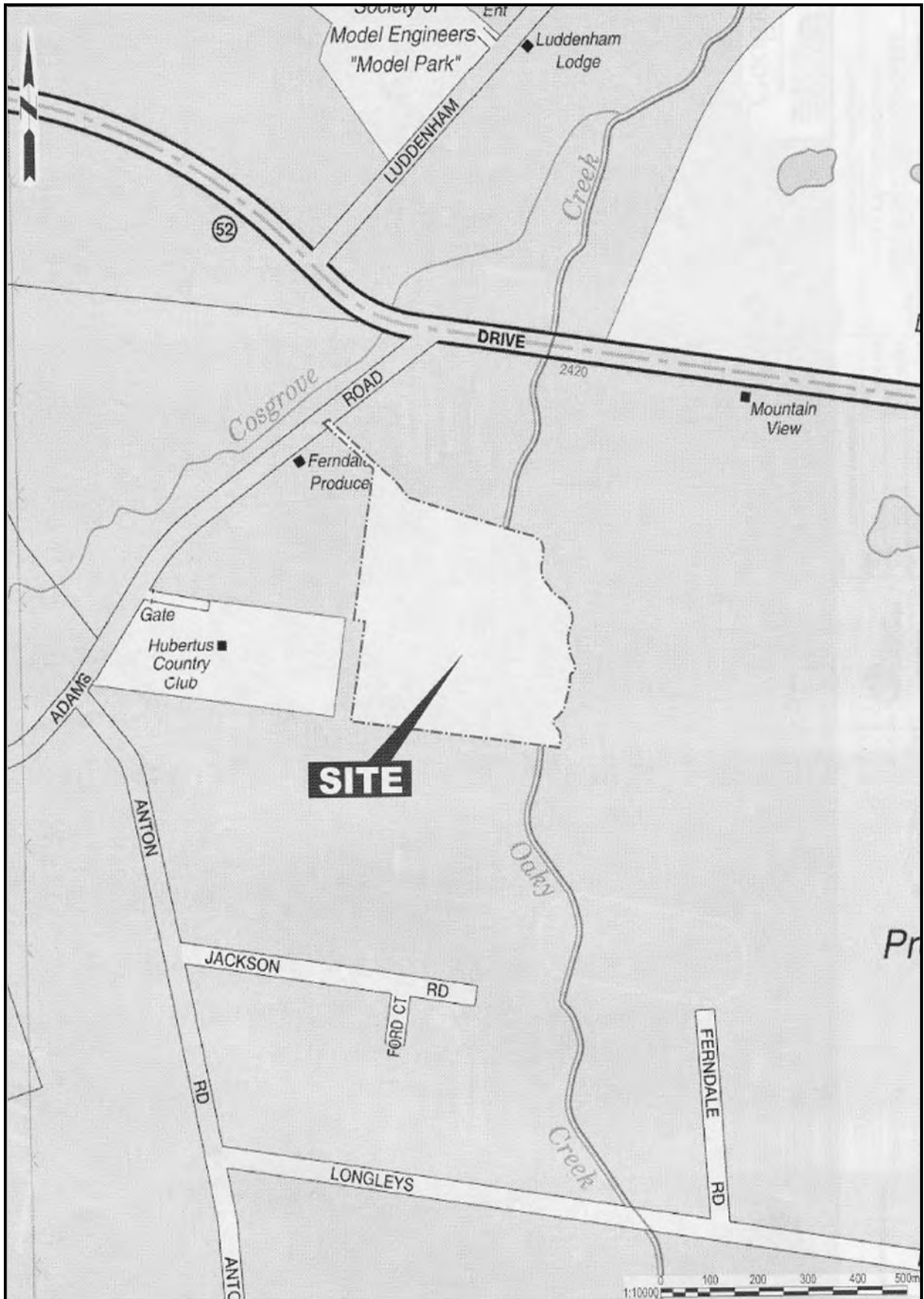


FIGURE TWO - EPIC QUARRY PRE-EXTRACTIVE OPERATIONS AND LAND USE



2 CONSENTS, LEASES AND LICENCES

2.1 NSW DEPARTMENT OF PRIMARY INDUSTRIES (DPI)

The DPI previously issued a PMA number 40. This has since been superseded and a Mineral Owners Lease issued (M(MO)LA No 3, Act 1992). It covers a total area of 6.66 hectares and the **Approved Quarry Footprint** in **Figure Three**. A more recent site survey, prepared by Monaghan Surveyors Pty Ltd on 8-11-10 Ref No. 01019-T5, is attached as an **Attachment F**. Copies of the previous PMA 40 and M(MO)LA No3 are supplied as **Attachment B**.

2.2 NSW DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER (NOW ENVIRONMENT PROTECTION AUTHORITY)

An Environment Protection Licence (EPL) was issued to Epic Mining Pty Ltd on the 5th June 2009. Licence number 12863. Copy of the full EPL is documented as **Attachment C**.

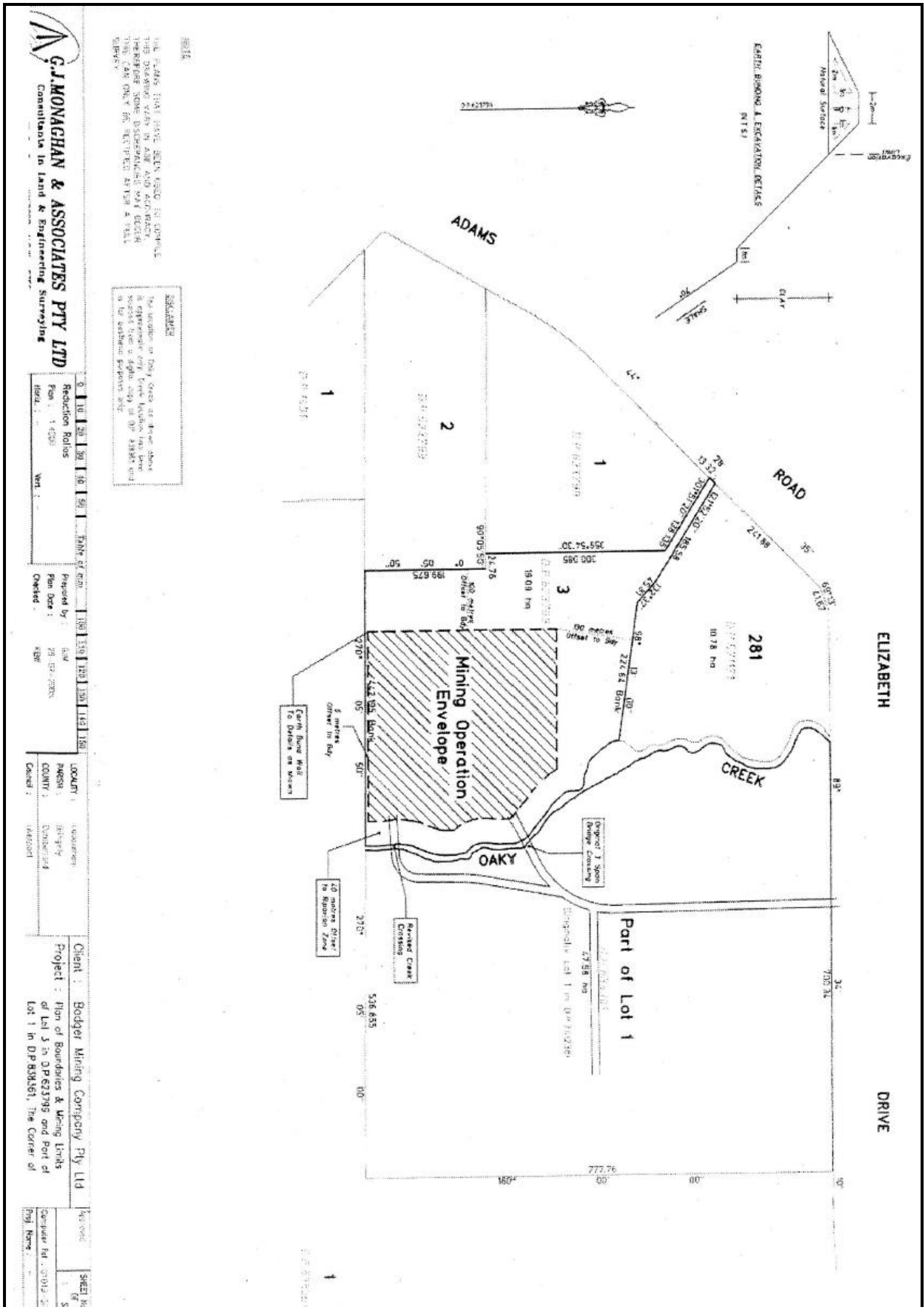
2.3 LIVERPOOL CITY COUNCIL & NSW DEPARTMENT OF PLANNING

Liverpool City Council has not imposed conditions on the project. This is due to project being classified and elevated as having state significance. Site DA was issued in 2004 under *NSW Department of Planning*. A copy of the *DA No 315-7-2003* and modifications to the original DA are documented as **Attachment D**.

2.4 COMMUNITY CONSULTATION

Due to the semi-rural location of the quarry and other community or landowner stakeholders, a Community Consultative Committee has been implemented as per DA conditions in Schedule 5. The site has been moderately disturbed over the past decade and is considered of little natural or cultural significance by the National Parks and Wildlife Service and aboriginal communities. A small area 2m by 3m has been highlighted as having Aboriginal Heritage. This area has been identified and fenced to be protected as well as to prevent unauthorised access.

FIGURE THREE - APPROVED QUARRY FOOTPRINT



G.J. MONAGHAN & ASSOCIATES PTY LTD
 Consultants in Land & Engineering Surveying

Reduction Ratio: 1:4000
 Plan Date: 28/07/2023
 Project: Plan of Boundaries & Mining Links of Lot 5 in DP 623795 and Part of Lot 1 in DP 819461, The Corner of

Client: Boddger Mining Company Pty Ltd
 Project: Plan of Boundaries & Mining Links of Lot 5 in DP 623795 and Part of Lot 1 in DP 819461, The Corner of

THE PLANES THAT HAVE BEEN USED IN THIS DRAWING ARE IN ACCORDANCE WITH THE SURVEY ACT 1958 AND THE SURVEY REGULATIONS 1962. THE INFORMATION CONTAINED HEREIN IS FOR INFORMATION ONLY AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY KIND.

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3 PRE-MOP ENVIRONMENT

3.1 MINE GEOLOGY

The Luddenham area lies within the central part of the Sydney sedimentary basin. This basin is a large depression that began to form in the early Permian times and gradually filled with a variety of sedimentary strata, including a thick sequence of coal measures. The Hawkesbury Sandstone is a widespread and continuous sheet of sandstone that was deposited in Triassic times. This originally horizontal expanse of sandy sediments continued to form a shallow central depression that filled with mainly fine grained sediments forming a series of shaly and silty strata named the Wianamatta group; it included the Ashfield Shales and Bringelly Shale.

3.2 EXISTING LANDFORM

The project site is located in rural land holdings (Zoned RU1) that are used for grazing. Horse training activities are also prevalent in the area along with market gardens.

There is a small farming produce business that operates on the property. Once the quarry is operational the business will be relocated and existing buildings removed from site.

The surface of the site area lies approximately 60 - 70 metres above sea level and from reports prepared by the Geological Survey it was deduced that Wianamatta group of sedimentary strata below the site are about 120m thick. As the combined thickness of the Ashfield Shale and Minchinbury Sandstone is some 60 metres thick, the Bringelly Shale is about 60 metres thick.

Clean surface water runoff is diverted around the disturbed site via earth bund-walls and sediment dams are used to trap and treat any dirty water runoff from the disturbed areas. Despite the fact that the site has two licensed water monitoring and discharge points, it continues to operate with a “nil water discharge policy” to the environment.

Temporary vegetation is encouraged where possible in order to minimise erosion and reduce the generation of sediment laden waters. **Figure Four** includes a site aerial photograph which shows the **Site Existing Landforms & Environmental Management**.

FIGURE FOUR - SITE EXISTING LANDFORMS & ENVIRONMENTAL MANAGEMENT SYSTEMS



4 PROPOSED MINING ACTIVITIES

4.1 EXPLORATION

There is no exploration activities planned during this MOP period. Detailed exploration of the extraction area and surrounding area was undertaken by R.W Corkery & Company Pty Ltd in June 2005.

The resource identification consisted of a number of core drill bores being sunk and then kiln fired for colour verification for brickmaking purposes. The full report **Badger Mining Company Estimates of Clay/Shale Resources within the Luddenham Quarry Prepared by R.W Corkery & Co Pty Ltd** is documented as **Attachment K**.

4.2 LAND PREPARATION

Top soils in this area are typically thin in the order of 0.3m thick. They are of a silty clay loam texture and are classified as A Horizon of the weathered profile. As a result the topsoils are resistant to erosion and weathering due to the high clay content.

Any topsoil generated by the operations will be stored for extended periods, generally in forms of stockpiles or clean water bund diversion. Soils will be seeded with native species to prevent erosion. The soils will also be improved with the addition of composted organic material. This enriching will assist with rehabilitation projects and divert organic materials that otherwise would have been landfilled.

Tree clearing has occurred sometime ago and no trees have been identified for clearing during this MOP.

Clearing operations will be undertaken in an east to westerly direction from Okay Creek as the active mine face progress upslope.

4.3 CONSTRUCTION

No construction activities are planned for the MOP period.

4.4 MINING

The current industry best extraction method for brickmaking selective mined technique of ripping and cross ripping of shale/sandstone/clay with a bulldozer and pushing up material into stockpiles, to be loaded into articulated dump trucks and then layered into stockpiles for external sale, will be used and maintained. This selective extraction technique gives the greatest flexibility to provide the correct clay-shale mixes, reduce colour variations, increases fretting and scouring and removes unwanted shale-sandstone materials.

Numerous raw material product types are to be extracted from the site: These include: Red Clay, Pink-White Clay, Brown Shale, Apricot Shale, Sandstone and Cream Shale. They will be stockpiled separately behind the operational mine face and loaded out for external sale using an excavator or front-end loader.

Extraction will progress towards the west from Oaky Creek and will continue with benches and batters at heights as required. **Mining & Extraction Operational Plan** showing the typical benching, slopes, ramp design and batters is shown as an **Attachment E**.

Generally mining will occur once a year and a campaign may last from 3 - 8 months. Mining frequency and campaign durations will be driven by the demands of the NSW domestic housing market. The housing market is difficult to predict and as a result the extraction and stockpiling activities need to be flexible and are constantly being varied to suit the market demands.

Road haulage is restricted to dry periods. This will eliminate any mud/slurry from being transported onto Elisabeth Drive during wet periods.

Dust management will be undertaken by the sites own water-cart which draws water from various site dams and the main pit sump. The water-cart will be used to maintain dust suppression on dirt haul-roads, moisture conditions shale/clay stockpiles, irrigate riparian zone and other vegetation and to wash down the main asphalted road to Elisabeth Drive.

Material haulage will occur for the duration of the year as specified in the DA. A Road Transport Protocol has been prepared and indorsed by as part of the DA approval. A copy is available for viewing at the site office.

The approved annual volume of material utilised from the quarry is approximately 150,000 cubic metres, which is consistent with DA approval of 300,000T per year.

4.5 MINERAL PROCESSING

No mineral processing is undertaken on the site.

4.6 WASTE AND OVERBURDEN MANAGEMENT

Of the total extractable resources available in the mine only a small percentage is classified as overburden material. What overburden is generated is usually of a hard blue sandstone nature. This overburden material is used to batter back the mine for rehabilitation, used in bund-wall construction, used on haul-roads to improve durability or stockpiled for later sales when suitable uses have been identified.

There is no processing of waste materials, tailings or rubbish generated on-site. Any site rubbish is removed by the mining contractor. Rubbish bins are deposited throughout the site and emptied on a monthly cycle. Waste material is disposed by a licenced waste management company by the use of a front lift bin which is located at the main office block adjacent to the weighbridge.

Any waste material that is recyclable is separated and appropriate contractors engaged to remove and recycle the materials. These include but not limited to used oils, tyres, ferrous and non-ferrous metals.

4.7 PRODUCT STORAGE

Extracted raw materials are layered into 4-5 metre high stockpiles for external sales to the local brickwork customers. As previously mentioned there are many different products to be selectively extracted and therefore stockpiled.

Stockpile numbers, volumes and sizes are dependent on the volume and types of raw materials extracted during a mining campaign. Mining is undertaken when existing raw material stockpiles have been exhausted or nearing the end of supply.

Due to the nature of the housing market demands on raw materials the stockpile area design and layout is to be considered as dynamic and constantly changing.

A site stockpiling general layout can be found in attached **Mining & Extraction Operational Plan and Current Detailed Site Survey** attached as **Attachment E & F**.

Stockpiling and storage of material is an essential and necessary part of the souring and fretting process, it is a necessity within the brickmaking industry to ensure high quality fired product. The process of souring and fretting allows raw materials that are to be kiln fired for the heavy clay manufacturing industry to sit and weather. This allows the raw materials to

soften and breakdown. The souring process allows for any unwanted salts and other natural chemicals to be leached out through exposure to moisture, either by rain or by mechanical wetting. Also the process allows raw materials to fret in the open environment allowing for easier processing through the brick factories. Fretting also allows larger solid pieces of shale/sandstone to naturally break into smaller pieces by being exposed to moisture and hot/cold environments.

Stockpiles are to be built with a foot print that is as square as feasibly possible. The top of all stockpiles are to be built with a safety bund around the edges. The bund will have a dual purpose; it will capture and hold water for souring, fretting, dust management and will reduce the risk of falls.

A Typical Stockpile Cross Section is available in attached Mining & Extraction Operational Plan. The raw material stockpiles will be built so as to allow free drainage of dirty surface water for collection in to the pit sump. Raw material stockpiles will be compacted with the use of the mining equipment as they are constructed. Articulated dump trucks will compact material as they traverse the stockpiles and a dozer will further compact the material as it shapes the stockpile. The side walls of the stockpiles will be further smoothed and compacted by an excavator. This will help reduce erosion and therefore minimise the amount of sediment that will enter the dirty water system.

4.8 WATER MANAGEMENT

Epic Mining's general approach to water management is based on following fundamental factors:

- ✓ Where practicable clean water runoff will be diverted around active mine areas, areas of disturbance or areas which do not carry stable pastures to limit the volume of water containing or potentially containing elevated levels of suspended solids which require treatment will be captured.
- ✓ All runoff leaving the site will be clarified by settling in sediment ponds and have low velocity discharge flow. This is achieved via trickle release of the water collected in the sediment ponds.
- ✓ Captured surface waters having high suspended sediment content will be treated by using appropriate flocculants and re-used onsite.
- ✓ All water that is captured on-site is to be re-used where possible to eliminate the usage of town water.
- ✓ A site water-cart will be used consistently during operational hours and a series of irrigation pipe network with sprinklers has been installed on the site to irrigate the surrounding owned land. This will ensure that riparian zones are well watered and site bund- walls are kept green to reduce erosion.
- ✓ All surface water that falls within the quarry approved footprint will be diverted to the pit sump. The dirty water collection sump will be located at the lowest point of the extraction area. This water is to be firstly used for dust suppression on internal haul-roads while mining is occurring and secondly for moisture conditioning and souring of raw material stockpiles. The dirty water sumps will be maintained as a dry sump throughout the year.

An up to date site survey with an aerial photograph overlay has been produced to detail the surface water measures to be implemented. The plan is documented as **Attachment G. Epic Mining Pty Ltd Luddenham Quarry Water Management Plan**. This plan was prepared by VGT Environmental Compliance Solutions. The plan outlines the measures that will be undertaken to ensure full environmental compliance is achieved.

4.9 CLEAN WATER MANAGEMENT

All clean surface water is diverted around the excavation site via bund- wall construction. These bund- walls will require regular maintenance to maintain their design performance.

Topsoil and vegetation cleared from the current mine face will be pushed up along the top of the active face and provide a clean water diversion bank. **Figure Four** includes a current site aerial photograph which shows the **Site Existing Landforms & Environmental Management**.

4.10 DIRTY WATER MANAGEMENT

Dirty water from the quarry extraction and stockpile area is directed into holding sumps located on the lowest point in the north-eastern side of the pit floor. The sump will be maintained as dry sumps were possible. Dirty water will be pumped from the pit sump into holding dams located adjacent to the Irrigation-Riparian Zone.

Dirty water will be used on-site for dust suppression, raw material moisture manipulation and vegetation management. Series of irrigation pipe works have been installed through the Riparian zone and up along the northern bund to the irrigation paddock. A fixed pump has been installed at the main sedimentation pond and will be used to operate the irrigation network and fill the site water-cart for dust suppression.

The water-cart will be able to draw water from any sedimentation dam onsite via the use of mobile water transfer pumps.

Dirty water holding dams have been enlarged from their original states and de-silted. The dams will have regular maintenance to ensure maximum efficiency and holding capacities. In the event of the dam overflowing the dirty water will enter a secondary dam that will also be maintained as a dry dam. If required the dirty water will then be treated with the appropriate flocculent and tested against discharge limits set by the site's EPA licence. It is envisaged that very little dirty water will require treatment as measures implemented will ensure that all dirty water is re-used onsite. In addition, Epic's "nil water discharge policy" has always been complied with so far despite the heavy rain experienced during 2013.

4.11 HAZARDOUS MATERIALS

Where possible, only small quantities of hazardous materials will be stored on-site. Heavy Plant associated with the extraction operation will be filled by use of a portable fuel truck which is removed from the site upon completion of re-fuelling procedures. Fuels will be stored in appropriate containers and storage units. All containers will be clearly marked and sign posted. Contractors are required to clean up all spills of fuel or oil, if any, when on site.

A Hazardous Material Register has been established as per WH&S requirements.

4.12 OTHER INFRASTRUCTURE

No other infrastructure other than the items shown on aerial photos exists on the site and none is planned during this MOP period.

5 ENVIRONMENTAL MANAGEMENT CONTROLS

5.1 NOISE AND AIR POLLUTION

Noise and air quality monitoring will be undertaken during the MOP period. The limits and frequency of testing are set by both the *Site EPA Licence and DA conditions* both of which are documented as **Attachments C and D respectively**.

Both dust and noise monitoring results are reviewed on a monthly basis and any exceedances reported through to the EPA. The proximity of the site to Elisabeth Drive, as well as its semi-rural location means that there is little effect on the amenity of neighbours.

Dirty water collected over the site is utilised for dust suppression during mining and haulage activities as required, alleviating any potential impacts of nuisance dust.

5.2 EROSION-SEDIMENT MINIMISATION

Little erosion occurs on the site due to the gentle slope of the land and the installed water diversion banks. Epic Mining will continue to monitor the site and remedy any erosion or sediment entrainment where practicable using similar methods to those currently used.

5.3 SURFACE WATER POLLUTION

The primary source of surface water pollution is the entrainment of sediment during rainfall events. Epic Mining's approach to help minimising the volume of dirty water is to divert clean water around the site via earth bunds and dish drains. Dirty water from the approved extraction/stockpile area will be captured within the quarry void or sedimentation ponds. A pit sump will be established at the lowest point within the pit. The storage capacity of sites sedimentation ponds and pit sump far exceeds the surface dirty water capture rates of rain fall events per year.

Dirty waters will be used for site dust suppression, stockpile conditioning and in vegetation rehabilitation zones. Any surplus dirty water will be clarified using appropriate flocculants. During normal extraction operations it is expected that very little water will be treated and discharged from the site.

Water to be discharged from the site will be tested to meet the sites discharge limits as set out in the sites EPA licence.

5.4 THREATENED FLORA OR FAUNA PROTECTION

No threatened or regionally significant plant species were recorded on the site by previous studies, nor are they likely to occur. This has been attributed mainly to the heavy clearing activities that have occurred on the site over the past 100 years. This site was used prominently as a cattle dairy for the vast majority of its life span.

However, special provision has been made in the landscaping program for improvement and regeneration of local threatened flora species. A 40m Riparian zone has been installed on the eastern boundary along Okay Creek. The Riparian zone has restricted access and runs adjacent to the entire section of Oaky Creek and Lot 3 boundary. Irrigation pipe work has been installed throughout the Riparian zone. Irrigation water is to be utilised from both the Dirty and Clean Water catchment programs. The programmed activities are spelled out in the sites *Vegetation Management Plan. Vegetation Management Plan Prepared by UBM Ecological Consultants Pty Ltd* February 2009 is available upon request for viewing at the site office.

5.5 WEED CONTROL & MANAGEMENT

Noxious weed populations are present throughout the site but are not expected to present any issues in the future. Within the sites *Vegetation Management Plan* a management and monitoring system will be implemented to eliminate any weed outcrop. Spraying of weeds will occur as per the *Vegetation Management Plan*. Regular slashing of paddocks also helps assist with elimination of weed outcrops.

5.6 ABORIGINAL/NATURAL HERITAGE

Two archaeological assessments of the proposed site have been carried out by Umwelt (Australia) Pty Limited, Environmental and Catchment Consultants.

The initial assessment occurred in 1991. It identified an area of Aboriginal cultural significance within the riparian zone on the western side of Oaky Creek. A second study, in consultation with the Gandangara Local Aboriginal Land Council (LALC), was completed in September 2000,

In 1991, Aboriginal archaeological material was observed around the margin of a dam that had been excavated for prior agricultural uses on the site in the 1930's in the floodplain of Oaky Creek and less than 20 metres from the creek bank. Water levels in the dam are highly variable, and the artefacts were observed on a surface exposed by low water levels. Some 22 pieces of flaked stone were observed, scattered across an area of 140 square metres within the dam. None of the artefacts could be considered to be in situ. The artefacts, which included flakes, flaked pieces and two cores, were considered to be the remnants of a former site that had been largely destroyed by previous earthworks. A small area of relatively intact floodplain surface remained between the dam margin and the bank of Oaky Creek, but it was considered that there was low potential for further in situ archaeological material to remain.

During the site inspection on 15 June 2000, the area of the Aboriginal site was readily located and it is considered that the condition of the site has not deteriorated significantly since 1991.

The site has been assessed as having moderately low scientific significance, but is valued by the local Aboriginal community, and it is the view of the Gandangara LALC that the site has cultural value and should be conserved in situ. Conservation of the site is feasible and achievable within the current quarry plan for the property. The method and management of this protection has been agreed between Epic Mining and the LALC.

5.7 BUSHFIRE

Fire Control Officer from Liverpool City Council has advised that the site is in an area where grass fires occur from time to time, often lit by the burning out of stolen cars or property. The Council does not have any records of past fires or maps indicating the general directional paths or extent of fire events.

Discussion with the District Fire Control office at Liverpool in June 2002 identified that neither Lot 3 nor Lot 1 are considered to constitute any level of bushfire risk and are not listed on any register or plan of bush fire prone areas.

The site consists predominantly of gently sloping grassland with the only areas of vegetation being located within the riparian zone around Oaky Creek, the Irrigation paddock to the north and a small stand of gum trees against the western boundary behind the house on Lot 3. The entire area of the house and the adjacent horse yards will be outside the precincts of the quarry. It is therefore considered to be of low bush fire risk.

The employment of good site management including preventing and removal of excessive fuel loads from grassland and vegetation will ensure that no bush fire risk develops on the site. A grass slashing program has been implemented as part of the *Site Vegetation Management Plan*. The site maintains a 20 foot slashed fire break around the entire site to help prevent grass fire from progressing to neighboring properties. The entire site is slashed on a regular basis with the use of the site's own tractor and slasher.

No blasting or processing is carried out within the subject area and no explosives or hazardous materials are stored on the mining lease. All mining operations are carried out by subcontractors and all fuel, oil and rubbish is stored and treated off-site.

Regular talks occur with the local Rural Bush Fire services, Luddenham branch. The site has been identified by the Rural Fire Services for accessibility and contact personnel.

5.8 PUBLIC SAFETY

The approved quarry footprint is fenced by 6 foot mesh fencing with 3 strand barbed wire. The main entrance at Elizabeth Drive has a lockable gate. There is also a second lockable gate located at the quarry entrance.

The site has been sign posted to inform the public not to enter the site. Also two large company information signs have been installed at the quarry's Elizabeth drive entrance. The signs have relevant contact numbers and site information for the public.

A weighbridge and site office with a draw bar is located a few hundred meters along the main quarry entrance. A sign in book is made available with site safety instruction for visitors.

A monthly site inspection is carried out to ensure that all safety measures are in working order and identify where improvement or repairs need to occur.

5.9 SITE INSPECTIONS

As part of the ongoing mine operation a monthly site inspection/audit will be conducted. Usually this will occur in the first week of each month.

The inspection will be conducted with the assistance of a check list and will ensure that any irregularities are addressed and reported. Some of the items covered by the check list include the following:

- ✓ Haul-road conditions, Ramp design and bund-wall conditions
- ✓ Pit wall conditions and slumping
- ✓ Site signage
- ✓ PPE and communication
- ✓ General housekeeping

The full Site Inspection Checklist can be found as an Appendix to site's Mine Safety Management Plan.

6 PROPOSED REHABILITATION ACTIVITIES

There is to be no Progressive or Complete Rehabilitation during this MOP period.

As per the Rehabilitation requirements included in Clause 33 to 37 of Schedule 4 within the approved DA a Final Rehabilitation Plan is required prior to 5 years of the completion of the project. This Final Rehabilitation Plan will be submitted and approved.

Due to the poor qualities of the local topsoils, a soil enrichment program has been implemented to add organic nutrients to the stockpiled topsoils removed from the extraction area and stored for the final rehabilitation.

An approved **Site Rehabilitation Plan Clay/Shale Quarry Adams Road, Luddenham April 2009 Ref 8102** has been submitted and approved as part of the DA. A copy of this plan is documented as **Attachment H**.

6.1 STAKEHOLDER CONSULTATION

Epic Mining has consulted with the NSW RTA, Liverpool City Council, Penrith City Council, Department of Environment, Climate Change and Water, NSW Planning, the local and surrounding community and the EPA on addressing any issues raised by the relevant authority.

6.2 REHABILITATION STATUS AT MOP COMMENCEMENT

Temporary vegetation is encouraged where possible in other areas in order to minimise erosion and the generation of dirty water. A 40m buffer Riparian zone along Okay Creek has been implemented and will be maintained for the life of the extraction activities.

All the topsoils that are stripped from the extraction area will be stockpiled and stabilised for later rehabilitation.

6.3 PROPOSED REHABILITATION STATUS AT MOP FINISH

Extraction will not be completed by the end of the proposed MOP period and therefore rehabilitation will be a combination of final and temporary vegetation.

Temporary vegetation will be encouraged over these areas whilst no mining activities are undertaken. Where possible, finished faces will be battered back to either a 30 degree slope for clay strata or 70 degree slope for shale strata.

An approved **Site Rehabilitation Plan Clay/Shale Quarry Adams Road, Luddenham April 2009 Ref 8102** has been submitted and approved as part of the DA. A copy of the plan is attached as **Attachment H**.

6.4 REHABILITATION OF DISTURBED LAND

Any topsoil made available during clearing operations will be stored in bund-walls, diversion bunds or stockpiled to be used later to rehabilitate works. Very little erosion occurs on site due to the gentle site slope. Some of the active faces will show minor erosion, however all sediment generated is collected within the dirty water capture system. The low levels of surface water runoff in the past few years has aided in minimising erosion on disturbed slopes.

A *Site Rehabilitation Plan* has been approved by NSW Planning. In the plan Local Eucalypt and Acacia species will be planted along the Riparian Zone adjacent to Okay Creek and the identified Wood plains area.

A weed eradication program will be continued in conjunction with clearing activities ahead of mining to minimise the spread of weeds in the disturbed areas. A grass slashing maintenance program has been established. Slashing also aids in the minimisation of weeds grow.

6.5 WATER MANAGEMENT (REHABILITATED LAND)

Water received over areas where rehabilitation is incomplete will be treated as dirty water and collected in the sediment dams for clarification prior to being re-used. Clean water diversions will remain in place upslope of the rehabilitation areas. Where possible, once vegetation has been established over rehabilitated areas and the risk of sediment entrainment is minimised, rainfall will be diverted around the site as clean water.

7 FINAL REHABILITATION

7.1 REHABILITATED AREAS AND FEATURES

It is not expected that the mining operations will cease by the end of the proposed MOP period, so final rehabilitation will be incomplete. The final landform, however, will be consistent with the surrounding land use activities which may include farming, open paddocks, sporting fields or activities to do with Sydney's second airport.

This may be undertaken progressively in portions of the mine that are no longer active thereby minimising the total amount of disturbed land.

It must be noted that within the sites DA approval process a final rehabilitation plan that details the specific of how the site is to be rehabilitated are not required until the extraction period reaches its final 5 years of life.

The site is located within the Sydney catchment for naturally excavated materials from building sites. As a fail-safe rehabilitation the site could be remediated with materials that are excavated from commercial/residential building constructions sites as Sydney has a short fall of approved disposal sites. This exercise could be conducted on a neutral cost variance.

A Site Rehabilitation Plan has been submitted and approved by NSW Planning.

8 CALCULATION OF SECURITY DEPOSIT

Discussions with titles department has identified that a security bond is not applicable to the project due to a large Environmental Security Bond (\$166,750) which has been lodged with the Planning NSW as part of the DA rehabilitation provision. This bond was required under Schedule 4 clause 37 of the DA.

8.1 INFRASTRUCTURE AREAS

Due to the small scale of the mine operations, there is no major infrastructure, other than the stockpile area and the access road from Elisabeth Drive. The weighbridge and associated building are portable and will be easily removed when operations are completed.

It is noted that the tar sealed haul-road from Elisabeth Drive to the entrance to the existing quarry is on Commonwealth Land. The road will be handed over to the Commonwealth when operations are completed on site.

8.2 TAILINGS AND REJECTS EMPLACEMENTS

No tailings or rejects are generated by this operation.

8.3 WASTE ROCK DUMPS

No waste rock dumps will be generated from the operation.

8.4 ACTIVE MINE AND VOIDS

The original land form was grassing paddocks with no void space created on site. It is expected that the void space will be created at the rate of 150,000m³ per annum. This figure will be depended on the health and demands of the local brick making market.

8.5 THIRD PARTY PROJECT MANAGEMENT AND CONTINGENCIES

Due to the progressive nature of the current rehabilitation and small scale of the site operations, the estimated cost of the Third Party involvement has been limited to environmental assessments and monitoring, surveying with the addition of a 'contingency' cost.

ATTACHMENTS:

- ATTACHMENT A** NSW LPI TITLE SEARCH CERTIFICATE LOT 1 & LOT 3
- ATTACHMENT B** PRIVATE MINING AGREEMENT 40 & M(MO)LA No 3
- ATTACHMENT C** ENVIRONMENT PROTECTION LICENCE 12863
- ATTACHMENT D** DEVELOPMENT APPROVAL CONDITIONS DA315-7-2003
- ATTACHMENT E** TYPICAL MINING & EXTRACTION OPERATION PLAN
- ATTACHMENT F** CURRENT DETAILED SITE SURVEY with proposed Raw Material storage yard & Extraction sequence. Monaghan Surveyors Pty Ltd
- ATTACHMENT G** EPIC MINING, LUDDENHAM QUARRY, WATER MANAGEMNT PLAN Prepared by VGT Environmental Compliance Solutions
- ATTACHMENT H** SITE REHABILITATION PLAN CLAY/SHALE QUARRY ADAMS ROAD LUDDENHAM April 2009 (Ref: 8102)
- ATTACHMENT I** INDEPENDENT ENVIRONMENTAL AUDIT for Epic Mining 17/10/2013 Prepared by Australian Workplace Management Pty Ltd
- ATTACHMENT J** SYDNEY REGIONAL ENVIRONMENTAL PLAN No 9 EXTRACTIVE INDUSTRY (No 2-1995)
- ATTACHMENT K** BADGER MINING COMPANY ESTIMATES OF CLAY/SHALE RESOURCES WITHIN THE LUDDENHAM QUARRY Prepared by: R.W. Corkery & Co Pty Ltd - June 2005



Industry & Investment

Reference: 10/5872

Samuel Tarabori
Operations Manager
Epic Mining Pty Ltd
35 Connaught Crt
KELLYVILLE NSW 2155

Dear Sir

PRIVATE MINING AGREEMENT NO 40

I refer to previous correspondence concerning this matter and acknowledge the lodgement of the required security with.

Operations may commence on the area and should be conducted in accordance with the conditions set out in Schedule 4 of the Regulations.

Please note however that before any operations commence, you should ensure that no applications, or granted authorities and mineral claims, affect the area (see Section 6 and 7 herewith).

For further information, please contact the undersigned on 02 4931 6462.

Yours faithfully

Chris Cottier
for Director General
24 November 2010

MINING LEASE
MINING ACT 1992

NO M(MO)LA 3

DATED 13th NOVEMBER 2012

DIRECTOR GENERAL
DEPARTMENT OF TRADE AND
INDUSTRY, REGIONAL
INFRASTRUCTURE AND SERVICES
OF THE STATE
OF NEW SOUTH WALES
TO
FEARNDALE HOLDINGS PTY LTD
(ACN 123 361 973)

MINING ACT 1992

MINING LEASE

THIS DEED made the 13th day of NOVEMBER Two thousand and 12 in pursuance of the provisions of the *Mining Act 1992* (hereinafter called "the Act") BETWEEN **MARK I PATERSON AO, DIRECTOR GENERAL** of the State of New South Wales (hereinafter called "the Director General" which expression shall where the context admits or requires include the successors in office of the Director General and the person acting as such Director General for the time being) AND **FEARNDALE HOLDINGS PTY LTD (ACN 123 361 973)** (which with its successors and transferees is hereinafter called "the lease holder") of 2 Adams Road, Luddenham NSW 2745. 275

WHEREAS

- (a) in conformity with the Act application was made for a mining lease over the lands hereinafter described; and
- (b) all conditions and things required to be done and performed before granting a mining lease under the Act have been done and performed NOW THIS DEED WITNESSETH that in consideration of the observance and performance of the covenants contained in this Deed and the payment of royalty by the lease holder, the Director General in pursuance of the provisions of the Act DOES HEREBY demise and lease to the lease holder ALL THAT piece or parcel of land containing by admeasurement **19.09** hectares as shown on Plan No. **MO3-001**, more particularly described and delineated in the plan attached for the purpose of prospecting and mining for **clay/shale and structural clay**.

TO HOLD the said land together with any appurtenances thereon subject to:

- (a) such rights and interests as may be lawfully subsisting therein or which may be reserved by the Act at the date of this Deed; and
 - (b) such conditions, provisos and stipulations as are contained in this Deed UNTO the lease holder from and including the date of this Deed for the term of **twenty one (21) years** for the purpose as stated and for no other purpose.
1. THAT in this lease except insofar as the context otherwise indicates or requires:

- (a) any reference to an Act includes that Act and any Act amending or in substitution for the same; "Director-General" means the person for the time being holding office or acting as Director-General, Department of Trade and Investment; Regional Infrastructure and Services; the word "mine" has the meaning assigned to it by the Act; words importing the singular number shall include the plural, the masculine gender the feminine or neuter gender and vice versa; and
 - (b) any covenant on the part of two or more persons shall be deemed to bind them jointly and severally.
2. THAT the lease holder shall during the said term pay to the Director General in Sydney in respect of all such minerals as stated, recovered from the land hereby demised, royalty at the rate or rates prescribed by the Act and the Regulations thereunder at the time the minerals are recovered, or at the rate or rates fixed by the Director General from time to time during the term of this demise in exercise of the power in that behalf conferred upon him by the Act.
3. THAT the lease holder shall at all times during the term of this lease keep and preserve the said mine from all avoidable injury or damage and also the levels, drifts, shafts, watercourses, roadways, works, erections and fixtures therein and thereon in good repair and condition and in such state and condition shall on the expiration or sooner determination of the said term or any renewal thereof deliver possession of the land and the premises hereby demised to the Director General or other persons authorised to receive possession thereof.
4. THAT the conditions and provisions set forth in the Schedule of Mining Lease Conditions 2010 herein and numbered: **1 to 20 (inclusive)** are embodied and incorporated within this Deed as conditions and provisions of the lease hereby granted AND that the lease holder shall observe fulfil and perform the same. Conditions 1 to 13 and 17 to 19 (if included in the mining lease) are identified as conditions relating to environmental management for the purposes of Section 374A(1) of the *Mining Act 1992*.
- Note: Conditions 1 to 13 and 17 to 19 of this mining lease are imposed pursuant to sections 238 and 239 of the Mining Act 1992. Clause 7 of Schedule 12 of the Mining Regulation 2010 saves higher penalties for a breach of condition imposed by or under sections 238 or 239 of the Act.*

PROVIDED always and it is hereby declared as follows:

- (a) THAT this lease is granted subject to amendment as provided under Section 79 and 168A of the Act.
- (b) THAT if the lease holder at any time during the term of this demise -
 - (i) fails to fulfil or contravenes the covenants and conditions herein contained; or
 - (ii) fails to comply with any provision of the Act or the Regulations with which the lease holder is required to comply; or
 - (iii) fails to comply with the requirements of any agreement or assessment in relation to the payment of compensation,

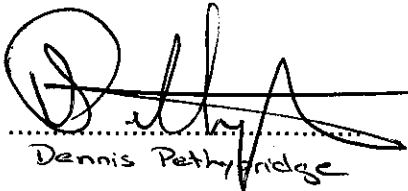
this lease may be cancelled by the Director General by instrument in writing and the cancellation shall have effect from and including the date on which notice of the cancellation is served on the lease holder or on such later date as is specified in the notice; and any liability incurred by the lease holder before the cancellation took effect shall not be affected.

- (c) THAT no implied covenant for title or for quiet enjoyment shall be contained herein.
- (d) THAT all the conditions and provisions contained in the *Mining Act 1992* and the Regulations thereunder, the *Mine Health & Safety Act 2004*, the *Mine Health and Safety Regulation 2007* or the *Coal Mine Health & Safety Regulation 2006*, or any other law hereafter to be passed or prescribed shall be incorporated within this Deed as conditions and provisions of the lease granted. The lease holder hereby covenants to observe, fulfil and perform the same.
- (e) THAT such of the provisions and conditions declared and contained in this Deed as requiring anything to be done or not to be done by the lease holder, shall be read and construed as covenants by the lease holder with the Director General which are to be observed and performed.

IN WITNESS WHEREOF the parties hereto have executed this Deed the day and year first abovementioned.

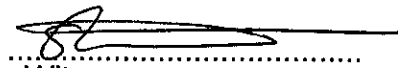
SIGNED AND DELIVERED
BY

FEARNDALE HOLDINGS PTY LTD
(ACN 123 361 973)



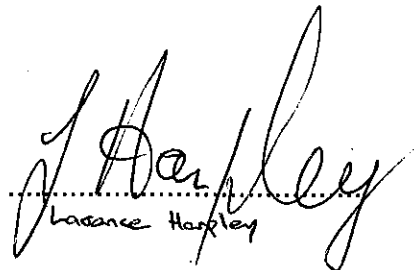
.....
Dennis Pethybridge

in the presence of



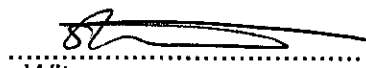
.....
Witness
SAMUEL TARABORS

SIGNED AND DELIVERED
BY



.....
Chasance Harpley

in the presence of



.....
Witness
SAMUEL TARABORS

Environment Protection Licence

Licence - 12863



Licence Details

Number:	12863
Anniversary Date:	05-June

Licensee

EPIC MINING PTY LIMITED
 PO BOX 177
 KEMPS CREEK NSW 2171

Premises

FERNDALE
 275 ADAMS ROAD
 LUDDENHAM NSW 2525

Scheduled Activity

Extractive Activities

Fee Based Activity

Scale

Other Land-Based Extraction	> 100000-500000 T obtained
-----------------------------	----------------------------

Region

Metropolitan - Sydney Industry
 Level 3, NSW Govt Offices, 84 Crown Street
 WOLLONGONG NSW 2500
 Phone: (02) 9995 5000
 Fax: (02) 9995 6900
 PO Box 513 WOLLONGONG EAST
 NSW 2520

Environment Protection Licence

Licence - 12863



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Licence - 12863



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

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The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

EPIC MINING PTY LIMITED
PO BOX 177
KEMPS CREEK NSW 2171

subject to the conditions which follow.

Environment Protection Licence

Licence - 12863



1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Extractive Activities	Other Land-Based Extraction	> 100000 - 500000 T obtained

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
FERNDALE
275 ADAMS ROAD
LUDDENHAM
NSW 2525
LOT 3 DP 623799, LOT 1 DP 838361

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

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Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Dust deposition monitoring		Dust deposition gauge located 5 m from the northern boundary near Elizabeth Drive shown as point D1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
2	Dust deposition monitoring		Dust deposition gauge located 30 m from the boundary of the Hubertus Country Club shown as point D2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
3	Dust deposition monitoring		Dust deposition gauge located 150 m from the south western boundary of the site shown as point D3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
4	Dust deposition monitoring		Dust deposition gauge located in the middle of the southern boundary of the site shown as point D4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
5	Dust deposition monitoring		Dust deposition gauge located at the eastern boundary of the site shown as point D5 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
11	Weather monitoring station		Weather monitoring station located near the site offices near the middle of the site labelled as WSM1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
------------------------	--------------------------	-------------------------	----------------------

Environment Protection Licence

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6	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	Outlet from the site to Oaky Creek labelled as point WS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
7	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	At Oaky Creek located 20 m from the southern boundary of the site labelled as point WS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
8	Groundwater monitoring		Groundwater monitoring bore located at the southern boundary of the site labelled as BMS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
9	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and the southern boundary of the site labelled as BMS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
10	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and -- southern boundary of the site labelled as BMS3 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table.

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L2.4 Water and/or Land Concentration Limits

POINT 6

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

POINT 7

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

L3 Volume and mass limits

L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:

a) liquids discharged to water; or;

b) solids or liquids applied to the area;

must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
6	kilolitres per day	1000

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7	kilolitres per day	1000
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L4 Waste

L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

L5 Noise limits

L5.1 Noise from the premises must not exceed an LAeq(15 minute) noise emission criterion of 41 dB(A) at any residential or other sensitive receptors not associated with the activities except as expressly provided by this licence.

Where LAeq means the equivalent continuous noise level - the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

L5.2 To determine compliance with condition(s) L6.1 noise must be measured at, or computed for, the locations specified in the table titled "noise monitoring locations". A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "Environmental Noise Management - NSW Industrial Noise Policy (January 2000)".

L5.3 The noise emission limits identified in this licence apply under all meteorological conditions except:

- during rain and wind speeds (at 10m height) greater than 3m/s; and
- under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

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L6 Hours of operation

- L6.1 Activities covered by this licence, including haulage vehicles entering and leaving the premises, must only be carried out between the hours of 0700 and 1800 Monday to Friday and at no time on Saturdays, Sundays and Public Holidays.

This condition does not apply to the delivery of material outside the hours of operation, 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, prior notification is provided to the EPA and affected residents as soon as possible, or within a reasonable period in the case of emergency.

L6.2 Hours of operations for maintenance purposes

Maintenance of equipment used on site may be conducted during normal operating hours and on Saturdays between 0700 and 1300 hrs provided that the noise emission criterion of 41 dB(A) LAeq(15 minute) is not exceeded at the locations specified in table titled "Noise monitoring locations".

4 Operating Conditions

O1 Activities must be carried out in a competent manner

- O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O3 Dust

- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

- O3.2 The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.

O4 Other operating conditions

- O4.1 A Stormwater Management Plan must be prepared for the development and must be implemented as soon

Environment Protection Licence

Licence - 12863



as normal operations commence. Implementation of the Plan must mitigate the impacts of stormwater runoff from and within the premises following the completion of construction activities. The Stormwater Management Plan should be consistent with the guidance contained in *Managing Urban Stormwater: Council Handbook* (available from the EPA).

O4.2 Blasting is not permitted on or within any part of the premises.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:

- a) in a legible form, or in a form that can readily be reduced to a legible form;
- b) kept for at least 4 years after the monitoring or event to which they relate took place; and
- c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

Environment Protection Licence

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POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

POINT 5

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

M2.3 Water and/ or Land Monitoring Requirements

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Quarterly during discharge	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Special Frequency 1	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

M2.4 Special frequency 1 referred to under Point 6 and Point 7 means: monitoring for the specified pollutants shortly after commencement of normal operation on site and on a quarterly basis thereafter provided that water is being discharged from the site. If water is not being discharged from the site, the monitoring must be conducted at least twice in the first 12 months period of normal operation. In this case the monitoring must be conducted at least 150 days apart.

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

- any methodology which is required by or under the Act to be used for the testing of the

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concentration of the pollutant; or

b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Weather monitoring

M4.1 For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	oC	Continuous	1 hour	AM-4
Wind direction	o	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta	o	Continuous	15 minute	AM-2 & AM-4
Rainfall	mm	Continuous	24 hour	AM-4

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:

- a) the date and time of the complaint;
- b) the method by which the complaint was made;
- c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- d) the nature of the complaint;
- e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- f) if no action was taken by the licensee, the reasons why no action was taken.

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M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after:

- the date of the issue of this licence or
- if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M7 Requirement to monitor volume or mass

M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:

- the volume of liquids discharged to water or applied to the area;
- the mass of solids applied to the area;
- the mass of pollutants emitted to the air;

at the frequency and using the method and units of measure, specified below.

POINT 6

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

POINT 7

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

Note: In line instrumentation means using manufacturer's specifications for the existing pump multiplied by the time it is used.

M8 Other monitoring and recording conditions

M8.1 The licensee must monitor the noise emanating from the activities at all five (5) locations specified in the table titled "Noise monitoring locations". This monitoring must be conducted shortly after commencement of normal operation on site and on a quarterly basis thereafter.

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Noise monitoring locations

Location number	Location description	Easting	Northing
N1	Noise monitoring station located 5 m from the northern boundary near Elizabeth Drive shown as point N1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289130	6249975
N2	Noise monitoring station located 30 m from the boundary of the Hubertus Country Club shown as point N2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288680	6279460
N3	Noise monitoring station located 150 m from the south western boundary of the site shown as point N3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288950	6248930
N4	Noise monitoring station located in the middle of the southern boundary of the site shown as point N4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289480	6248890

M8.2 The monitoring specified in conditions M2, M4, M7 and M8 must be conducted for a minimum period of 12 months.

Following assessment of the monitoring results for this 12 months period, the EPA will adjust the monitoring requirements in consultation with the licensee.

6 Reporting Conditions

R1 Annual return documents

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R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.
At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.8 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

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R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:

- a) where this licence applies to premises, an event has occurred at the premises; or
- b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:

- a) the cause, time and duration of the event;
- b) the type, volume and concentration of every pollutant discharged as a result of the event;
- c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

R4.1 The licensee must provide a written report to the Manager Sydney Industry, PO Box 668, DECC Parramatta 2124 within 28 days of the completion of the monitoring required in conditions M2, M6, M7 and M8.

R4.2 At the end of the first 12 months period, the licensee must submit to the EPA's Manager Sydney Industry, PO Box 668 Parramatta NSW 2124, a report outlining the results of the monitoring. The report must be submitted within 28 days from the completion of the monitoring.

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7 General Conditions

G1 Copy of licence kept at the premises or plant

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr David Gathercole

Environment Protection Authority

(By Delegation)

Date of this edition: 05-June-2009

End Notes

- 1 Licence transferred through application 146040, approved on 22-Dec-2009, which came into effect on 14-Dec-2009.
- 2 Licence varied by notice 1112136, issued on 15-Mar-2010, which came into effect on 15-Mar-2010.
- 3 Licence transferred through application 146392, approved on 18-Jan-2011, which came into effect on 18-Jan-2011.
- 4 Licence varied by notice 1502055 issued on 28-Nov-2011

Notice of Modification

Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, I modify the development consent referred to in Schedule 1, as set out in Schedule 2.



Chris Ritchie
A/Director
Major Development Assessment

Sydney, *28th January*

2010

SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

SCHEDULE 2

1. Delete the definition for "DEC" in the list of Definitions in Schedule 2, and insert in alphabetical order the following:

DECCW	Department of Environment, Climate Change and Water
SEE	Statement of Environmental Effects
2. Delete all references to "DECC" and replace with "DECCW".
3. In condition 2 of schedule 3, delete all words after "Castle Pty Ltd" and replace with:
 - e) Modification Application DA 315-7-2003 MOD 2 and the accompanying SEE titled "*Section 96(1A) Modification Application, 275 Adams Road Luddenham*" produced by Planning Direction Pty Ltd and dated 3 November 2009 and "*Acoustic Report – Clay/Shale Quarry at 275 Adams Road Luddenham*" produced by Golders Associates Ltd and dated 15 December 2009; and
 - f) conditions of this consent.
4. Delete condition 3 of schedule 3 and replace with:
 3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
6. After condition 4 of schedule 3 insert the following:
 - 4A. The Applicant shall prepare revisions of any strategies, plans or programs required under this consent 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.

7. Delete condition 5 of schedule 3 and replace with:
5. The Applicant may undertake quarrying operations on the site until 31 December 2024.

Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General. Consequently, this consent will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been properly rehabilitated.

8. After condition 12 of schedule 4 insert the following:

12A. When extraction operations are taking place in Bench 1, as indicated on Figure 1 in Appendix 1, operations are restricted to the use of 1 truck and 1 excavator, until the quarry floor is at least 1.5m below the existing ground level.

8. In condition 6 of schedule 5, delete the first sentence and replace with:

Before 31 December 2010, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development.

9. After condition 10 of schedule 5 insert:

APPENDIX 1 GENERAL SITE LAYOUT



Figure 1: General Layout of the Site

Notice of Modification

Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

Under Section 96(1A) of the *Environmental Planning and Assessment Act 1979*, I, the Acting Deputy Director-General, Office of Sustainable Assessments and Approvals, modify the development consent referred to in Schedule 1, as set out in Schedule 2.

Yolande Stone
Acting Deputy Director-General
Office of Sustainable Assessment and Approvals
(as Delegate for the Minister for Planning)

Sydney

2006

SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

SCHEDULE 2

1. Delete the word "and" at the end of condition 2(c) of schedule 3.
2. Add the following after condition 2(c) of schedule 3:
 - (d) information accompanying modification application DA 315-7-2003-MOD-1 for the relocation of the access bridge across Oakey Creek, lodged 16 November 2005, and prepared by Stuart J Castle Pty Ltd; and
3. Replace the numbering of condition 2(d) of schedule 3 with 2(e).
4. Replace the words "the Department" at the end of the first sentence of condition 29 of schedule 4 with "the Department of Natural Resources".
5. Modify the text of the following definitions in schedule 2 to read:

Department
Director-General
Minister

Department of Planning
Director-General of the Department of Planning, or delegate
Minister for Planning, or delegate

Development Consent

Section 80 of the *Environmental Planning & Assessment Act 1979*

I, the Minister for Infrastructure, Planning and Natural Resources, approve the Development Application referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

These conditions are required to:

- (i) prevent, minimise, and/or offset adverse environmental impacts;
- (ii) set standards and performance measures for acceptable environmental performance;
- (iii) require regular monitoring and reporting; and
- (iv) provide for the on-going environmental management of the development.

Craig Knowles, MP
Minister for Infrastructure, Planning and Natural Resources

Sydney,

2004

File No. P91/02045

SCHEDULE 1

Development Application:	DA No. 315-7-2003.
Applicant:	Badger Mining Company Pty Limited.
Consent Authority:	The Minister for Infrastructure, Planning and Natural Resources.
Land:	Lot 3, DP 623799 and Lot 1, DP 838361.
Proposed Development:	The development and operation of a clay/shale quarry on Lot 3, DP 623799 and the construction and use of an access road and service facilities on Lot 1, DP 838361.
State Significant Development	The proposal is classified as State significant development under section 76A(7) of the <i>Environmental Planning and Assessment Act 1979</i> because it is a class of development listed in the schedule of the Minister's declaration of 3 August 1999.
Integrated Development	The proposal is classified as integrated development under section 91 of the <i>Environmental Planning and Assessment Act 1979</i> , because it requires approvals under the: <ul style="list-style-type: none">• <i>Protection of the Environment Operations Act 1997</i>;• <i>Rivers and Foreshores Improvement Act 1948</i>;• <i>Water Act 1912</i>; and• <i>Roads Act 1993</i>.
Designated Development	The proposal is classified as designated development under section 77A of the <i>Environmental Planning and Assessment Act 1979</i> , because it would disturb a total surface area of more than 2 hectares of land by clearing or excavating, and consequently meets the criteria in Schedule 3 of the <i>Environmental Planning and Assessment Regulation 2000</i> .

BCA Classification:

Class 10b

Bunded fuel storage
Plant nursery
Weighbridge
Bridge
Conveyor and hoppers

Note:

- 1) *To find out when this consent becomes effective, see Section 83 of the Environmental Planning and Assessment Act 1979 (EP&A Act);*
 - 2) *To find out when this consent is liable to lapse, see Section 95 of the EP&A Act; and*
 - 3) *To find out about appeal rights, see Section 97 of the EP&A Act.*
-

SCHEDULE 2

DEFINITIONS

AEMR	Annual Environmental Management Report
Applicant	Badger Mining Company Pty Limited
BCA	Building Code of Australia
DA	Development Application
DEC	Department of Environment and Conservation (also includes the former Environment Protection Authority and the National Parks and Wildlife Service)
Department	Department of Infrastructure, Planning and Natural Resources
Director-General	Director-General of the Department of Infrastructure, Planning and Natural Resources , or her delegate
DNA	Douglas Nicolaisen & Associates Pty Ltd
Dust	Any solid material that may become suspended in air or deposited
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
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>
GTA	General Terms of Approval
Land	The whole of a lot in a current plan registered at the Land Titles Office at the date of this consent
LCC	Liverpool City Council
Minister	Minister for Infrastructure and Planning , or delegate
PCC	Penrith City Council
Privately-owned land	Land where: <ul style="list-style-type: none">• a private agreement does not exist between the Applicant and the land owner; and• there are no land acquisition provisions requiring the Applicant to purchase the land upon request from the land owner
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Riparian zone	A 40 metre-wide strip of land adjacent to a local watercourse, measured horizontally from the top of the bank of the watercourse
RTA	NSW Roads and Traffic Authority
SEMP	Site Environmental Management Plan
Site	Land to which the DA applies
Vacant land	The whole of a lot in a current plan registered at the Land Titles office that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot at the date of this consent

**SCHEDULE 3
ADMINISTRATIVE CONDITIONS**

Obligation to Minimise Harm to the Environment

1. The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

Scope of Development

2. The Applicant shall carry out the development generally in accordance with:
 - (a) DA No. 315-7-03
 - (b) EIS titled *Proposed Clay/Shale Extraction Operation – Lot 3 – 275 Adams Road Luddenham*, dated May 2003, and prepared by Douglas Nicolaisen & Associates Pty Ltd (DNA);
 - (c) correspondence from DNA to the Department dated 16 March 2004 relating to operating hours, location of environmental bunds and reduction in the proposed extraction area; and
 - (e) ² ~~(d)~~ conditions of this consent.
3. ^(e) ~~(d)~~ If there is any inconsistency between the above, either the conditions of this consent or the most recent document shall prevail to the extent of the inconsistency. *information accompanying modification application DA 3157-2003 - Mod-1 for the replacement of the access bridge across DAVEY CREEK dated 16/11/05...*
4. The Applicant shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained in these reports, plans or correspondence.

Limits on Approval

5. This consent lapses 15 years from the date on which it is granted.

Notes:

- (a) *The conditions of approval may require rehabilitation activities to be undertaken more than 15 years after the date on which the consent is granted; and*
- (b) *This condition does not affect the operation of section 95 of the EP&A Act.*

Limits on Production

6. The hours of operation for the development are limited to between 7 am and 6 pm Monday to Friday. The Applicant shall ensure that no haulage vehicles enter or leave the site between 6 pm and 7 am Monday to Friday, and on public holidays. Maintenance activities may be conducted between 7 am and 1 pm on Saturday. No other work is to be undertaken on Saturday, Sunday and public holidays.
7. The production of quarry products from the quarry shall not exceed 300,000 tonnes per annum.
8. The Applicant shall provide annual production data to the Department of Mineral Resources, in the manner required, on the standard form supplied for that purpose. These data are also to be included in the Annual Environmental Management Report (AEMR).

Protection of Public Infrastructure

9. The Applicant shall:
 - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
 - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Structural Adequacy

10. The Applicant 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:

- (a) *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- (b) *Part 8 of the EP&A Regulation sets out the requirements for the certification of development.*

Demolition

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

Operation of Plant and Equipment

12. The Applicant shall ensure that all plant and equipment at the site, or used in connection with the development, are:
 - (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

Compliance

13. Prior to commencement of development on Lot 3 DP 629799 and Lot 1 DP 838361, the Applicant shall commission an independent person(s) or organisation(s), approved by the Director-General, to certify in writing to the satisfaction of the Director-General, that the Applicant has complied with all relevant conditions of this consent applicable prior to that event.

**SCHEDULE 4
ENVIRONMENTAL PERFORMANCE**

AIR QUALITY

Impact Assessment Criteria

1. The Applicant shall ensure that the air pollution generated by the development does not exceed the criteria listed in Tables 1, 2, and 3 at any privately-owned land.

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 1: Long-term impact assessment criteria for particulate matter

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

Table 2: Short-term impact assessment criterion 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 3: Long-term impact assessment criteria for deposited dust

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Environmental Management

2. ¹The site must be maintained in a condition that minimises or prevents the emission of dust from the site, including the prompt and effective rehabilitation of all disturbed areas.
3. ²The Applicant shall ensure that all vehicles entering or leaving the site, carrying a load that may generate dust, are covered to prevent dust emissions at all times, except during loading and unloading.
4. ³The Applicant shall ensure that all vehicles leaving the site are subject to equipment or facilities to remove adhering materials from wheels and underneath the bodies, unless otherwise approved by the DEC. The aims of the installed facilities are:
 - preventing materials from being carried away from the site to adjoining road surfaces; and
 - collecting, treating and disposing of any washdown.
5. The Applicant shall ensure that all internal unsealed roadways, quarry floor and stockpiles are to be watered as required to minimise dust generation.

¹ Incorporates DEC's GTA

² Incorporates DEC's GTA

³ Incorporates DEC's GTA

6. ⁴The Applicant shall not allow offensive odour to be emitted from the site.

Notes:

- (a) Section 129 of the POEO Act provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant Environment Protection Licence (EPL) as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.
- (b) No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the POEO Act.

Monitoring

7. The Applicant shall establish air quality monitoring stations at a minimum of 5 locations around the site, (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:

Pollutant	Units of Measure	Averaging Period	Frequency	Sampling method ¹
Dust Deposition	g/m ² /month	Month, annual	Continuous	AS-3580.10.1 ²
Siting	-	-	-	AM-1

Table 4: Air quality monitoring

¹ NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

² Standards Australia, 1991, AS 3580.10.1-1991, *Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method*.

8. Before carrying out any development, the Applicant shall prepare an Air Quality Monitoring Program, in consultation with DEC, and to the satisfaction of the Director-General.

Soil and Land Management

9. The Applicant shall immediately utilise or stockpile, for use in the rehabilitation of the site, any topsoil removed during the development. Topsoil shall not be mixed with other overburden products. The topsoil stockpile(s) shall be protected from erosion. The topsoil stockpile(s) shall be sown with appropriate vegetation to stabilise the soil if they are to be stored for longer than 6 weeks. The topsoil stockpile(s) shall have a maximum height of 1.5 metres.
10. The Applicant shall minimise the removal of trees and other vegetation from the project site, and restrict any clearance to the areas occupied by quarrying activities, noise attenuation bund, access roads and ancillary facilities.
11. The Applicant shall regularly consult with adjoining property owners to ensure property management issues including maintenance of common fences, weed control measures, and bushfire management are coordinated. Details of this consultation are to be reported in the AEMR.

NOISE

Noise Impact Assessment Criterion

12. ⁵The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criterion presented in Table 5.

⁴ Incorporates DEC's GTA

⁵ Incorporates DEC's GTAs

Day	Property
L _{Aeq} (15 minute) 41	All residential or sensitive receptors not associated with the development.

Table 5: Noise impact assessment criterion dB(A)

Notes:

- (a) The noise limits in Table 5 are for the noise contribution of the establishment and operation of the clay/shale quarry on Lot 3, DP 623799 and Lot 1 DP838361, Adams Road, Luddenham.
- (b) The criterion in Table 5 does not apply to a six-week period for the construction of a noise attenuation bund adjacent to the quarry excavation area.
- (c) Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary.
- (d) To determine compliance with the L_{Aeq}(15 minute) noise limits in the above table where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

Operating Conditions

13. The Applicant shall ensure that all vehicles travelling on internal roads do not exceed 20 kilometres per hour.
14. The Applicant shall design operations to minimise the need for reversing of trucks and machinery where reversing beepers may contribute to noise impacts exceeding the criterion in condition 12.

Monitoring

15. The Applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

Construction of the Noise Attenuation Bund

Note: The noise attenuation bund also functions as visual screen of the operations associated with the extraction of the clay/shale resource.

16. The Applicant shall minimise noise levels during the construction of the noise attenuation bund by the implementation of best available techniques economically achievable.
17. The Applicant shall complete the construction of the noise attenuation bund in the minimum time, not to exceed 6 weeks from the commencement of its construction, unless otherwise approved by the Director-General.
18. The Applicant shall prepare a noise assessment of the construction of the noise attenuation bund within 3 weeks of the commencement of construction of the bund. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

Environmental Management

19. Prior to carrying out any development on the site, the Applicant shall prepare a Noise Management Plan for the development, in consultation with the DEC and to the satisfaction of the Director-General, which addresses;
 - actions to be undertaken to achieve compliance with condition 12;
 - actions to be undertaken during the construction of the noise attenuation bund;

- circumstances that would lead to the construction of the noise attenuation bund to a height of 5 or 6 metres instead of the proposed 4 metre height, and any additional noise control measures to be undertaken during the construction of a higher bund;
- measurement of the acoustic performance of plant and equipment used on site to demonstrate that the predictions of the EIS and documentation listed in condition 2 of schedule 3 are met; and
- a program for monitoring noise generated by the development at a minimum of 5 locations around the site, (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12.

METEOROLOGICAL MONITORING

20. The Applicant shall maintain a permanent meteorological station at a location approved by the DEC, and to the satisfaction of the Director-General, to monitor the parameters specified in Table 6, using the specified units of measure, averaging period, frequency, and sampling method in the table.

Parameter	Units of measure	Averaging period	Frequency	Sampling method ¹
Rainfall	mm/hr	1 hour	Continuous	AM-4
Sigma Theta @ 10 m	°	1 hour	Continuous	AM-2
Siting	-	-	-	AM-1
Wind Direction @ 10 m	°	1 hour	Continuous	AM-2
Wind Speed @ 10 m	m/s	1 hour	Continuous	AM-2

Table 6: Meteorological monitoring

¹NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

BLASTING

21. Blasting is not permitted on the site.

⁶SURFACE & GROUND WATER

Note: The Applicant is required to obtain licences for the development under the Water Act 1912, the Rivers and Foreshores Improvement Act 1948 and the Protection of the Environment Operations Act 1997.

Pollution of Waters

22. Except as may be expressly provided by a DEC licence, the Applicant shall comply with section 120 of the Protection of the Environment Operations Act 1997 during the carrying out of the development.

Surface Water Management System

23. The Applicant shall:
- design, install, operate and maintain a stormwater management system for the site in accordance with the publication titled "Managing Urban Stormwater: Soil and Construction, Department of Housing 1998" for a 90 percentile five day rainfall interval (unless condition 9 applies);
 - install bund(s) around areas in which fuels, oils and chemicals are stored. Bunds must:
 - have walls and floors constructed of impervious materials;
 - be of sufficient capacity to contain 110% of the volume of the tank (or 110% of the volume of the largest tank where a group of tanks are installed);
 - have walls not less than 250 millimetres high;
 - have floors graded to a collection sump; and
 - not have a drain valve incorporated in the bund structure;
 - conduct maintenance on mobile plant and equipment within a banded area, unless within the quarry excavation;
 - install a wastewater treatment facility with oil separator and sediment trap to treat the drainage from any hardstand, vehicle servicing and workshop areas; and
 - divert stormwater away from disturbed land surfaces. All diversion banks, channels and points of discharge should be constructed or stabilised so as to minimise erosion and scouring.

⁶ Incorporates DEC's GTAs

Site Water Management Plan

24. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Water Management Plan for the site, to the satisfaction of the Director-General. This plan must include:
- a Surface Water Monitoring Program;
 - a Groundwater Monitoring Program;
 - an Erosion and Sediment Control Plan; and
 - an Irrigation Management Plan.
25. The Surface Water Monitoring Program shall include:
- detailed baseline data on surface water flows and quality in Oakey Creek upstream and downstream of the development;
 - surface water impact assessment criteria;
 - a program to monitor surface water flows and quality in Oakey Creek; and
 - a program to monitor the effectiveness of the Erosion and Sediment Control Plan.
26. The Groundwater Monitoring Program shall include:
- baseline data on groundwater levels and quality, based on statistical analysis, to benchmark the pre-quarrying natural variation in groundwater levels and quality;
 - groundwater impact assessment criteria;
 - a program to monitor groundwater impacts during quarry operations.
- Note: Licences are required under the Water Act 1912 for groundwater monitoring bores.*
27. The Erosion and Sediment Control Plan shall:
- comply with the requirements of the with the publication titled "*Managing Urban Stormwater: Soils and Construction, Department of Housing 1998*";
 - identify activities that could cause soil erosion or discharge sediment or water pollutants from the site;
 - describe the location, function and capacity of all erosion and sediment control structures;
 - describe the measures to minimise soil erosion and the potential migration of sediments to downstream waters.
28. The Irrigation Management Plan shall:
- comply with the requirements of the Surface Water Licence issued under the *Water Act 1912* for the use of water obtained from the quarry;
 - identify the specific areas of land to be irrigated, determine sustainable water application rates and monitoring requirements;
 - describe measures to prevent any tailwater drainage from entering Oakey Creek; and
 - ensure that the soils subject to irrigation are not adversely affected by the concentration of salts.

Internal Road Crossing of Oakey Creek

29. Prior to the commencement of any work within 40 metres of Oakey Creek, a permit under Part 3A of the *Rivers and Foreshores Improvement Act 1948* shall be obtained from the Department of Natural Resources. All works shall be:
- undertaken in accordance with the permit application, except as otherwise provided by conditions of the permit;
 - constructed generally in accordance with the information contained in the documents (including the EIS) listed in condition 2 of schedule 3; and
 - designed and constructed such that the works do not cause sedimentation, erosion or permanent diversion of the Protected Waters;
- Note: Should Crown land, as defined under the Crown Lands Act 1989, be included in the crossing, there is a requirement to seek approval from the Department of Lands under the Crown Lands Act 1989.*

WASTE MANAGEMENT

30. ⁷The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.

Note: This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the site if it requires an Environment Protection Licence under the Protection of the Environment Operations Act 1997.

31. The Applicant shall ensure that the site has a suitable sewage disposal system, to the satisfaction of the LCC.

ABORIGINAL HERITAGE

32. The Applicant shall:
- protect from disturbance, by fencing, the Aboriginal site and relics (the site) located close to Oakey Creek shown in Figure 2 of Technical Document 8 of the EIS (*Assessment and Management Recommendations for the Aboriginal Archaeological Site at 275 Adams Road Luddenham*) prepared by Umwelt (Australia) Pty Limited and dated September 2001;
 - not allow stormwater or other discharges to be directed across the site;
 - not allow sedimentation to occur on the site;
 - provide training in the cultural values of Aboriginal sites to all permanent staff;
 - protect the site from damage; and
 - allow access to the site by representatives of the Gandangara Local Aboriginal Land Council to allow educational and cultural activities and monitoring of the condition of the site.

REHABILITATION & VEGETATION

33. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Rehabilitation Plan in accordance with the rehabilitation guidelines in the document titled *Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2) – Planning Report*, to the satisfaction of the Director-General. The Site Rehabilitation Plan shall include a Vegetation Management Plan.
34. The Vegetation Management Plan shall include:
- revegetation of the riparian zone of Oakey Creek;
 - protection, establishment and maintenance of the riparian zone;
 - protection of remnant native vegetation;
 - restoration of any areas within the riparian zone disturbed by the development; and
 - a program to vegetate the noise attenuation bund.
35. The Applicant shall provide annual audits of the performance of the rehabilitation undertaken on the site to be included in the AEMR. The audit shall be conducted by a qualified rehabilitation consultant, approved by the Director-General.
36. Prior to 5 years of the estimated completion of extractive activities at the site, the Applicant shall submit a report to the Department identifying the final land use of the site and method of treatment for the final void.

Rehabilitation Bond

37. Prior to commencement of operations on Lot 3, DP 623799, the Applicant shall provide a Rehabilitation Bond in the sum of \$166,750 in the form of an insurance bond or bank guarantee acceptable to the Director-General from any bank licensed pursuant to the *Banking Act 1959 (Cth)*. The Rehabilitation Bond shall be made in favour of the Minister administering the *Environmental Planning & Assessment Act 1979* to ensure completion of the rehabilitation and landscaping works at the site. The sum of the Rehabilitation Bond is calculated based on \$2.50 per square metre for a maximum exposed area of 6.67 hectares (ha).

⁷ DEC GTA

The Department shall review the adequacy of Rehabilitation Bond to provide for the completion of rehabilitation and landscaping works on the site at intervals of not less than three years. The Applicant shall ensure that the Rehabilitation Bond is in accordance with the sum determined by the review.

Notes:

- (a) *The Director-General may at any time, and without notice to the Applicant, demand all or part of the monies available under the Rehabilitation Bond if, in the Director-General's opinion, the Applicant has failed to make satisfactory progress on the rehabilitation and landscaping of the site.*
- (b) *The Director-General shall apply the monies to ensure that the actions specified in the documents listed in condition 2 of schedule 3 and/or any approved Site Rehabilitation Plan are achieved.*
- (c) *The Rehabilitation Bond will be released when the Applicant submits documentation prepared by a qualified rehabilitation consultant certifying that the final rehabilitation has been completed in accordance with the conditions of this consent and/or any approved Site Rehabilitation Plan, to the satisfaction of the Director-General.*

VISUAL AMENITY

- 38. The Applicant shall carry out the development in a way that prevents and/or minimises the visual impacts of the development.
- 39. Buildings, structures and roadworks shall be designed and constructed to present a neat and orderly appearance, to blend as far as practicable with the surrounding landscape and to minimise visual impact.

TRAFFIC & TRANSPORT

Site Access Road/Elizabeth Drive Intersection

- 40. ^{8&9}Prior to the transport of clay/shale materials from the site, the Applicant shall construct an intersection of the site access road and Elizabeth Drive in accordance with the information contained in the EIS, to the satisfaction of the RTA. This treatment shall be in accordance with RTA standards for a Rural Type AUR Right Turn Treatment and shall:
 - (a) incorporate an auxiliary left turn deceleration lane;
 - (b) safely integrate existing access to the neighbouring property immediately to the east of the intersection;
 - (c) incorporate signs and linemarking in accordance with the relevant RTA standards;
 - (d) provide intersection lighting to the relevant standards, should the intersection be used outside of daylight hours; and
 - (e) be in accordance with detailed design plans submitted to the RTA for approval prior to the commencement of any roadworks.

Note: All works must be carried out at the Applicant's expense. A plan checking fee and lodgement of performance bond may be required prior to the release of approved road design plans by the RTA.

- 41. ¹⁰Prior to 8 years from the commencement of this consent, the Applicant shall review the access arrangements to Elizabeth Drive, in consultation with PCC and LSC, and to the satisfaction of the RTA.

Note: Part of the RTA's proposal for the road widening of Elizabeth Drive would result in its conversion to a four lane divided carriageway that would restrict access to the quarry site to left-in/left-out movements only.

⁸ Incorporates RTA's GTAs

⁹ Incorporates PCC's GTA

¹⁰ Incorporates RTA's GTA

Road Transport Protocol

42. ¹¹Prior to the commencement of road haulage from the site, the Applicant shall develop a Road Transport Protocol, in consultation with the RTA, PCC and LCC. This protocol shall:
- (a) specify the haulage route(s) to be used, the maximum number of road movements and the haulage hours;
 - (b) include a Traffic Management Plan which addresses:
 - procedures to ensure that drivers adhere to the designated haulage route(s) as required under this Protocol;
 - measures to achieve a low-frequency, regular trucking schedule rather than a high-frequency, campaign trucking schedule;
 - contingency plans where, for example, any designated transport route is disrupted. This shall also address procedures for notifying relevant agencies and affected communities by the implementation of any such contingency plan;
 - procedures to ensure that all haulage vehicles associated with the quarry are clearly distinguishable as Badger Mining Company product haulers;
 - details for procedures for receiving and addressing complaints from the community concerning traffic issues associated with haulage from the quarry or return of unladen trucks to the quarry; and
 - measures to ensure the provisions of the traffic management plan are implemented, for example, education of drivers and any contractual agreements with operators of heavy vehicles which serve the quarry.
 - (c) include a Code of Conduct for drivers which addresses:
 - travelling speeds;
 - staggering of truck departures to ensure a regular trucking schedule throughout the day;
 - instructions to drivers not to overtake each other on the haulage route(s), as far as practicable, and to maintain appropriate distances between vehicles;
 - instructions to drivers to adhere to the designated haulage route(s);
 - instructions to drivers to be especially safety conscious and to ensure that traffic regulations are obeyed strictly;
 - driver training in the Code to ensure that all drivers are made aware and adhere to the Code; and
 - procedures for ensuring compliance with and enforcement of the Code.

¹¹ Incorporates RTA's GTAs

SCHEDULE 5

ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. Before carrying out any development, the Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:
 - (a) provide the strategic context for environmental management of the development;
 - (b) identify the statutory requirements that apply to the development;
 - (c) describe in general how the environmental performance of the development would be monitored and managed during the development;
 - (d) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the development;
 - respond to any non-compliance;
 - manage cumulative impacts; and
 - respond to emergencies; and
 - (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.
2. Within 14 days of the Director-General's approval, the Applicant shall:
 - (a) send copies of the approved strategy to the relevant agencies, PCC, LCC and the Community Consultative Committee (CCC) (see condition 8); and
 - (b) ensure the approved strategy is publicly available during the development.

ENVIRONMENTAL MONITORING PROGRAM

3. Before carrying out any development, the Applicant shall prepare an Environmental Monitoring Program for the development in consultation with the relevant agencies, and to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 4 of this consent into a single document.
4. The Applicant shall regularly review, and if necessary update, this program in consultation with the Director-General.

ANNUAL REPORTING

5. The Applicant shall submit, annually, an AEMR to the Director-General and the relevant agencies. This report must:
 - (a) provide a summary of the operations conducted at the site in the reporting period;
 - (b) provide details of quantities of light-firing claystone/shale, dark-firing claystone/shale, plastic clay, sandstone and waste materials extracted;
 - (c) provide monthly summaries of the quantities of extracted materials transported, and number of truck movements, to each market destination;
 - (d) identify the standards and performance measures that apply to the development;
 - (e) include a summary of the complaints received during the past year, and compare this to the complaints received in the previous years;
 - (f) include a summary of the monitoring results on the development during the past year;
 - (g) include an analysis of these monitoring results against the relevant:
 - impact assessment criteria;
 - monitoring results from previous years; and
 - predictions in the EIS;
 - (h) identify any trends in the monitoring over the life of the development;
 - (i) identify any non-compliance during the previous year; and
 - (j) describe what actions were, or are being, taken to ensure compliance.

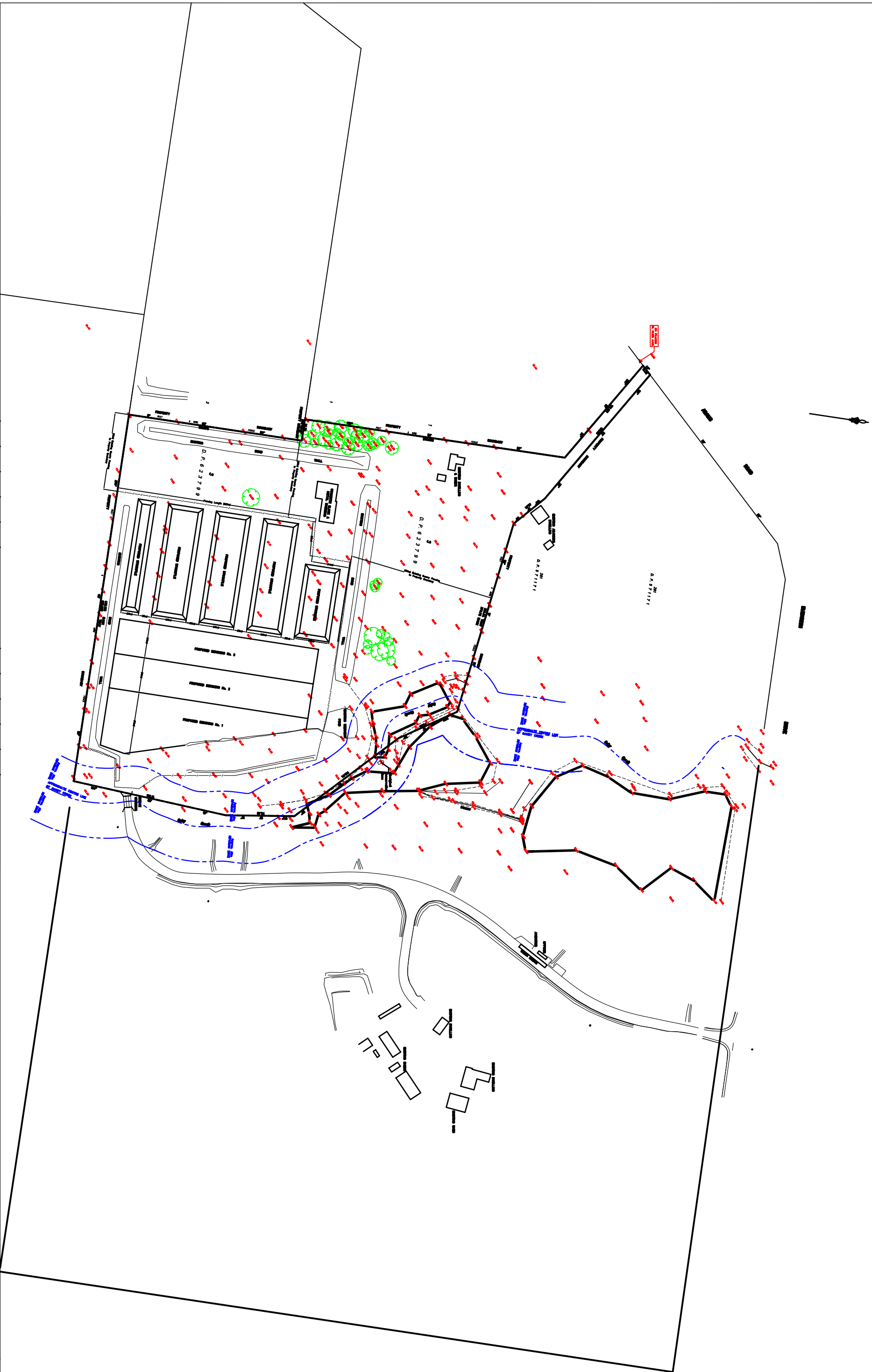
INDEPENDENT ENVIRONMENTAL AUDIT

6. Within 2 years of the date of this consent, and every 5 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
 - (a) be conducted by a suitably qualified, experienced, and independent person whose appointment has been endorsed by the Director-General;

- (b) be consistent with *ISO 19011:2002 – Guidelines for Quality and/or Environmental Systems Auditing*, or equivalent updated versions of this guideline;
 - (c) assess the environmental performance of the development, and its effects on the surrounding environment;
 - (d) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
 - (e) review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and, if necessary,
 - (f) recommend measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems.
7. Within 3 months of commissioning this audit, the Applicant shall submit a copy of the audit report to the Director-General, with a response to any of the recommendations contained in the audit report.

COMMUNITY CONSULTATIVE COMMITTEE

8. The Applicant shall ensure that there is a Community Consultative Committee to oversee the environmental performance of the development. This committee shall, unless otherwise agreed by the Director-General:
- (a) be comprised of:
 - 2 representatives from the Applicant, including the person responsible for environmental management at the quarry;
 - 1 representative from LCC;
 - invited representatives from DEC and the Department; and
 - 3 representatives from the local community
 whose appointment has been approved by the Director-General, in consultation with LCC;
 - (b) be chaired by an independent Chair, whose appointment is approved by the Director-General;
 - (c) meet at least four times in the first year of its operation and at least twice a year thereafter; and
 - (d) review and provide advice on the environmental performance of the development, including any construction or environmental management plans, monitoring results, audit reports, or complaints.
9. The Applicant shall, at its own expense:
- (a) ensure that 2 of its representatives attend the Committee's meetings;
 - (b) provide the Committee with regular information on the environmental performance and management of the development;
 - (c) provide meeting facilities for the Committee;
 - (d) arrange site inspections for the Committee, if necessary;
 - (e) take minutes of the Committee's meetings;
 - (f) make these minutes available to the public for inspection within 14 days of the Committee meeting, or as agreed to by the Committee;
 - (g) respond to any advice or recommendations the Committee may have in relation to the environmental management or performance of the development;
 - (h) forward a copy of the minutes of each Committee meeting, and any responses to the Committee's recommendations to the PCC, LCC and Director-General within a month of the Committee meeting.
10. The Applicant shall ensure that the Committee has its first meeting before the Environmental Management Strategy (see condition 1) is submitted to the Director-General for approval.




Reduction Ratios Plan : 1:1500 Vert. : -	Table of mm														
	0	10	20	30	40	50	100	110	120	130	140	150			
Contour Interval : 1 metre	Prepared by : G. Monaghan														
Datum : AHD	Plan Date : 08-11-2010														
Origin : PMA3336 (RL61.255 AHD)	Checked by : -														
	Surveyed by : Various														
	Survey Date : Adendum 29-10-10														
	Signed :														

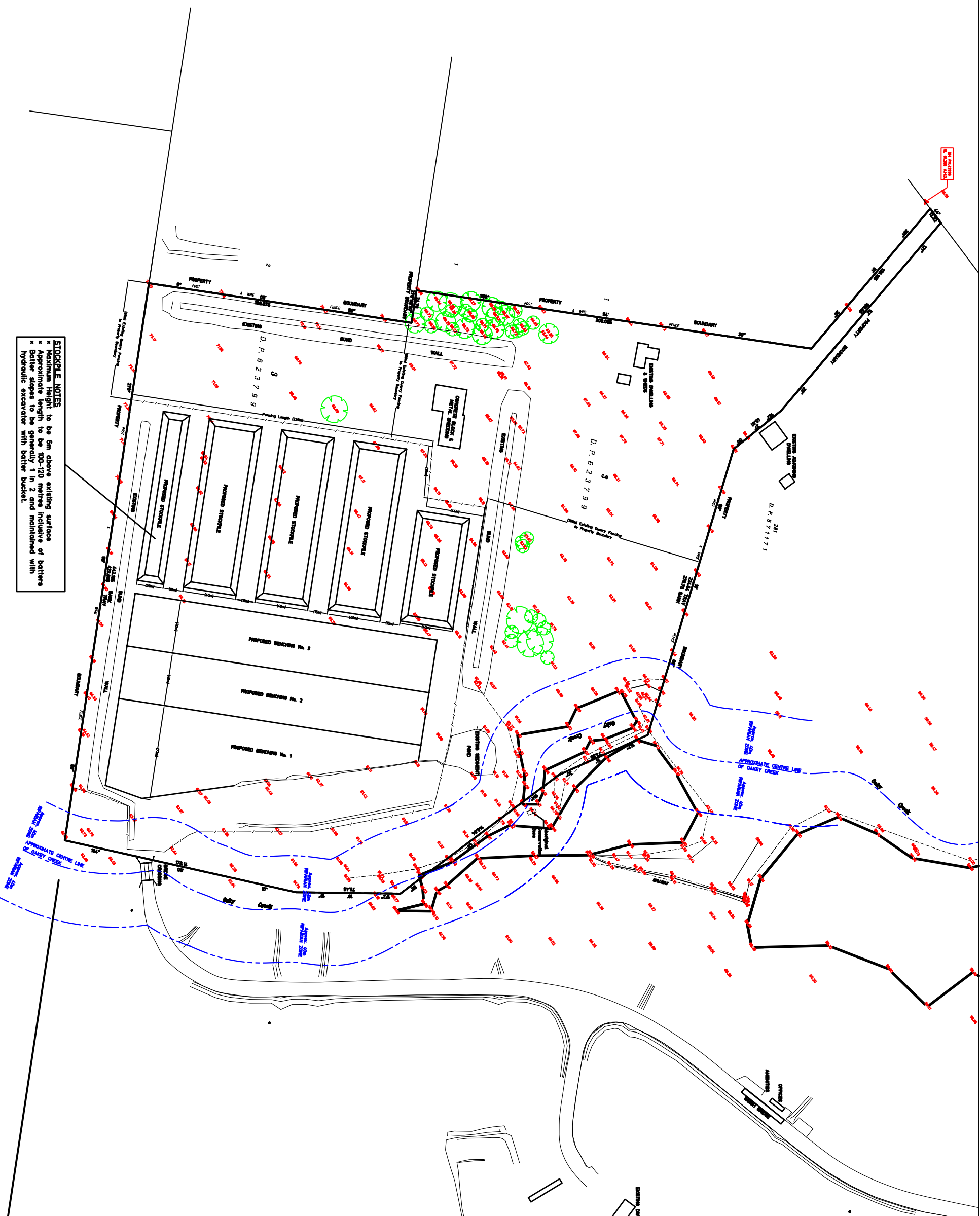
LOCALITY : Luddenhorn
 PARISH : Bringelly
 COUNTY : Cumberland
 Council : Liverpool
 Council Ref : -
 Approval Date : -

Client : Epic Mining
 Project : Plan of Compiled Detail Site Information
 of Lot 3 in D.P.623799
 & Adjoining Lot 281 in D.P.571171
 No. 275 Adams Road
 LUDDENHAM

Approved : SHEET No. 5
 OF SHEETS
 Computer Ref : 01019-T5
 Proj. Name :
 REF : 01019-T5



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STOCKPILE NOTES
 * Maximum Height to be 6m above existing surface
 * Approximate length to be 100-200 metres inclusive of batters
 * Batter slopes to be generally 1 in 2 and maintained with hydraulic excavator with batter bucket.

0	10	20	30	40	50	Table of mm	100	110	120	130	140	150
Reduction Ratios Plan : Not to Scale Horiz. : - Vert. : - Contour Interval : 1 metre Datum : AHD Origin : PMA3336 (RL61,255 AHD)												
Prepared by : G. Monaghan Plan Date : 21-11-2010 Checked by : Surveyed by : Various Survey Date : Adendum 29-10-10 Signed :												

LOCALITY :	Luddenham
PARISH :	Bringelly
COUNTY :	Cumberland
Council :	Liverpool
Council Ref :	-
Approval Date :	-

Client : Epic Mining
 Project : Plan of Compiled Detail Site Information
 of Lot 3 in D.P.623799
 & Adjoining Lot 281 in D.P.571171
 No. 275 Adams Road
 LUDDENHAM

Approved :	SHEET No. 6
	OF SHEETS
Computer Ref :	01019-76
Proj. Name :	
REF :	01019-76

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SITE REHABILITATION PLAN

CLAY/SHALE QUARRY

ADAMS ROAD, LUDDENHAM

**APRIL 2009
(REF: 8102)**

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SITE REHABILITATION PLAN

**CLAY/SHALE QUARRY
ADAMS ROAD, LUDDENHAM**

APRIL 2009

Conacher Environmental Group

Environmental and Land Management Consultants

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SECTION 1

INTRODUCTION

1.1 BACKGROUND

This Site Rehabilitation Plan (SRP) has been prepared for the approved quarry at Adams Road, Luddenham to address Consent Condition No. 33 of Schedule 4. The content of this SRP follows the requirements for preparing rehabilitation plans identified in the Planning Report for Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2).

This SRP relates to the areas used for the quarry activities including the clay/shale extraction pit, internal roads, loading areas, stockpile areas and the noise attenuation bund. Other areas of the site required to be revegetated and managed with a natural vegetation cover are incorporated into the Vegetation Management Plan prepared by UBM Ecological Consultants. These areas include the vegetation along Oaky Creek, a 40 metre wide revegetation zone from the creek and an area of woodland vegetation in the western part of the site.

The current consent is for a clay shale quarry but does not include provision for importation of fill material. The final land use (at present) is expected to be rural activities permissible within the zoning of the land.

A future development application may be submitted for ongoing extraction of clay/shale or for importation of suitable fill material for the void created by the extraction of clay/shale. Until an alternative land-use or development application has been approved the current consent conditions apply to the quarry area. Consent Condition No 5 (Schedule 3) identifies that consent lapses 15 years from date of consent (May 2004) while rehabilitation activities may be more than 15 years after consent was granted.

At this stage it is expected that clay/shale will continue to be extracted until the end of the current consent 2019 with rehabilitation works being undertaken at the start of 2019, allowing five months to complete the earthworks required for site rehabilitation.

1.2 REQUIREMENTS FOR SITE REHABILITATION PLAN

The Requirement for preparing a site rehabilitation plan is included within Consent Condition No. 33 of Schedule 4. The details for inclusion in the SRP are outlined in the Planning Report for Sydney Environmental Plan No. 9 – Extractive Industry (No. 2).

These details from SREP No 9 are provided below in italics. Specific comment in relation to each of the requirements and reference to where this matter has been addressed in this SRP follows each requirement.

- 1. Contain schedules detailing the proposed phases of rehabilitation of extracted areas to ensure that progressive rehabilitation is coordinated with the extractive operations.*

Rehabilitation of the quarry extraction area will be undertaken as one stage due to the requirement to use material within the haul roads and noise bunds as backfill material and topsoil material for revegetation. Refer to Sections 2.1, 2.2, 2.3, 2.4 and 2.5 of this SRP.

- 2. Identify a final land use option towards which progressive rehabilitation can proceed.*

The final land use (at present) is expected to be rural activities permissible within the zoning of the land. Final land use of the rehabilitated quarry pit area will be dependant on the final contours of the rehabilitated pit. The final land use is to be determined by 2014 (Consent Condition No 36, Schedule 4) Refer to Section 1.1 & 1.4 of this SRP.

- 3. Ensure that after rehabilitation the site is compatible with its surroundings and does not require ongoing maintenance in addition to normal land management practices.*

Following rehabilitation the site will comprise two different rehabilitation areas including the rehabilitated quarry pit area and rehabilitated infrastructure areas (roads, noise bunds, stock pile areas, loading areas etc). The rehabilitated quarry pit area will require specific ongoing management and maintenance to ensure that the vegetative cover is maintained. The other rehabilitated areas of the site are expected to be rehabilitated to a condition which can be managed utilizing normal agricultural land management practices.

The specific shape and design of the final rehabilitation and methods applicable to achieving this rehabilitated condition will be detailed in a SRP prepared in 2018 as part of the Annual Environmental Management Report. Refer to Sections 1.3 and 1.4 of this SRP.

- 4. Identify a final stable and permanent landform which is environmentally and visually acceptable.*

At this stage the final landform for the excavated quarry pit area is likely to be a depression with sloped batters (2H:IV) leading to a pond at the base of the rehabilitated quarry pit. Refer to Section 1.4 and Section 2 of this SRP for details on the Rehabilitation Program.

- 5. Ensure that the rehabilitated land surface is in a stable form conducive to sustainable vegetation cover.*

The final landsurfaces will be reshaped to stable landforms and certified safe by geotechnical engineers. Revegetation will be undertaken using appropriate seed and fertilizer mixes following soil tests of the areas to be revegetated. Refer to Section 2 of this SRP.

- 6. Include an erosion and sediment control plan.*

An Erosion and Sediment Control Plan has been prepared for the site by SEEC Morse McVey. This plan will require amendments in 2018 when the final SRP is to be prepared.

- 7. Include a water management plan.*

A Water Management Plan has been prepared for the site by SEEC Morse McVey. This plan will require amendments in 2018 when the final SRP is to be prepared.

- 8. The rehabilitation plans should include information on: soil handling, vegetation handling, erosion and sediment control, excavations, rock faces, overburden dumps, tailing/reject disposal, visual amenity, removal of facilities infrastructure.*

Where relevant these matters are addressed in the SRP or are to be addressed in more detail in the 2018 SRP.

9. *Monitoring and reporting of extractive industry operations.*

The details for the environmental monitoring and reporting of the approved quarry are provided in the Environmental Management Strategy and Environmental Monitoring Program prepared by *Conacher Environmental Group*. Annual reports are required to be prepared with all records maintained on a monthly basis.

10. *Security deposit*

Consent Condition No 37 of Schedule 4 requires the operators to provide a Rehabilitation Bond of \$166,750 in the form of an insurance bond or bank guarantee to ensure rehabilitation and landscaping works on the site.

1.3 SITE REHABILITATION OBJECTIVES

This SRP outlines the measures, procedures and timing of works which will be undertaken to rehabilitate the site. The principal objectives of site rehabilitation are to:

- i) Remove fill material (soil, rock, roadbase) from around the site and use this material to recontour the void created by clay/shale extraction;
- ii) Recontour the excavated batters within the clay/shale extraction pit to achieve regularly shaped slopes which are structurally stable;
- iii) Revegetate disturbed land surfaces to create a grassed, stable soil surface to prevent soil erosion;
- iv) Rehabilitate the disturbed land surfaces in a manner with the final determined land use.

1.4 STATUS OF THIS SITE REHABILITATION PLAN

This SRP should be considered a concept plan for site rehabilitation as the rehabilitation works will not be undertaken until 2019. The extent of works required for adequate site rehabilitation will be identified in the 2018 Annual Environmental Management Report for the quarry. The 2018 Annual Environmental Management Report will provide a detailed SRP which will be based on the extent of the excavation pit and detailed volumetric analysis of the material available for reshaping the batters of the excavation pit.

Consent Condition No. 35 of Schedule 4 requires that *"Prior to 5 years of the estimated completion of extractive activities at the site, the Applicant shall submit a report to the Department identifying the final land use of the site and method of treatment fro the final land use"*.

Therefore it would be appropriate for the final land use and rehabilitation methods identified in the 3014 Annual Environmental Management Report for the quarry. This will provide adequate time to prepare the final Site Rehabilitation Plan (2018 version) which will incorporate the final land use objectives and methods of treatment to achieve this final land use.

SECTION 2

REHABILITATION PROGRAM

2.1 AREAS TO BE REHABILITATED

The areas to be rehabilitated include all areas disturbed for the purposes of operating and managing the quarry. These areas and works include:

- Filling the batters of the excavation pit;
- Removal of the main haul road to Elizabeth Drive;
- Removal of the bridge over Oaky Creek;
- Removal of storage and loading areas;
- Removal of the noise attenuation mound;
- Revegetation of all disturbed areas.

The extent of the areas to be rehabilitated will be identified in the SRP to be prepared in 2018. This plan will be based on the contour plans of the excavation pit which will identify the depth, extent and batter gradients of the excavation pit.

2.2 RESHAPING OF EXCAVATION PIT BATTERS

The vertical batters of the excavation pit will be reshaped to batters with a maximum gradient of 2H:1V, subject to geotechnical recommendations based on the type of material available.

The material for batter reshaping will be obtained from the material obtained from removal of the haul road, loading area and any clay/shale stockpiles available. The final surface of the reshaped batters will be shaped with the subsoil and topsoil material contained within the noise attenuation mound. This will ensure that the crushed concrete and gravel material from the haul road is placed at the base of the reshaped batters.

2.3 TOPSOIL TREATMENT

Topsoil material is contained within the noise mound and topsoil stockpiles to be created following the removal of topsoil from areas to be quarried. Prior to reuse samples of topsoil material are to be analysed at a NATA registered laboratory to determine the requirements for any soil amelioration such as lime, doleromite, fertilizer, trace elements etc which will assist with providing a suitable medium for revegetation purposes. Soil tests are also to be taken from areas disturbed for roads, bunds and stockpiles to determine any soil constraints and soil amelioration requirements.

2.4 REVEGETATION

All disturbed areas will be revegetated to achieve a grass / pasture cover similar to the existing vegetative cover of the agricultural paddocks.

At this stage revegetation using native tree, shrub or groundcover species is not proposed. These species are more suited to the riparian zones identified for revegetation in the Vegetation Management Plan (UBM Ecological Consultants 2009).

The final species mix for the revegetation process is to be detailed in the 2018 Site Rehabilitation Plan. This species mix will include permanent pasture species (Kikuyu, Rye Grass, Clover) with a temporary cover crop (Oats, Japanese Millet) and a surface mulch.

The steeper slopes within the reshaped quarry pit may require seeding by the hydro seeding technique where the revegetation mix is sprayed onto the soil surface by a hydroseeder and covering with a protective surface mulch.

2.5 SURFACE MULCHING

All areas of revegetation will be covered by a protective surface mulch of straw. This will provide surface protection against rainfall impact and protection for germinating seeds. The organic matter from the breakdown of the mulch material will also benefit the soil structure for revegetation.

SECTION 3

ONGOING MANAGEMENT OF REHABILITATION AREAS

3.1 REGULAR INSPECTIONS AND MONITORING

Regular monthly inspections (for a 12 month period) are to be undertaken to monitor the growth of revegetation and presence of any weeds or pests within the revegetated areas. Management works are to be undertaken on a quarterly basis.

3.2 WEED MANAGEMENT

Any environmental or noxious weeds growing in the revegetated areas are to be removed during each quarterly management program.

3.3 PEST MANAGEMENT

Any pests affecting the revegetated areas are to be controlled by implementing appropriate pest control techniques applicable at the time of rehabilitation and revegetation.

3.4 VEGETATION MANAGEMENT

Regrowth vegetation within the revegetated areas may require controlled mowing/slashing to control growth and to encourage a robust vegetative cover. The mowing regime to be used will be dependant on the growth of the vegetative cover.

3.5 MAINTENANCE FERTILIZER

Application of fertilizers to promote plant growth on rehabilitated areas is to be undertaken six months after seeding. The type and application rate of the fertilizer is to be determined following the results of soil tests for the site.

3.6 REPORTING

A report is to be prepared for each quarterly management program based on the results of the monthly monitoring inspections. An annual report is to be prepared for the rehabilitation areas which is to be incorporated into the Annual Environmental Management Report for the quarry.



Sydney Regional Environmental Plan No 9—Extractive Industry (No 2—1995)

[1995-574]



Status Information

Currency of version

Current version for 29 November 2006 to date (accessed 15 September 2010 at 13:00).
Legislation on this site is usually updated within 3 working days after a change to the legislation.

Provisions in force

The provisions displayed in this version of the legislation have all commenced. See [Historical notes](#)

Formerly known as:

Sydney Regional Environmental Plan No 9—Extractive Industry (No 2)

Deemed SEPP

From 1 July 2009 this plan is taken to be a State environmental planning policy (see clause 120 of Schedule 6 to the [Environmental Planning and Assessment Act 1979](#)).

Authorisation: This version of the legislation is compiled and maintained in a database of legislation by the Parliamentary Counsel's Office and published on the NSW legislation website, and is certified as the form of that legislation that is correct under section 45C of the [Interpretation Act 1987](#).

File last modified 1 July 2009.

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1 Name of plan

This plan may be called [Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2—1995\)](#).

2 Aims, objectives etc

This plan aims:

- (a) to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance, and
- (b) to permit, with the consent of the council, development for the purpose of extractive industries on land described in Schedule 1 or 2, and
- (c) to ensure consideration is given to the impact of encroaching development on the ability of extractive industries to realise their full potential, and
- (d) to promote the carrying out of development for the purpose of extractive industries in an environmentally acceptable manner, and
- (e) to prohibit development for the purpose of extractive industry on the land described in Schedule 3 in the Macdonald, Colo, Hawkesbury and Nepean Rivers, being land which is environmentally sensitive.

3 Land to which plan applies

This plan applies to the local government areas specified in Schedule 4, which comprise part of the land declared under section 4 (6) of the [Environmental Planning and Assessment Act 1979](#) (by order published in Gazette No 185 of 11 December 1981, at page 6381) to be a region known as the Sydney Region.

4 Relationship to other environmental planning instruments

- (1) This plan prevails to the extent of any inconsistency between it and another environmental planning instrument, except a State environmental planning policy.
- (2) This plan repeals *Sydney Regional Environmental Plan No 9—(Extractive Industry)*.

5 Definitions

In this plan:

council, in relation to development, means the council of the area in which the development is or is proposed to be carried out.

extractive industry means:

- (a) the winning of extractive material, or
- (b) an undertaking, not being a mine, which depends for its operations on the winning of extractive material from the land on which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land.

Extractive Industry Report means the report prepared by the Department of Planning dated 1994 and titled "Sydney Regional Environmental Plan No 9—Extractive Industry (No 2) Planning Report" available at the offices of the Department and of the councils of the areas specified in Schedule 4.

extractive material means sand, gravel, clay, turf, soil, rock, stone or any similar substance.

Richmond Lowlands means the land referred to in Item 2 of Schedule 5.

the map means the map marked "Sydney Regional Environmental Plan No 9—Extractive Industry (No 2)" comprising 10 Sheets held in the head office of the Department of Urban Affairs and Planning and copies of which are held at the Department's offices at Newcastle, Parramatta and Wollongong and at the offices of the councils of the areas specified in Schedule 4.

6 Consent authority

The council is the consent authority for the purposes of this plan.

7 Extractive industries permissible with consent

- (1) This clause applies to land described in Schedule 1 or 2.
- (2) A person may, with the consent of the council, carry out development for the purpose of an extractive industry on land to which this clause applies.
- (3) The council must not grant such a consent unless:
 - (a) it has considered the effect of the development on flood behaviour, the water quality, quantity and hydrodynamics of any watercourse or underground waters and also the effect of flood behaviour on the development and operations associated with the development in the vicinity, and
 - (b) it has considered a rehabilitation plan prepared in accordance with the *Guidelines for Rehabilitation Plans in the Extractive Industry Report*, and
 - (c) it is satisfied that, while the development is being carried out, noise and vibration levels will generally be in accordance with the guidelines in the *State Pollution Control Commission Environmental Noise Manual* (1985 edition) available at the offices of the Environment Protection Authority and the councils of the areas specified in Schedule 4, and
 - (d) it is satisfied that rehabilitation measures will be carried out in accordance with the guidelines in the *Urban Erosion and Sediment Control Handbook* (1992) prepared by the Department of Conservation and Land Management and available at the offices of the Department of Land and Water Conservation.

8 Consultation with Department of Mineral Resources

- (1) This clause applies when a council receives an application for consent:
 - (a) to the carrying out of development for the purpose of extractive industry in respect of land described in Schedule 1, 2 or 5, or
 - (b) to the carrying out of development for a purpose other than an extractive industry on land described in Division 1, 3, 4, 5, 6, 7, 8 or 9 of Schedule 1 or in Schedule 2.
- (2) When this clause applies, the council must, within 7 days after receipt of the development application, forward a copy of the application to the Director-General of the Department of Mineral Resources.

(3) The council must not determine the development application until:

(a) it has received a written representation with respect to the application from the Director-General of that Department, or

(b) the Director-General has informed the council in writing that the Director-General does not wish to make any representation with respect to the application, or

(c) 21 days have elapsed after the date on which the copy of the application was forwarded to the Director-General without any written response being received from the Director-General,

whichever occurs first.

(4) If the council has received a written representation from the Director-General of the Department of Mineral Resources within the 21 days, the council must have regard to that representation in determining the development application.

(5) In this clause, a reference to the Director-General of the Department of Mineral Resources includes a reference to any officer of that Department who is delegated by the Director-General the function of responding on behalf of the Director-General for the purposes of this clause.

9 Extractive industry on Schedule 1 or 2 land—matters for consideration

(1) This clause applies to land described in Schedule 1 or 2.

(2) When considering an application for consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies, the council must take into account the recommendations for future extraction outlined in the Extractive Industry Report.

10 Extractive industry at Wrights and Wellums Creeks—matters for consideration

(1) This clause applies to land described in Item 1 of Schedule 5.

(2) The council must not grant consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies unless it has considered the effect of the proposed development on:

(a) the wetlands system, particularly Wellums Lake, and

(b) the nature and extent of flooding, and

(c) silting of the Lower Macdonald and Hawkesbury Rivers, and

(d) the scenic amenity of the Macdonald River Valley.

11 Special requirements for extractive industry at Maroota

(1) This clause applies to land described in Schedule 2.

(2) The council must not grant consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies unless the council is satisfied that the

proposed development:

(a) is unlikely to have a significant adverse impact on the Maroota groundwater resource or on other groundwater users in the region, and

(b) will conserve the environmentally sensitive and significant areas and features of the Maroota locality, including the environment of threatened species, populations and ecological communities, and

(c) will involve controlled and limited access points to main roads, and

(d) will result in a final landform capable of supporting sustainable agricultural production or other post-extraction land uses compatible with the established character and the landscape and natural quality of the Maroota locality.

12 Future development controls for extraction from the Richmond Lowlands

A council should not prepare a draft local environmental plan to permit development for the purpose of an extractive industry on land described in Item 2 of Schedule 5 unless it has considered the following matters:

(a) the amount of extractive material it is economic to recover, and

(b) the need to extract from the Richmond Lowlands and the timing and duration of extraction, to be determined with reference to:

- the supplies of extractive material from the remaining reserves at Penrith Lakes, and
- the current and likely future yields of extractive material from such supplies, and
- the duration of such supplies in relation to the market, and

(c) alternative potential sources of supply, and

(d) the effect of the proposed development on:

- the current and future agricultural value and regional agricultural significance of the land underlain by the extractive material and land in the vicinity of that land, and
- the heritage value of the Richmond Lowlands, having regard to the relationship of such land to the Hawkesbury River and to nearby settlements, and
- the tourism potential of the Richmond Lowlands, and
- the environmental value of the Richmond Lowlands, and
- the environmental value of the wetland areas of the Richmond Lowlands, including the importance of such areas to migratory birds and to the groundwater regime, and
- the nature and effects of flooding on the Richmond Lowlands, and

(e) the need for extractive operations to follow a co-ordinated plan of management, and

(f) the effect that flooding may have on the proposed development.

13 Future development controls for extraction from Schedule 1 or 2 land

A council should not prepare a draft local environmental plan to prohibit development for the purpose of an extractive industry on land described in Schedule 1 or 2.

14 Notification of certain matters affecting land in the vicinity of extractive industry sites

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Before a council exhibits under the Act a draft local environmental plan for a parcel of land to which this clause applies:

(a) which will decrease the minimum lot size for any such land or rezone any such land from a rural or non-urban zone to permit rural-residential, residential or urban development, and

(b) which, in the opinion of the council, is likely to result in development which will restrict the obtaining of deposits of extractive material from land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1,

the council should serve written notice of the draft plan on the owner of the parcel.

(3) When a council receives an application for consent to carry out development of land to which this clause applies that, in the council's opinion, is likely to have the effect of restricting the obtaining of deposits of extractive materials from a parcel of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1, the council must serve written notice of the application on the owner of the parcel.

15 Consultation over local environmental plans likely to restrict extractive operations

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Before a council exhibits under the Act a draft local environmental plan for land to which this clause applies:

(a) which will decrease the minimum lot size for any such land or rezone any such land from a rural or non-urban zone to permit rural-residential, residential or urban development, and

(b) which, in the opinion of the council, is likely to result in development which will restrict the obtaining of deposits of extractive material from land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1,

the council should forward copies of the draft plan to the Director-General of the Department of Mineral Resources and the Director-General of the Environment Protection Authority.

(3) The council should not exhibit under the Act a draft plan a copy of which has been so forwarded to a Director-General (or a draft plan substantially similar to such a draft plan) until:

(a) it has received written representations with respect to the draft plan from the Director-General,

and

(b) the Director-General has informed the council that the Director-General does not wish to make any representation with respect to the plan, or

(c) 40 days have elapsed after the date on which the copy of the draft plan was submitted in accordance with subclause (2) without any written response being received from the Director-General,

whichever occurs first.

(4) If the council has received a written representation from either Director-General within the 40 days, the council should, in finalising the draft plan, have regard to that representation.

(5) If either Director-General is of the opinion that the copy of the draft plan forwarded is inconsistent with any of the aims of this plan, the Director-General must forward a copy of his or her representations to the Director of Planning for consideration.

16 Restrictions on development in the vicinity of extractive resource sites

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) A council must not grant an application for consent to carry out development of land to which this clause applies unless it is satisfied that, if the development is carried out in accordance with the consent:

(a) the proposed development will not be adversely affected by noise, dust, vibration or reduced visual amenity from any nearby extractive industry, and

(b) the proposed development will not in any way adversely affect any existing nearby extractive industry or prevent any such extractive industry from realising its full economic potential by adversely affecting future expansion of the extractive industry of which the council is aware.

17 Development control codes

(1) The council of the area concerned may prepare, or cause to be prepared, a development control code in respect of land in the vicinity of land identified in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Such a code does not have effect until it is approved by the Director-General of the Department of Mineral Resources and the Director-General of the Environment Protection Authority.

(3) The format, structure, subject-matter and procedures for the preparation, public exhibition, approval, amendment and repeal of any such development control code are to comply with Part 3 of the *Environmental Planning and Assessment Regulation 1994* which is to be construed as if:

(a) a reference in that Part to a development control plan were a reference to a development control code, and

(b) a reference in that Part to a local environmental plan were a reference to this plan.

(4) A development control code prepared in accordance with this clause is to be made available for public inspection, without charge, at the office of the council during ordinary office hours.

18 Dwellings within 50 metres of a quarry access road

A local environmental plan should not permit a subdivision of land which will allow a residential building situated within 50 metres of a road:

- (a) constructed to provide access to a quarry on land described in Schedule 1, 2 or 5, or
- (b) principally used to provide access to such a quarry.

19 Extractive industry and waste

(1) Nothing in this plan allows the use of land for the disposal of waste brought on to the land from other land, whether or not such a use is ancillary to the use of land for the purpose of extractive industry.

(2) A council must not consent to the carrying out of development for the purpose of extractive industry on land to which this plan applies unless it is satisfied that the extraction will be carried out in such a way as maximises the quality of the material extracted and minimises the creation of waste.

20 Extractive industry prohibited in certain places

(1) This clause applies to land described in Schedule 3.

(2) A person must not carry out development for the purpose of extractive industry on land to which this clause applies.

(3) This clause does not prevent the carrying out of development described in item (6) of clause 11 of [Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River \(No 2—1997\)](#) in accordance with that plan.

(4), (5) (Repealed)

Schedule 1

(Clauses 2, 7, 8, 9, 13, 14, 15, 16, 17, 18)

Division 1 Clay/shale extraction areas of regional significance—current and potential

1 (Repealed)

2 Lot 1, DP 373863; Lots 54–59 DP 3050; Lot 1, DP 981161; Martin Road, Badgerys Creek; Part Lot 1, DP 981748 and Part Portions 29 and 34 in Certificate of Title Volume 12466, Folio 2, area of Bringelly, County of Cumberland. Boral Bricks, Badgerys Creek.

3 Lot 53, DP 8453; Lot 1, DP 55379; Lot 1, DP 984965; Lot 1, DP 947317; Lot A, DP 333558, Eastwood. Land contained within Certificate of Title Volume 4782, Folio 232, being part land in DP 55380 and Certificate of Title Volume 2751, Folio 12. Austral Bricks, Eastwood.

- 4 Lot 2, DP 733115, Greendale Road, Bringelly. Boral Bricks, Bringelly.
 - 5 Lots 4–8 and 10–14, DP 236527; Lots 1–2, DP 533788 and Part Lot 25 (Section 5), DP 2954, Cecil Road, Cecil Park. PGH Brickworks, Cecil Park.
 - 6 Lot 1, DP 106143 Cnr. Old Wallgrove Road and Burley Road, Horsley Park. PGH, Horsley Park.
 - 7 Lots 3 and 4, DP 235478; Lot 1, DP 206617; Lot E, DP 384514 Wallgrove Road, Horsley Park. Austral Plants 1 and 2, Horsley Park.
 - 8 Lot 2, DP 120673, Old Wallgrove Road, Horsley Park. Land in Conveyance Book 2842 No 807, excluding Lot 1, DP 579002, Old Wallgrove Road, Horsley Park, being Part Portion 32 and Part Portion 45, Parish of Melville, County of Cumberland. Austral Plant 3, Horsley Park.
 - 9 Lots 1–4, DP 233539; Lot 4, DP 229769, Wallgrove Road, Eastern Creek. Austral Brick Pit, Eastern Creek.
 - 10 Lot 3, DP 232574, Townson Road, Schofields. PGH Schofields.
 - 11 Lots 58, 59, 62, 66 and 69, DP 1358, Burfitt Road, Riverstone. Abax, Riverstone.
 - 12 Lot 4, DP 521268, Patons Lane, Erskine Park. Erskine Quarries, Erskine Park.
 - 13 Lots 17–23, DP 2566, Clifton Avenue, Kemps Creek. Khari and Ghossayn, Kemps Creek.
 - 14 Lots 1–3, DP 221313 and Lot 1, DP 716403, Elizabeth Drive, Kemps Creek. Nolans Quarrying and Mining, Kemps Creek.
 - 15 Lot 740, DP 810111; Lot 1, DP 542395, Elizabeth Drive, Badgerys Creek. Pacific Waste Management, Badgerys Creek.
 - 16 Lot 9A, DP 561214, Elizabeth Drive, Kemps Creek. Brandown, Kemps Creek.
 - 17 Land covered by Mining Lease 554 and Special Lease 84/7, Wyee. Boral, Wyee.
 - 18 **(Repealed)**
 - 19 Lot 3, DP 623799, Adams Road, Luddenham. Ferndale Resources, Luddenham.
 - 20 The land covered by Mining Lease 6030; Mining Lease 6031; Mining Lease 6032 (clay) Sydney Mining Division. Monier Clay Pits, Londonderry.
 - 21 The land covered by Mining Lease 6024 (clay), Sydney Mining Division. Camide Clay Pits, Londonderry.
 - 22 The land identified on Sheet 1 of the map as Mulgoa clay/shale.
- Division 2 Potential clay/shale extraction areas of regional significance**
- 1 The land identified on Sheet 2 of the map as Bringelly clay/shale.

Division 3 Other potential clay/shale extraction areas of regional significance

- 1 The land identified on Sheet 3 of the map as Central Coast Plateau Area clay/shale.
- 2 The land identified on Sheet 4 of the map as Castlereagh clay.

Division 4 Sand extraction areas of regional significance—current and potential

- 1 The land identified on Sheet 5 of the map as Agnes Banks sand.
- 2 The land identified on Sheet 6 of the map as Elderslie sand/soil.
- 3 Lot 2, DP 793146 and Lot 33, DP 755246, Somersby, Pioneer.
- 4 Lot 2, DP 229889, Calga, Calga Sands.
- 5 Lot 4, DP 214861, Somersby, CSR.
- 6 Lot 1, DP 569057; Lots 1 and 3, DP 571083, Lots 5–6, DP 755235, Lot 1, DP392219, Lots 2 and 3, DP 620901; Lots 1 and 2, DP 729030, Kulnura, Hymix.

Division 5 Sand and gravel extraction areas of regional significance—current and potential

- 1 The land at Windsor covered by Licence Number 74/3, Windsor. Rocla, Hawkesbury River, Windsor.
- 2 The land at Pitt Town covered by Licence Number 82/14, Windsor. Breen Holdings P/L, Hawkesbury River, Pitt Town.
- 3 The land in Port Hacking within Zone 16—Environmental Protection (Waterways) under [Sutherland Shire Local Environmental Plan 2006](#).

Division 6 Hard rock quarries of regional significance

- 1 Lot 2, DP 262213; Part Lot 1, DP 400697, being land contained in Certificate of Title Volume 12180, Folio 203, Lot 11, DP 558723; Lot W, DP 419612 and part Lot 1, DP 109198, being land contained in Certificate of Title Volume 12050, Folio 249, Wallgrove, Pioneer.
- 2 Lots A–E, DP 318676; Lot 1, DP 215510 and Part Portion 75, Parish of South Colah, County of Cumberland, being land contained in Certificate of Title Volume 2169, Folio 187, Hornsby, CSR.
- 3 Lot 1, DP 519182; Lots A and B, DP 33023; Lots 5 and 8, DP 235064; Lot 3, DP 218194; Lot 2, DP 222382; Lots 1–3, DP 566729, Prospect, Boral.
- 4 Lots 1–7, DP 260704, Prospect, CSR.
- 5 Portions 3 and 4, Parish of Kooree, County of Northumberland and Lot 81, DP 755235; Portion 71 and part Portion 79, being land contained in Certificate of Title Volume 8308 Folio 140; Parish of Kooree, County of Northumberland. Lots 1 and 2, DP 233808; lot 1, DP 652375, Kulnura, Hymix.
- 6 Portions 2–4, Parish of Popran, County of Northumberland, Lots 49, 105 and 143, DP 755253, Boral, Peats Ridge.

Division 7 Hard rock deposits of regional significance

1 Lot 1, DP 527102; Lots 1 and 41, DP 755235, and Lot 22, DP 787019, Kulnura, Hymix, Basalt Hill.

Division 8 Crushed sandstone quarries of regional significance

1 Lot 25, DP 706475, Mt. Hunter, CSR.

2 Lot D, DP 339526, Wallacia, Nolan Quarrying and Mining.

3 Lot 2, DP 622362, Medhurst Road, Menangle Park, Cleary Brothers.

4 The land covered by Licence Number 76/31 Metropolitan, Sandy Point, CSR.

5 The land covered by Licence Number 64/193 Metropolitan, Belrose, Warringah Gravel and Stone Supplies.

6 Lot 2, DP 569408, Weromba, Nepean Quarries, Cobbitty.

7 Lots 221, 222 and 223, DP 623304, Kurrajong, CSR.

8 Lot 1, DP 437699; Lot 4, DP 556534, Kurrajong and Part Portion 106, Parish of Meehan, County of Cook, being land contained in Certificate of Title Volume 6858, Folio 53, East Kurrajong, Schaffer Corporation.

Division 9 Dimensional sandstone quarries of regional significance

1 The land covered by Permissive Occupancies Nos 55/113 Gosford, and 88/10 Gosford (Wondabyne), Gosford Quarries.

2 The land covered by Permissive Occupancy No 66/91, Gosford (Somersby), Gosford Quarries.

3 The land covered by Permissive Occupancy No 54/54, Gosford (Piles Creek), Gosford Quarries.

4 Lots 11, 12, 13 and 14, DP 618324, Somersby, Tydds Quarry.

5 Lot 1, DP 522099, Somersby, Melocco Quarries.

6 The land covered by Permissive Occupancy No 79/104, Gosford (Mount White), Gosford Quarries.

7 The land shown edged heavy black on the map marked "Sydney Regional Environmental Plan No 9—Extractive Industry (No 2) (Amendment No 1)" held in the head office of the Department of Urban Affairs and Planning, Mount White, Central Coast (Sandstone).

8 The land covered by Special Lease 1988/2 Gosford, (Somersby), Sandstones of Australia.

9 The land covered by Special Lease 1973/7 (Lot 173, DP 755246), Quarry Road, Somersby, Gosford Quarries.

Schedule 2

(Clauses 2, 7, 8, 9, 11, 13, 18)

1 The land identified on Sheet 8 of the map as Maroota sand and clay/shale.

Schedule 3

(Clauses 2, 20)

- 1 The Macdonald River from its confluence with the Hawkesbury River and for its entire length within the Hawkesbury local government area, being land comprising the bank or bed of the river and the land within 40 metres of the river (being 40 metres measured horizontally from the top of the bank of that river).
- 2 The Colo River from its confluence with the Hawkesbury River and for its entire length within the Hawkesbury local government area, being land comprising the bank or bed of the river and the land within 40 metres of the river (being 40 metres measured horizontally from the top of the bank of that river).
- 3 The Hawkesbury and Nepean Rivers, downstream of the Wallacia Bridge, comprising the bank or bed of the river and the land within 10 metres of the river (being 10 metres measured horizontally from the top of the bank of that river), but excluding:
 - (a) land identified in Division 5 of Schedule 1, and
 - (b) land to which [Sydney Regional Environmental Plan No 11—Penrith Lakes Scheme](#) applies.

Schedule 4

(Clauses 3, 5, 7)

Baulkham Hills	Hornsby
Blacktown	Liverpool
Camden	Parramatta
Campbelltown	Penrith
Fairfield	Sutherland Shire
Gosford	Warringah
Hawkesbury	Wollondilly
Holroyd	Wyong

Schedule 5

(Clauses 5, 8, 10, 12, 18)

- 1 The land identified on Sheet 7 of the map as Wrights and Wellums Creeks sand, clay and peat.
- 2 The land identified on Sheet 9 of the map as Richmond Lowlands sand/gravel.

Historical notes

The following abbreviations are used in the Historical notes:

Am	amended	LW	legislation website	Sch	Schedule
Cl	clause	No	number	Schs	Schedules
Cll	clauses	p	page	Sec	section
Div	Division	pp	pages	Secs	sections
Divs	Divisions	Reg	Regulation	Subdiv	Subdivision
GG	Government Gazette	Regs	Regulations	Subdivs	Subdivisions
Ins	inserted	Rep	repealed	Subst	substituted

Table of amending instruments

[Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2—1995\)](#) (formerly [Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2\)](#)) published in Gazette No 113 of 15.9.1995, p 6794 and amended in Gazettes No 91 of 15.8.1997, p 6363 and No 119 of 7.11.1997, p 9006 and as follows:

[Sutherland Shire Local Environmental Plan 2000](#) (GG No 162 of 15.12.2000, p 13236)

Liverpool Local Environmental Plan 1997 (Amendment No 75) (GG No 117 of 9.7.2004, p 5799)

2006 (669) [Sutherland Shire Local Environmental Plan 2006](#). GG No 138 of 15.11.2006, p 9577.

Date of commencement, the day occurring 14 days after the date of its publication in the Gazette, cl 2.

Table of amendments

Cl 1 Am 7.11.1997.

Cl 11 Subst 15.8.1997.

Cl 20 Am 7.11.1997.

Sch 1 Am 15.8.1997; 15.12.2000; 9.7.2004; 2006 (669), Sch 1.3.

[Top of page](#)



ADAMS ROAD QUARRY BADGERYS CREEK

**EPIC MINING MINE OPERATIONS PLAN
M(MO)LA No 3
AUGUST 2012.**

Prepared by:
SAMUEL TARABORI
EPIC MINING Pty Ltd

PO Box 177
Kemps Creek NSW 2178
Phone: (02) 4774 9334
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Email: info@epicmining.com.au
Report Date: August 2012
Report Number: V 1.1
Report Authorised by:
Name: Brad Casey
Signature:
Date:

ABBREVIATIONS

MOP	MINE OPERATIONS PLAN
PMA	PRIVATE MINING AGREEMENT
DPI	DEPARTMENT OF PRIMARY INDUSTRIES
DECCW	DEPARTMENT OF ENVIRONMENT CONSERVATION CLIMATE & WATER
DA	DEVELOPMENT APPROVAL
EPA	ENVIRONMENTAL PROTECTION AUTHORITY
LALC	LOCAL ABORIGINAL LAND COUNCIL

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QUARRY INFORMATION AND DECLARATION

Name of mine:	<i>Adams Road</i>
Titles/Mining Leases:	<i>M(MO)LA No 3</i>
MOP Commencement Date: December 2010	Completion Date : December 2017
Name of leaseholder:	<i>EPIC Mining Pty Ltd</i>
Name of mine operator (if different):	<i>EPIC Mining Pty Ltd</i>
Landowner:	Fearndale Holding Pty Ltd
Reporting Officer:	<i>Samuel Tarabori</i>
Title:	<i>Operations Manager</i>
Signature:	
.....	
Date:	<i>01/09/2012</i>

STATUTORY DECLARATION

New South Wales

STATUTORY DECLARATION

OATHS ACT, 1900

EIGHTH SCHEDULE

I,....., of in the State of New South Wales, solemnly and sincerely declare as follows:

1. I am the duly appointed(management position) for(mine name)

2. I am authorised to make this Declaration on behalf of the Lease Holder,(name of leaseholder), A.C.N.....

3. All works and activities described in the Mining Operations Plan to which this declaration is attached comply with the conditions of the title of the mining lease (or mining leases) shown in the Mining Operations Plan, and with the conditions of Development Consent and all other relevant Government Agency approvals and licences granted in respect of them.

4. I confirm that all of the works and activities referred to in the previous paragraph lie wholly within the area shown in the Mining Operations Plan and that the tenements (mining leases, colliery holdings, land ownership) details of those tenements are correct.

And I make this solemn Declaration, conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

Subscribed and Declared at
in the State of New South Wales this day of.....in the year
(sgd)

before me (sgd)Justice of the Peace

EXECUTIVE SUMMARY

This report has been prepared by Epic Mining to address the mining, processing and rehabilitation operations on the Adams Road Quarry (M(MO)LA No 3) as required by the Department of Primary Industries - Mineral Resources.

The period of the Mine Operations Plan (MOP) is set for a maximum of Seven years to December 2017 and describes all mining and mining related activities, rehabilitation plans and land use outcomes over the MOP period. Any land clearing operations will be undertaken ahead of mining which will generally progress in a Westerly direction.

Progressive rehabilitation activities will follow behind the mining void moving in an East to West direction. It is expected that the mine when at full production will produce approximately 150,000 m³ of Clay-Shale per annum. Minimal exploration activities are planned and no significant infrastructure to be constructed over the MOP period.

The MOP presented does not include the final rehabilitation and closure phase of the mine, rehabilitation beyond the scope of the MOP are dealt with as concepts rather than in detail. An interim closure plan has been addressed by NSW Department of Planning approved "*Site Rehabilitation Plan, Clay/Shale Quarry Adams Road Luddenham April 2009 (Ref 8102)*" Prepared by Conacher Environmental Group. Copy available for viewing at quarry site office.

The extent of the Adams Road Quarry life is dependent on a number of factors which include but not limited to the rate and demand of annual brick production and the possibility of supplementation of material from alternative sources. At this stage it is envisaged that mining at the Adams Road Quarry will extend many years beyond this MOP period.

INTRODUCTION

SCOPE

This report was prepared by Epic Mining in accordance with:

- ✓ Conditions of authority of M(MO)LA NO 3.
- ✓ The Guidelines to the Mining, Rehabilitation and Environmental Management Process, issued by the Department of Primary Industries, Version 3 January 2006.

BACKGROUND

Operations of the mine, located off the Elizabeth Drive, Badgerys Creek, are within Liverpool City Council Local Government boundaries but the quarry is overseen by NSW Planning as the project has been elevated to State Significant. As gazetted in the *"Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)"* issued by NSW Government. *Location map below (Figure One).*

Prior to mining operation beginning on site the land was used for horse training and spelling yards. The then landowners the *"Harpley Family"* also operated a small produce supply store and currently resided on the site. An aerial photo shows the *Pre Mining Operation Land Use (Figure Two)*

Enquiries with Liverpool Council have indicated that the subject property is Zoned RU1 Primary Producer under Liverpool Council Local Environment Plan 2008. A *NSW LPI Title Search certificate* is supplied in **Appendix**.

Extraction operations began early 2010 by Epic Mining Pty Ltd to supply the Sydney brickworks and surrounding areas with selectively mined clays and shales. The Department of Primary Industries holds M(MO)LA No 3 (Mineral Owners Lease) over the site, which is owned by the Fearndale Holdings Pty Ltd. Epic Mining Pty Ltd, extracts the structural clay-shale for brick & paver manufacturing by the major NSW brickmaking companies. Mining operations are conducted by using open cut methods.

PROPOSED AND FUTURE OPERATIONS

The Adams Road Quarry supplies Structural clay-shale to the local brick & paver manufacturing market.

The current Mineral Owners Lease (M(MO)LA NO 3) will remain current until Epic Mining Pty Ltd is not the Mine Operator. However the current Mine Operations Plan (MOP) is due to expire in December 2017.

The proven resource is not expected to be exhausted by end of the proposed MOP period and it is expected that mining will continue for many years beyond that period. The total mine life is dependent up on several parameters. The demand for clay-shale is dependent on annual brick production by the major brick & paver manufactures and will vary substantially from year to year.

Hours of operation for the site are set out in both the DA and EPA Licence. Hours of extraction and haulage are 7am to 6pm Monday to Friday. On Saturday maintenance activities are allowed

between the hours of 7am to 1pm. No works are to be undertaken outside these hours and public holidays.

CONTACTS:

Mine Production Manager:

Samuel Tarabori

Epic Mining Pty Ltd

PO Box 177 Kemp's Creek NSW 2178

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Mine Operator:

Epic Mining Pty Ltd

PO Box 177 Kemp's Creek NSW 2178

Office: 02 4774 9334 **Fax:** 02 4774 9338

Environmental Officer:

Greg Thomson

VGT Pty Ltd

PO Box 2335, Greenhills, NSW 2323

Phone: (02) 4028 6412 **Fax:** (02) 4028 6413 **Mobile:** 0428 279 023 **Email:** greg@vgt.com.au

ADAMS ROAD QUARRY LOCATION:

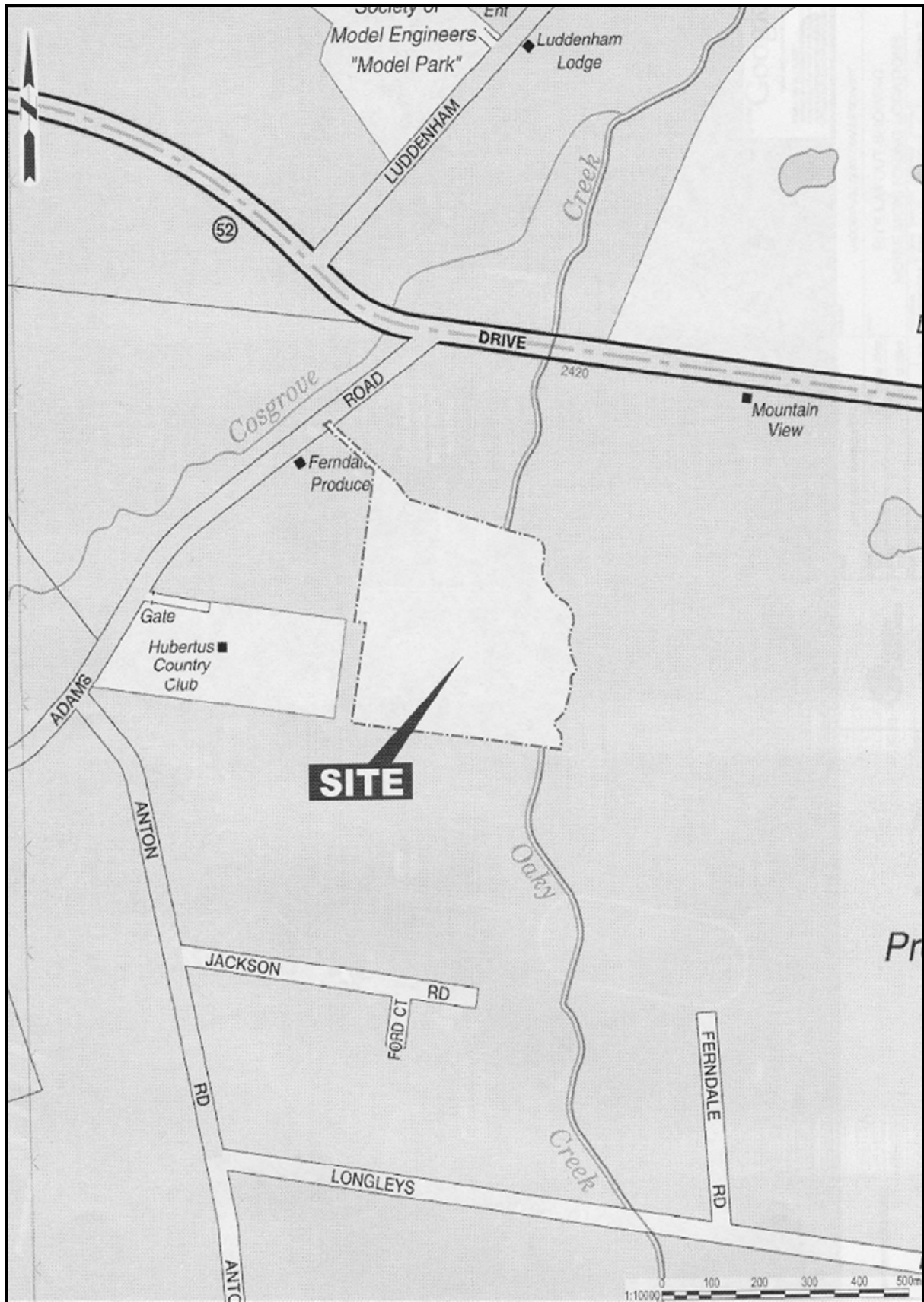


FIGURE ONE

ADAM'S ROAD QUARRY PRE-EXTRACTIVE OPERATIONS:



FIGURE TWO

CONSENTS, LEASES AND LICENCES

NSW DEPARTMENT OF PRIMARY INDUSTRIES (DPI)

The DPI previously issued a PMA number 40. This has since been revoked and a Mineral Owners Lease issued (M(MO)LA NO 3, Act 1973). It covers a total area of 6.66 hectares and the *Approved Quarry Footprint* in **Figure Three**. A more recent site survey, prepared by Monaghan Surveyors Pty Ltd on 8-11-10 Ref No. 01019-T5, is attached as an **Appendix**. A copy of the previous PMA is supplied as an **Appendix**.

NSW DEPARTMENT OF ENVIRONMENT, CONSERVATION, CLIMATE AND WATER (DECCW)

A site licence has been issued to Epic Mining Pty Ltd on the 5th June 2009. Licence number 12863. Copy attached as an **Appendix**.

LOCAL COUNCIL & NSW PLANNING

Liverpool City Council has not imposed conditions on the project. This is due to project being classified as having state significance. Site DA was issued in 2004 under *NSW Department of Planning*. DA No 315-7-2003 attached is a copy as an **Appendix**.

CONSULTATION

Due to the location of the mine and other community or landowner stakeholders. A Community Consultative Committee has been implemented as per DA conditions in Schedule 5. The site has been moderately disturbed over the past decade and is considered of little natural or cultural significance by the National Parks and Wildlife Service and aboriginal communities. A very small area (2m by 3m) has been highlighted as having Aboriginal Heritage. This area has been identified and fenced to protect and eliminate unauthorised access.

APPROVED QUARRY FOOTPRINT:

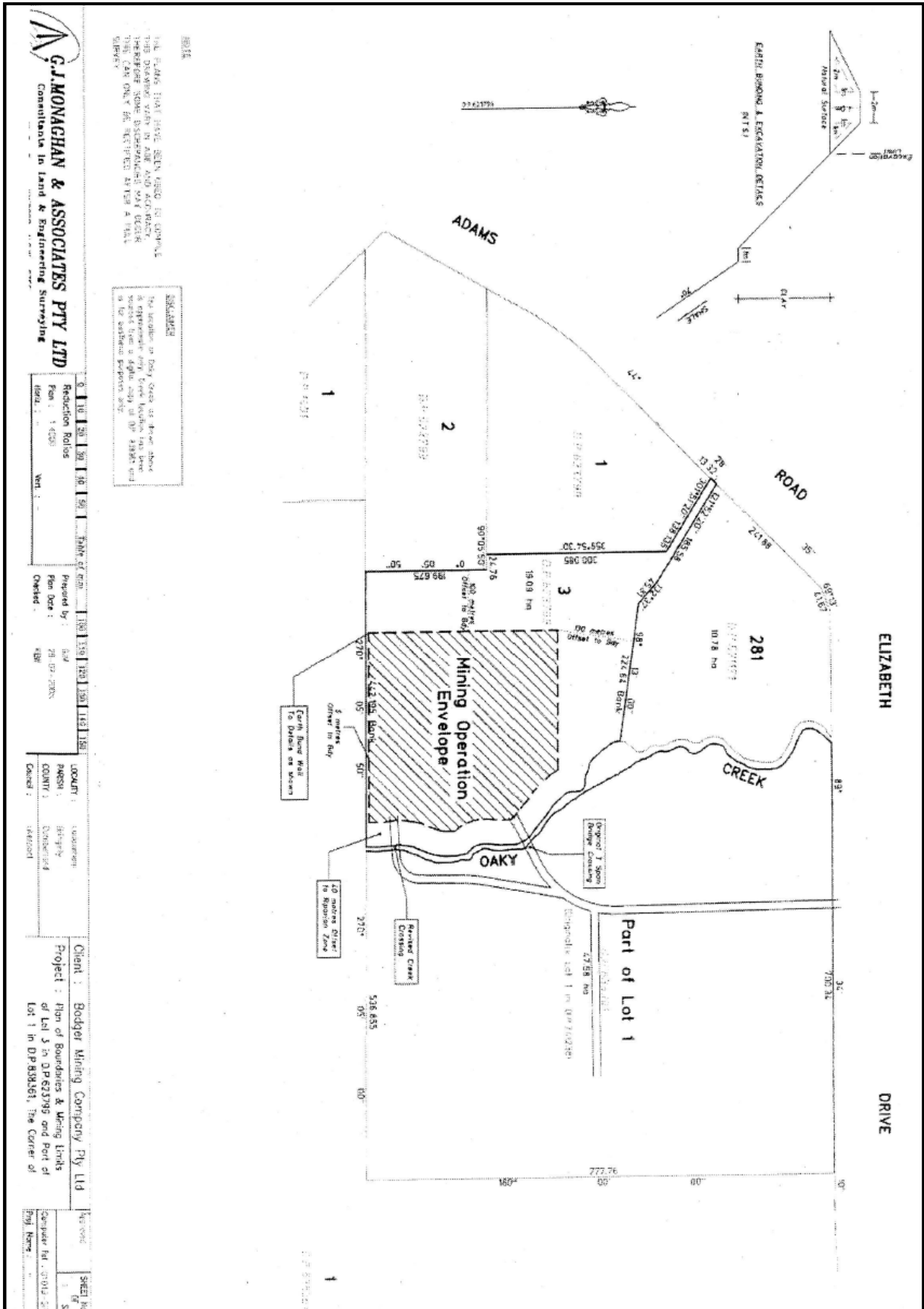


FIGURE THREE

PRE-MOP ENVIRONMENT

MINE GEOLOGY

The Luddenham Area lies within the central part of the Sydney sedimentary basin. This basin is a large depression that began to form in the early Permian times and gradually filled with a variety of sedimentary strata, including a thick sequence of coal measures. The Hawkesbury Sandstone is a widespread and continuous sheet of sandstone that was deposited in Triassic times. This originally horizontal expanse of sandy sediments continued to form a shallow central depression that filled with mainly fine grained sediments forming a series of shaly and silty strata named the Wianamatta group; it included the Ashfield Shales and Bringelly Shale.

EXISTING LANDFORM

The project site is located in rural landholdings (Zoned RU1) that are used for grazing. Horse training activities are also prevalent in the area along with market gardens.

There is a small produce business that operates on the property. Once the quarry is operational the business will be relocated and existing buildings removed from site.

The surface of the site area lies approximately 60 - 70 metres above sea level and from reports prepared by the Geological Survey it was deduced that Wianamatta group of sedimentary strata below the site are about 120m thick. As the combined thickness of the Ashfield Shale and Minchinbury Sandstone is some 60 metres thick, the Bringelly Shale is about 60 metres thick. Clean surface water runoff is diverted around the site via bundwalls and sediment dams are used to trap any dirty water runoff from the disturbed areas. The site operates with nil water discharge to the environment.

Temporary vegetation is encouraged where possible in order to minimise erosion and dirty water. A current site aerial photograph shows the *Site Existing Landforms & Environmental Management Systems*. **Figure Four**.

EXISTING LANDFORMS & ENVIRONMENTAL MANAGEMENT SYSTEMS



FIGURE FOUR

PROPOSED MINING ACTIVITIES

EXPLORATION

There is no exploration activities planned during this MOP period.

LAND PREPARATION

Top soils in this area are typically thin in the order of 0.3m thick. They are of a silty clay loam texture and are classified as A Horizon of the weathered profile. As a result the topsoils are resistant to erosion and weathering due to the high clay content.

Any topsoil generated by the operations will be stored for long periods generally in forms of the clean water diversion and will be seeded with native species to prevent erosion. Tree clearing has occurred sometime ago.

Clearing operations will be undertaken in an easterly to westerly direction as the active mine face progress upslope.

CONSTRUCTION

No construction activities are planned for the MOP period.

MINING

The current method for brickmaking selective mining technique of ripping and cross ripping of shale/sandstone with a bulldozer and pushing the material into stockpiles, to be loaded into articulated dumptrucks and then layered into stockpiles for external sale, will be maintained. This technique gives the greatest flexibility to provide the correct clay-shale mixes and removes unwanted shale-sandstone materials.

Many raw material product types are to be extracted from the site: These include: Red Clay, Pink-White Clay, Brown Shale, Apricot Shale, Sandstone and Cream Shale. They will be stockpiled separately behind the operational mine face and loaded out for external sale using an excavator or front-end loader.

Mining will progress towards the west from Oaky Creek and will continue with benches and batters at heights as required. A *Mining & Extraction Operational Plan* showing benching, slopes, ramp design and batters is shown as an **Appendix**.

Generally mining will occur once every year and a campaign may last up to 3 - 5 months. Road haulage is restricted to dry periods. This will eliminate any dirt from being transported onto Elisabeth Drive during wet periods.

Dust management will be undertaken by the sites own 20,000L water cart. Drawing water from various site dams and main pit sump. The watercart will be used to maintain the dust on dirt haulroads and to wash down the main asphalted road to Elisabeth Drive.

Material haulage will occur for the duration of the year as specified in the DA. A *Road Transport Protocol* has been indorsed by as part of the DA. A copy is available for viewing at the site office.

The current annual volume of material utilised from this mine is approximately 150,000 cubic metres, which is consistent with DA approval of 300,000T per year.

MINERAL PROCESSING

No mineral processing is undertaken on the site.

WASTE AND OVER BURDEN MANAGEMENT

In general little overburden material is generated in the mine but what overburden is available, is used to batter back the mined mine face for rehabilitation or used in bundwall construction. There is no processing waste, tailings or rubbish generated on-site. Any dumped rubbish is removed by the mining contractor.

PRODUCT STORAGE

Product is stockpiled in 4-5 metre mounds for external transportation. As previously mentioned there are many products to be selectively extracted and therefore stockpiled.

Stockpile amounts are generally restricted to the volume of material extracted during any mining campaign as mining is only undertaken when existing stockpiles have been exhausted. A site stockpile general layout can be found in attached *Mining & Extraction Operational Plan* and *Current Detailed Site Survey* are attached as **Appendix's**.

Stockpiling and storage of material is an essential part of the souring and fretting process, it is a necessity within the brickmaking industry. The process of souring and fretting allows raw materials that are to be kiln fired for the heavy clay manufacturing industry to sit and weather. The souring process allows for any unwanted salts to be leached out through exposure to moisture, either by rain or by mechanical wetting. Also the process allows raw materials to fret in the open environment allowing for easier processing through the brick factories. Fretting also allows larger solid pieces of shale/sandstone to naturally break into smaller pieces by being exposed to moisture and hot/cold environments.

Stockpiles are to be built as square as feasibly possible. The top of all stockpiles are to be built with a small safety bund around the edges. The bund will have a dual purpose, it will capture and hold water for souring, fretting and will reduce the risk of falls.

A *Typical Stockpile Cross Section* is available in attached *Mining & Extraction Operational Plan* as an **Appendix**. The raw material stockpiles will be built so as to allow free drainage of dirty surface water for collection in to the pit sump. Raw material stockpiles will be compacted with the use of the mining equipment. Articulated dump trucks will compact material as they traverse the stockpiles and a dozer will further compact the material as it shapes the stockpile. The side walls of the stockpiles will be further smoothed and compacted by an excavator. This will help eliminate erosion and therefore minimise the amount sediment that will enter the dirty water system.

WATER MANAGEMENT

Epic Mining's general approach to water management is based on following fundamental factors:

- ✓ Where practicable runoff will be diverted around active mine areas, areas of disturbance or areas which do not carry stable pastures to limit the volume of water containing or potentially containing elevated levels of suspended solids which require management.
- ✓ All runoff leaving the site will be clarified by settling in sediment ponds and have low velocity flow. This is achieved via trickle release of the water collected in the sediment ponds.
- ✓ All water that is captured on-site is to be re-used where possible to eliminate the usage of town water.
- ✓ A site watercart will be used consistently during operational hours and a series of irrigation pipe network with sprinklers has been installed on the site to irrigate the surrounding owned land. This will ensure that riparian zones are well watered and site bundwalls are kept green to reduce erosion.
- ✓ All surface water that falls within the quarry approved footprint will be diverted to the pit sump. The dirty water collection sump will be located at the lowest point of the

extraction area. This water is to be firstly used for dust suppression on internal haulroads while mining is occurring and secondly for moisture conditioning and souring of raw material stockpiles. The dirty water sumps will be maintained as a dry sump throughout the year.

An up to date site survey with an aerial photograph overlay has been produced to detail the surface water measures to be implemented. The plan is attached as an **Appendix**. *Epic Mining Pty Ltd Luddenham Quarry Water Management Plan*. Prepared by VGT Environmental Compliance Solutions. The plan outlines the measures that will be undertaken to ensure full environmental compliance is achieved.

CLEAN WATER MANAGEMENT

All clean surface water is diverted around the exaction site via bundwall construction. These bundwalls will require regular maintenance to maintain their design performance. Topsoil and vegetation cleared from the current mine face will be pushed up along the top of the active face and provide a clean water diversion bank. A current site aerial photograph shows the *Existing Landforms & Environmental Management Systems*. **Figure Four**.

DIRTY WATER MANAGEMENT

Dirty water from the quarry extraction and stockpile area is directed into a holding sump located on the lowest point in the north-eastern side of the pit floor. The sump will be maintained as a dry sump. Dirty water will be pumped from the pit sump into holding dams located adjacent to the haulroad.

The dirty water will be used on-site for dust suppression, raw material moisture manipulation and vegetation management. A series of irrigation pipe work has been installed through the Riparian zone and up along the northern bund to the irrigation paddock. A fixed pump has been installed at the main sedimentation pond and will be used to operate the irrigation network and fill the site watercart for dust suppression.

The dirty water holding dams have been enlarged from its original state and de-silted. The dams will have regular maintenance to ensure maximum efficiency. In the event of the dam overflowing the dirty water will enter a secondary dam that will also be maintained as a dry dam. If required the dirty water will then be treated with the appropriate flocculent and tested against discharge limits set by the sites EPA licence. It is envisaged that very little dirty water will require treatment as measures implemented will ensure that all dirty water is re-used onsite. A current site aerial photograph shows the *Existing Landforms & Environmental Management Systems*. **Figure Four**.

HAZARDOUS MATERIALS

Where possible no hazardous materials are held on-site. All vehicles associated with the extraction operation are to be filled by use of a portable fuel truck which is removed from site

upon completion of re-fuelling. Contractors are required to clean up all spills of fuel or oil when on site.

A Hazardous Material Register has been established as per OH&S requirements.

OTHER INFRASTRUCTURE

No other infrastructure other than the items shown on aerial photos exists on the site and none is planned.

ENVIRONMENTAL MANAGEMENT CONTROLS

NOISE AND AIR POLLUTION

Noise and air quality monitoring will be undertaken during the MOP period. The limits are set in both the *Site EPA Licence and DA* both of which are attached as **Appendix's**. The proximity of the site to Elisabeth Drive, as well as its rural location means that there is little effect on the amenity of neighbours. Dirty water collected over the site is utilised for dust suppression during mining and haulage activities as required, alleviating any potential impacts of nuisance dust.

EROSION-SEDIMENT MINIMISATION

Very little erosion occurs on the site due to the slope of the land and the installed water diversion banks. Epic Mining will continue to monitor the site and remedy any erosion or sediment entrainment where practicable using similar methods to those currently used.

SURFACE WATER POLLUTION

The primary source of surface water pollution is the entrainment of sediment during rainfall events. Epic Mining's approach to minimising dirty water is to divert clean water around the site via bunds. Dirty water from the approved extraction/stockpile area will be captured within the quarry void. A pit sump will be established at the lowest point within the pit. The storage capacity of the pit sump far exceeds the surface dirty water capture rates in rain fall events per year.

Dirty water will be used for site dust suppression and in vegetation rehabilitation zones. Any surplus dirty water will be clarified using appropriate flocculants. During normal operations it is expected that very little water will be treated and discharged from the site.

Water to be discharged from the site will be tested to meet site discharge limits as set out in the sites EPA licence.

THREATENED FLORA-FAUNA PROTECTION

No threatened or regionally significant plant species were recorded in the site by previous studies, nor are they likely to occur. Mainly due to heavy clearing activities that have occurred on the site over the past 100 years.

However, special provision has been made in the landscaping program for improvement and regeneration of local threatened flora species. A 40m Riparian zone has been installed along the eastern boundary. The Riparian zone has restricted access and runs adjacent to Oak Creek.

Irrigation pipe work has been installed throughout the Riparian zone. Water is to be utilised from both the Dirty and Clean Water catchment programs. The programmed activities are spelled out in the sites *Vegetation Management Plan*. *Vegetation Management Plan* is available upon request for viewing at the site office.

WEED CONTROL & MANAGEMENT

Noxious weed populations are non-existent and are not expected to present any issues in the future. Within the sites *Vegetation Management Plan* a management and monitoring system will be implemented to eliminate any weed outcrop. Spraying of weeds will occur as per the *Vegetation Management Plan*. Regular slashing of paddocks will also help assist with elimination of weed outcrops.

ABORIGINAL/NATURAL HERITAGE

Two archaeological assessments of the proposed site have been carried out by Umwelt (Australia) Pty Limited, Environmental and Catchment Consultants.

The initial assessment occurred in 1991. It identified an area of Aboriginal cultural significance within the riparian zone on the western side of Oaky Creek. A second study, in consultation with the Gandangara Local Aboriginal Land Council (LALC), was completed in September 2000. In 1991, Aboriginal archaeological material was observed around the margin of a dam that had been excavated for prior agricultural uses on the site in the 1930's in the floodplain of Oaky Creek and less than 20 metres from the creek bank. Water levels in the dam are highly variable, and the artefacts were observed on a surface exposed by low water levels. Some 22 pieces of flaked stone were observed, scattered across an area of 140 square metres within the dam. None of the artefacts could be considered to be in situ. The artefacts, which included flakes, flaked pieces and two cores, were considered to be the remnants of a former site that had been largely destroyed by previous earthworks. A small area of relatively intact floodplain surface remained between the dam margin and the bank of Oaky Creek, but it was considered that there was low potential for further in situ archaeological material to remain.

During the site inspection on 15 June 2000, the area of the Aboriginal site was readily located and it is considered that the condition of the site has not deteriorated significantly since 1991. The site has been assessed as having moderately low scientific significance, but is valued by the local Aboriginal community, and it is the view of the Gandangara LALC that the site has cultural value and should be conserved in situ. Conservation of the site is feasible and achievable within the current quarry plan for the property. The method and management of this protection has been agreed between Epic Mining and the LALC.

BUSHFIRE

The Fire Control Officer of Liverpool City Council has advised that the site is in an area where grass fires occur from time to time, often lit by the burning out of stolen cars. The Council does

not have any records of past fires or maps indicating the general directional paths or extent of fire events.

Discussion with the District Fire Control office at Liverpool in June 2002 identified that neither Lot 3 nor Lot 1 are considered to constitute any level of bush fire risk and are not listed on any register or plan of bush fire prone areas.

The site consists predominantly of gently sloping grassland with the only areas of vegetation being located within the riparian zone around Oaky Creek, and a small stand of gum trees against the western boundary behind the house on Lot 3. The entire area of the house and the adjacent horse yards will be outside the precincts of the quarry. It is therefore considered to be of low bush fire risk.

The employment of good site management including preventing the accumulation of excessive fuel loads from grassland and vegetation will ensure that no bush fire risk develops on the site. A grass slashing program has been implemented as part of the *Site Vegetation Management Plan*. The site maintains a 20 foot slashed fire break around the entire site to help prevent grass fire from progressing to neighboring properties.

No blasting or processing is carried out within the subject area and no explosives or hazardous materials are stored on the mining lease. All mining operations are carried out by subcontractors and all fuel, oil and rubbish is stored and treated off-site.

PUBLIC SAFETY

The approved quarry footprint is fenced by 6 foot mesh fencing with 3 strand barbed wire. The main entrance at Elizabeth Drive has a lockable gate. There is also a second lockable entrance gate located at the quarry entrance. The site has been sign posted to inform the public not to enter the site. Also a two large signs have been installed at the quarry's Elizabeth drive entrance. The signs have relevant contact numbers and site information for the public.

SITE INSPECTIONS

As part of the ongoing mine operation a monthly site inspection/audit will be conducted. Usually this will occur in the first week of each month.

The inspection will be conducted with the assistance of a check list and will insure that any irregularities are addressed and reported. Some of the items covered by the check list include the following:

- ✓ Haulroad conditions, Ramp design and bundwall conditions
- ✓ Pit wall conditions and slumping
- ✓ Site signage
- ✓ PPE and communication
- ✓ General housekeeping

The full Site Inspection Check list can be found as an Appendix to sites Mine Safety Management Plan.

PROPOSED REHABILITATION ACTIVITIES

It is planned to rehabilitate the portions of the mine that are no longer active as part of the mining sequence, with an aim to minimising the total amount of disturbed land.

There is a *Vegetation Management Plan* that has been implemented to revegetate the area around Okay Creek and the block of land behind the existing house in Lot 3.

STAKEHOLDER CONSULTATION

Epic Mining has consulted with the NSW RTA, Liverpool City Council, Penrith City Council, Department of Environment Climate Conservation and Water, NSW Planning and the EPA on addressing any issues raised by the relevant authority.

REHABILITATION STATUS AT MOP COMMENCEMENT

Temporary vegetation is encouraged where possible in other areas in order to minimise erosion and dirty water.

PROPOSED REHABILITATION STATUS AT MOP FINISH

Extraction will not be completed by the end of the proposed MOP period and therefore rehabilitation will be a combination of final and temporary vegetation.

Temporary vegetation will be encouraged over these areas whilst no mining activities are undertaken. Where possible finished faces will be battered back to either a 30 degree slope for clay strata or 70 degree slope for shale strata.

REHABILITATION OF DISTURBED LAND

Any topsoil available is stored in bund walls and used later to rehabilitate mined areas. Very little erosion occurs on site due to the gentle upslope. Some of the active faces will show minor erosion, however all sediment is collected within the dirty water system. The lack of rainfall in the last few years has aided in minimising erosion on disturbed slopes.

A *Site Rehabilitation Plan* has been approved by NSW Planning. In the plan Local Eucalypt and Acacia species will be planted along the Riparian Zone adjacent to Okay Creek and the identified Wood plains area.

A weed eradication program will be continued in conjunction with clearing activities ahead of mining to minimise the spread of weeds in the disturbed areas.

WATER MANAGEMENT (REHABILITATED LAND)

Water received over areas where rehabilitation is incomplete will be treated as dirty water and collected in the sediment dams for clarification prior to discharge. Clean water diversions will remain in place upslope of the rehabilitation areas. Where possible, once vegetation has been established over rehabilitated areas and the risk of sediment entrainment is minimised, rainfall will be diverted around the site as clean water.

FINAL REHABILITATION

REHABILITATED AREAS AND FEATURES

It is not expected that the mining operations will cease by the end of the proposed MOP period, so final rehabilitation will be incomplete. The final landform, however, will be consistent with the current surrounding land use activities which include farming and open paddocks.

This will be undertaken progressively in portions of the mine that are no longer active thereby minimising the total amount of disturbed land.

A *Site Rehabilitation Plan* has been submitted and approved by NSW Planning.

CALCULATION OF SECURITY DEPOSIT

It has been approved that a security bond is not applicable to be paid to the DPI as a very large security bond (\$166,750) has been lodged with the Planning NSW. As part of the DA approval process, Schedule 4 clause 37.

INFRASTRUCTURE AREAS

Due to the small scale of the mine operations, there is no major infrastructure, other than the stockpile area and the access road from Elisabeth Drive. The weighbridge and associated building are portable and will be easily removed when operations are completed.

It is noted that the tar sealed haulroad from Elisabeth Drive to the entrance to the existing quarry is on Commonwealth land. The road will be handed over the Commonwealth when operations are completed on site.

TAILINGS AND REJECTS EMPLACEMENTS

No tailings or rejects are generated by this operation.

WASTE ROCK DUMPS

No waste rock will be generated from the operation.

ACTIVE MINE AND VOIDS

There is currently no void on site. It is expected that the void space will be created at the rate of 150,000m³ per annum. This figure is greatly depended on the health of the local brickmaking market.

THIRD PARTY PROJECT MANAGEMENT AND CONTINGENCIES

Due to the progressive nature of the current rehabilitation and small scale of the site, the estimated cost of the Third Party involvement has been limited to environmental monitoring, surveying with the addition of a 'contingency' cost.

APPENDIX:

APPENDIX A	NSW LPI TITLE SEARCH CERTIFICATE
APPENDIX B	PRIVATE MINING AGREEMENT 40
APPENDIX C	ENVIRONMENTAL PROTECTION AUTHORITY LICENCE 12863
APPENDIX D	DEVELOPMENT APPROVAL CONDITIONS 315-7-2003
APPENDIX E	TYPICAL EXTRACTION OPERATION PLAN
APPENDIX F	CURRENT DETAILED SITE SURVEY with proposed Raw Material storage yard & Extraction sequence. Monaghan Surveyors Pty Ltd
APPENDIX G	EPIC MINING, LUDDENHAM QUARRY, WATER MANAGEMNT PLAN Prepared by VGT Environmental Compliance Solutions

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