

# **Environmental Assessment**

for the

## **Stage 2 Operations and the Modification of Development Consent DA 283/97**

at the

### **Possum Brush Quarry, via Nabiac**

*Prepared by:*



**R.W. CORKERY & CO. PTY. LIMITED**

November 2015

This page has intentionally been left blank



ABN: 45 050 224 250

# Environmental Assessment

for the

## Stage 2 Operations and the Modification of Development Consent DA 283/97

at the

### Possum Brush Quarry, via Nabiac

---

**Prepared for:**

Pacific Blue Metal Pty Ltd  
ABN: 45 050 224 250  
PO Box 6  
NABIAC NSW 2312

Telephone: (02) 6554 3206  
Facsimile: (02) 6554 3250  
Email: charlie@pacificbluemetal.com.au

---

**Prepared by:**

R.W. Corkery & Co. Pty. Limited  
Geological & Environmental Consultants  
ABN: 31 002 033 712

**Brooklyn Office:**  
1st Floor, 12 Dangar Road  
PO Box 239  
BROOKLYN NSW 2083

Telephone: (02) 9985 8511  
Facsimile: (02) 6361 3622  
Email: brooklyn@rwckery.com

**Orange Office:**  
62 Hill Street  
ORANGE NSW 2800

Telephone: (02) 6362 5411  
Facsimile: (02) 6361 3622  
Email: orange@rwckery.com

**Brisbane Office:**  
Suite 5, Building 3  
Pine Rivers Office Park  
205 Leitchs Road  
BRENDALE QLD 4500

Telephone: (07) 3205 5400  
Facsimile: (02) 6361 3622  
Email: brisbane@rwckery.com

Ref No. 484/24

November 2015



R. W. CORKERY & CO. PTY. LIMITED

**This Copyright is included for the protection of this document**

## COPYRIGHT

© R.W. Corkery & Co. Pty Limited 2015  
and  
© Pacific Blue Metal Pty Ltd 2015

All intellectual property and copyright reserved.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission. Enquiries should be addressed to R.W. Corkery & Co. Pty Limited.



## Author's Certification

**for the submission of an Environmental Assessment prepared in accordance with the  
*Environmental Planning and Assessment Act 1979.***

**a) EA prepared by:**

name: Robert W. Corkery  
 qualifications: M.Appl.Sc, B.Appl.Sc(Hons)  
 address: 12 Dangar Road  
 BROOKLYN NSW 2083

**b) Development application by:**

applicant name: Pacific Blue Metal Pty Ltd  
 applicant address: PO Box 6  
 NABIAC NSW 2312

**c) Application Number:**

DA 283/97 Mod 4

**d) Address/land details:**

Lot Number	Deposited Plan
3	701903
109	753195
66	608957

**e) Project Outline:**

The proposal involves the continued extraction and processing of a hard rock greywacke resource at the existing Possum Brush Quarry. Annual sales would be a maximum of 500 000 tonnes per year with an average annual sales of approximately 370 000 tonnes per year over a 30 year period.

**f) Assessment of Environmental Impact:**

The assessment of environmental impacts of this project includes the matters referred to in correspondence issued by the Department of Planning and Environment dated 2 July 2015.

**g) Declaration:**

I, Robert William Corkery, hereby declare that I have overseen the preparation of the contents of this assessment and to the best of my knowledge:

- i) this Environmental Assessment has been prepared in accordance with the requirements of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*;
- ii) the document contains all available information that is relevant to the environmental assessment of the proposed development; and
- iii) that the information contained in the document is neither false nor misleading.

Signature: \_\_\_\_\_

Name: Robert W. Corkery Date: 16 November 2015



This page has intentionally been left blank



# CONTENTS

	<b>Page</b>
<b>COMMONLY USED ACRONYMS .....</b>	<b>xi</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>ES-1</b>
<b>1. INTRODUCTION.....</b>	<b>1-1</b>
1.1 SCOPE.....	1-1
1.2 DOCUMENT FORMAT .....	1-1
1.3 THE PROPONENT .....	1-3
1.4 BACKGROUND TO THE POSSUM BRUSH QUARRY .....	1-3
1.4.1 Introduction .....	1-3
1.4.2 Existing Consents, Approvals and Licences .....	1-4
1.4.3 Approved Activities.....	1-5
1.4.4 The Need for a Modification .....	1-5
1.5 MANAGEMENT OF INVESTIGATIONS .....	1-6
<b>2. THE EXISTING QUARRY.....</b>	<b>2-1</b>
2.1 EXISTING OPERATIONS.....	2-1
2.1.1 Introduction .....	2-1
2.1.2 Extraction Operations.....	2-1
2.1.3 Processing Activities .....	2-1
2.1.4 Product Despatch.....	2-4
2.1.5 Rehabilitation .....	2-4
2.2 LAND OWNERSHIP AND SURROUNDING RESIDENCES.....	2-4
2.3 ENVIRONMENTAL PERFORMANCE .....	2-6
2.3.1 Introduction .....	2-6
2.3.2 Environmental Monitoring .....	2-6
2.3.3 Compliance with Approvals and Licences .....	2-11
2.3.4 Community Environmental Complaints .....	2-12
2.3.5 Conclusion .....	2-13
<b>3 PROPOSED OPERATIONS .....</b>	<b>3-1</b>
3.1 INTRODUCTION .....	3-1
3.1.1 Objectives of the Modified Increased Production and Stage 2 .....	3-1
3.1.2 Proposed Modifications.....	3-1
3.2 RESOURCE REMAINING AND STAGE 2 QUARRY LIFE .....	3-5
3.2.1 Previously Extracted Material .....	3-5
3.2.2 Recoverable Remaining Resource .....	3-6
3.2.3 Stage 2 Quarry Life .....	3-7
3.2.4 Sales Levels .....	3-7
3.3 EXTRACTION AREA AND OPERATIONS.....	3-8
3.3.1 Ongoing Extraction Operations .....	3-8
3.4 EXTRACTION AREA DESIGN AND SEQUENCE .....	3-9
3.4.1 Extraction Area Design .....	3-9
3.4.2 Extraction Sequence .....	3-10



# CONTENTS

	<b>Page</b>
3.5 EXTRACTION METHOD .....	3-13
3.6 PROCESSING AND STOCKPILING .....	3-13
3.6.1 Ongoing Processing Operations .....	3-13
3.6.2 Ongoing Stockpiling Operations.....	3-14
3.7 WASTE MANAGEMENT.....	3-14
3.8 EXTRACTION EQUIPMENT.....	3-15
3.9 PRODUCT TRANSPORTATION .....	3-15
3.9.1 Quarry Access and Public Road Network.....	3-15
3.9.2 Traffic Levels .....	3-16
3.10 INFRASTRUCTURE AND SERVICES .....	3-17
3.11 HOURS OF OPERATION .....	3-17
3.12 EMPLOYMENT .....	3-18
3.13 REHABILITATION.....	3-18
3.13.1 Land Use Objectives .....	3-18
3.13.2 Landform at end of Stage 2.....	3-18
3.13.3 Rehabilitation Activities .....	3-18
3.13.4 Rehabilitation Bond .....	3-19
3.14 FUTURE EXTRACTION OPERATIONS.....	3-19
<b>4. ENVIRONMENTAL SETTING, CONSULTATION AND PLANNING ISSUES.....</b>	<b>4-1</b>
4.1 INTRODUCTION.....	4-1
4.2 ENVIRONMENTAL SETTING.....	4-1
4.2.1 Meteorology.....	4-3
4.2.2 Land Ownership .....	4-5
4.3 CONSULTATION .....	4-5
4.3.1 Introduction.....	4-5
4.3.2 Consultation with the Community.....	4-5
4.3.3 Government Agency Consultation .....	4-5
4.4 REVIEW OF PLANNING ISSUES .....	4-10
4.4.1 Introduction.....	4-10
4.4.2 State Planning Issues.....	4-10
4.4.3 Regional and Local Planning Issues .....	4-15
<b>5. ASSESSMENT OF KEY ENVIRONMENTAL ISSUES .....</b>	<b>5-1</b>
5.1 INTRODUCTION.....	5-1
5.2 TRAFFIC .....	5-1
5.2.1 Introduction.....	5-1
5.2.2 Existing Road .....	5-2
5.2.3 Future Network.....	5-6
5.2.4 Management and Mitigation Measures .....	5-6
5.2.5 Assessment of Impacts upon the Existing Road Network .....	5-8
5.2.6 Assessment of Impacts upon the Future Road Network.....	5-10
5.2.7 Conclusion.....	5-10

# CONTENTS

	<b>Page</b>
5.3 AIR QUALITY .....	5-11
5.3.1 Introduction .....	5-11
5.3.2 Existing Air Quality .....	5-11
5.3.3 Air Quality Criteria .....	5-12
5.3.4 Management and Mitigation Measures .....	5-12
5.3.5 Assessment of Impacts .....	5-13
5.3.6 Monitoring .....	5-15
5.4 NOISE .....	5-15
5.4.1 Introduction .....	5-15
5.4.2 Existing Noise Climate .....	5-15
5.4.3 Noise Criteria .....	5-16
5.4.4 Management and Mitigation Measures .....	5-18
5.4.5 Assessment of Impacts .....	5-19
5.4.6 Monitoring .....	5-21
5.5 BLASTING .....	5-22
5.5.1 Introduction .....	5-22
5.5.2 Record of Performance .....	5-22
5.5.3 Blasting Criteria .....	5-22
5.5.4 Management and Mitigation Measures .....	5-22
5.5.5 Assessment of Impacts .....	5-23
5.5.6 Monitoring .....	5-23
5.6 SURFACE WATER .....	5-23
5.6.1 Introduction .....	5-23
5.6.2 Existing Environment .....	5-23
5.6.3 Management and Mitigation Measures .....	5-26
5.6.4 Water Balance .....	5-28
5.6.5 Harvestable Rights Dam Capacity .....	5-30
5.6.6 Assessment of Impacts .....	5-30
5.6.7 Monitoring .....	5-30
5.7 GROUNDWATER .....	5-30
5.7.1 Introduction .....	5-30
5.7.2 Existing Environment .....	5-30
5.7.3 Mitigation and Management Measures .....	5-32
5.7.4 Assessment of Impacts .....	5-32
5.8 VISIBILITY .....	5-32
5.8.1 Existing Environment .....	5-32
5.8.2 Mitigation Measures .....	5-33
5.8.3 Assessment of Impacts .....	5-33
5.9 ECOLOGY .....	5-33
5.9.1 Introduction .....	5-33
5.9.2 Existing Environment .....	5-33
5.9.3 Management and Mitigation Measures .....	5-34
5.9.4 Assessment of Impacts .....	5-35
5.10 BUSHFIRE .....	5-35



# CONTENTS

	<b>Page</b>
5.11 SOCIO-ECONOMIC CLIMATE .....	5-35
5.11.1 Introduction.....	5-35
5.11.2 Existing Setting.....	5-35
5.11.3 Impacts of the Existing Quarry .....	5-36
5.11.4 Impacts of the Stage 2 Quarry .....	5-37
5.12 CONCLUSION .....	5-38
<b>6. EVALUATION AND JUSTIFICATION OF THE PROPOSAL .....</b>	<b>6-1</b>
6.1 ECOLOGICALLY SUSTAINABLE DEVELOPMENT .....	6-1
6.1.1 Introduction.....	6-1
6.1.2 The Precautionary Principle .....	6-1
6.1.3 Social Equity.....	6-2
6.1.4 Conservation of Biological Diversity and Ecological Integrity .....	6-2
6.1.5 Improved Valuation and Pricing of Environmental Resources.....	6-3
6.1.6 Conclusion.....	6-3
6.2 JUSTIFICATION OF THE MODIFICATION .....	6-3
6.2.1 Introduction.....	6-3
6.2.2 Biophysical Considerations .....	6-4
6.2.3 Socio-Economic Considerations .....	6-4
6.2.4 Consequences of Not Proceeding with the Proposed Modification .....	6-5
6.2.5 Objects of the Environmental Planning and Assessment Act 1979 .....	6-5
6.3 CONCLUSION .....	6-6
<b>7. REFERENCES .....</b>	<b>7-1</b>

## APPENDICES

Appendix 1 Application Form .....	A1-1
Appendix 2 Correspondence from Government Agencies.....	A2-1
Appendix 3 Development Consent DA283/97 .....	A3-1
Appendix 4 Traffic Assessment.....	A4-1
Appendix 5 Air Quality Assessment .....	A5-1
Appendix 6 Noise Assessment .....	A6-1

## FIGURES

Figure 1.1 Locality Plan .....	1-2
Figure 1.2 Existing Approved Components.....	1-6
Figure 2.1 Existing Quarry Layout.....	2-2
Figure 2.2 Surrounding Residences .....	2-5
Figure 2.3 Environmental Monitoring Locations .....	2-7
Figure 3.1 Stage 2 Quarry Layout .....	3-2

# CONTENTS

	Page
Figure 3.2 Annual Production 1999 - 2015 .....	3-6
Figure 3.3 Projected Total Quarry Sales.....	3-8
Figure 3.4 Stages 1, 2 and 3.....	3-11
Figure 3.5 Stages 4, 5 and 6.....	3-12
Figure 3.6 Schematic Rehabilitated Final Quarry Bench.....	3-19
Figure 3.7 Final Long Term Extraction Area Landform.....	3-21
Figure 4.1 Local Setting .....	4-2
Figure 4.2 Annual Average Wind Rose.....	4-4
Figure 4.3 Land Ownership and Residences .....	4-6
Figure 4.4 Surrounding Land Uses .....	4-7
Figure 5.1 Existing Road Network.....	5-3
Figure 5.2 Proposed Road Network.....	5-7
Figure 5.3 Surface Water Catchments.....	5-24
Figure 5.4 Surface Water Management.....	5-25
Figure 5.5 Indicative Schematic Water Balance .....	5-29
Figure 5.6 Registered Groundwater Bores .....	5-31
Figure 5.7 Wildlife Corridor .....	5-34

## TABLES

Table 2.1 Land Ownership and Residences .....	2-6
Table 2.2 Noise Monitoring Locations and Limits .....	2-7
Table 2.3 Recent Monitoring Results.....	2-8
Table 2.4 Summary of Blast Monitoring – Maximum Results .....	2-9
Table 2.5 Surface Water Quality Monitoring – Maximum Values .....	2-10
Table 2.6 Possum Brush Quarry Non-Compliance Summary .....	2-11
Table 2.7 Possum Brush Quarry Complaint Summary.....	2-12
Table 3.1 Annual Production 1999-2015 .....	3-5
Table 3.2 Resource Quantities – 30 Year Period (Stage 2) .....	3-7
Table 3.3 Resource Quantities – Beyond 30 Year Period (Stage 2) .....	3-7
Table 3.4 Operational Equipment .....	3-15
Table 3.5 Forecast Average and Maximum Quarry-related Daily Traffic Movements.....	3-16
Table 4.1 Mean Monthly Meteorological Data .....	4-3
Table 4.2 Application of SEPP (Mining, Petroleum Production and Extractive Industries) 2007 .....	4-12
Table 4.3 Objectives of Rural RU1 Primary Production Land Use of the Greater Taree LEP .....	4-15
Table 5.1 Existing Traffic Volumes without Quarry Traffic.....	5-4
Table 5.2 Existing Background and Quarry-related Traffic at Average Daily Despatch Levels .....	5-9
Table 5.3 Existing Background and Quarry-related Traffic at Maximum Daily Despatch Levels .....	5-9



# CONTENTS

	<b>Page</b>
Table 5.4 Future Background and Quarry-related Traffic at Maximum Daily Despatch Levels.....	5-10
Table 5.5 Korora RTA PM10 Monitoring Dataset Statistics – October 2005 to January 2006 .....	5-12
Table 5.6 Impact Assessment Criteria for Airborne Particulates .....	5-12
Table 5.7 Predicted particulate matter concentration/deposition results – Maximum Production ....	5-14
Table 5.8 Measured Ambient Noise Levels (Spectrum Acoustics 2015) - dB(A) .....	5-15
Table 5.9 EPL 3393 Noise Criteria.....	5-16
Table 5.10 Project Specific Noise Levels (Based on 2015 measured noise levels) as dB(A) .....	5-17
Table 5.11 Sleep Disturbance Criteria as dB(A) .....	5-17
Table 5.12 NSW Road Noise Policy (RNP) Assessment Criteria .....	5-17
Table 5.13 Predicted Noise Levels dB(A) .....	5-20
Table 5.14 Road Traffic Noise – Possum Brush Road (Night) .....	5-20
Table 5.15 Road Traffic Noise – Possum Brush Road (Day) .....	5-21
Table 5.16 Road Traffic Noise – Pacific Highway .....	5-21
Table 5.17 EPL 3393 Blasting Criteria .....	5-22
Table 5.18 Predicted Blast Noise and Vibration Levels .....	5-23
Table 5.19 Surface Water Quality Results – Dam 3 Overflow.....	5-26
Table 5.20 Surrounding Groundwater Bores .....	5-31
Table 6.1 Objects of the EP&A Act .....	6-5

## PLATES

Plate 5.1 Possum Brush Road / Pacific Highway Intersection Configuration .....	5-5
Plate 5.2 Roadside sign approaching the stockpile area adjacent to the Quarry Access Road .....	5-19
Plate 5.3 Dam 1 .....	5-27
Plate 5.4 Dam 3 .....	5-27
Plate 5.5 Overflow Channel from Dam 3.....	5-27
Plate 5.6 Dam 4 .....	5-27
Plate 5.7 Area A Sump .....	5-27
Plate 5.8 Western Sediment Basin.....	5-27
Plate 5.9 A view to the southwest from Possum Brush Road towards the only exposure visible from Possum Brush Quarry (near the Asphalt Plant). .....	5-32

## **COMMONLY USED ACRONYMS**

AHD	Australian Height Datum
CCC	Community Consultative Committee
DA	Development Application
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENM	Environmental Noise Model
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPBC	Environment Protection and Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
ERM	ERM Mitchell McCotter
FTE	Full-time equivalent
INP	Industrial Noise Policy
LGA	Local Government Area
LEP	Greater Taree Local Environmental Plan
PBM	Pacific Blue Metal Pty Ltd
PM	Particulate matter
RMS	Roads and Maritime Services
RNP	Road Noise Policy
RPM	Runge Pincock Minarco
SEPP	State Environmental Planning Policy



This page has intentionally been left blank

