

Water Management Plan

for the

Possum Brush Quarry

DA 283/97

Prepared in conjunction with:



R.W. CORKERY & CO. PTY. LIMITED

December 2019

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Water Management Plan

for the

Possum Brush Quarry

DA 283/97

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Document Control

Document Title	Water Management Plan
Document Nbr.	484/30

Draft			
Version	Date	Distributed to	Comments Rec'd from – Date
0.00	14/06/16	DPI - Water	12/07/2016 Mitchell Isaacs Director Planning Policy & Assessment Advice
0.00	14/06/16	EPA	30/07/2016 Peter Jamieson Head Regional Operations Unit - Hunter

Final					
Version	Date	Approved By	Reviewed By	Section	Description
1.00	25/07/16	Charlie Kennett General Manager	Stacey Tyack QSE Manager	All	Plan approved for submission to DPE
1.01	04/10/16	Charlie Kennett General Manager	Stacey Tyack QSE Manager	All	Plan amended to address DPE comments received 12/09/16
1.02	13/03/17	Charlie Kennett General Manager	Stacey Tyack QSE Manager	All	Minor corrective editing including pages numbers and labels.
2.00	04/01/18	Charlie Kennett General Manager	Stacey Tyack QSE Manager	All	Full review triggered by DA Condition 5(4).
3.00	01/12/19	Charlie Kennett General Manager	Stacey Tyack QSE Manager	All Table 1 Section 5.4	Removed all or parts of Sections 1,2,3,,7,8,12-17 to EMS (generic information to all MP's) Altered order of contents. General editing Updated internal references Added water drainage levels
3.01	16/09/20	Charlie Kennett General Manager	Stacey Tyack QSE Manager	Acronyms Table 1 Table 2 Figure 3 Section 5.3.1 Section 5.4 Section 6.2	Updated Updated internal references Updated EPL Limits Updated map Added potable water supply Clarification Area B Sed Basin Updated EPL Limits

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LIST OF ACRONYMS

AHD	Australian Height Datum
AS	Australian Standard
CCC	Community Consultation Committee
DA	Development Application
DECC	Department of Environment and Climate Change
DPE	Department of Planning and Environment
DPIE	Department of Planning Industry and Environment (formally DPE)
Department	Department of Planning Industry and Environment (formally DPE)
DPI-Water	Department of Primary Industries - Water
EA	Environmental Assessment
EC	Electric Conductivity
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ERM	Environmental Resource Management Pty Ltd
ESCPs	Erosion and Sediment Control Plans
MCC	MidCoast Council
NATA	National Association of Testing Authorities
PBM	Pacific Blue Metal Pty Ltd
RPM	Runge Pincock Minarco Ltd
Secretary	Secretary of the Department, or nominee
SWMP	Site Water Management Plan
TSS	Total suspended solids

1. INTRODUCTION

This *Water Management Plan* (the Plan) has been prepared by Pacific Blue Metal Pty Ltd (PBM) in conjunction with R.W. Corkery & Co. Pty Limited for the Possum Brush Quarry (the Quarry). The Quarry is located approximately 2km west of the Pacific Highway at Possum Brush, 4km northwest of Failford and 5km northeast of Nabitac (**Figure 1**).

This Plan has been prepared in satisfaction of *DA Conditions 3(18) and 5(2)* of Development Consent (DA) 283/97¹. The Plan is one of six (6) supporting documents for the Environmental Management Strategy. These six (6) supporting documents being:

- Air Quality Management Plan
- Blast Management Plan
- Landscape and Rehabilitation Management Plan
- Noise Management Plan
- Transport Management Plan
- Water Management Plan

¹ All conditions in Development Consent DA 283/97 are referred to as *DA Condition ...*

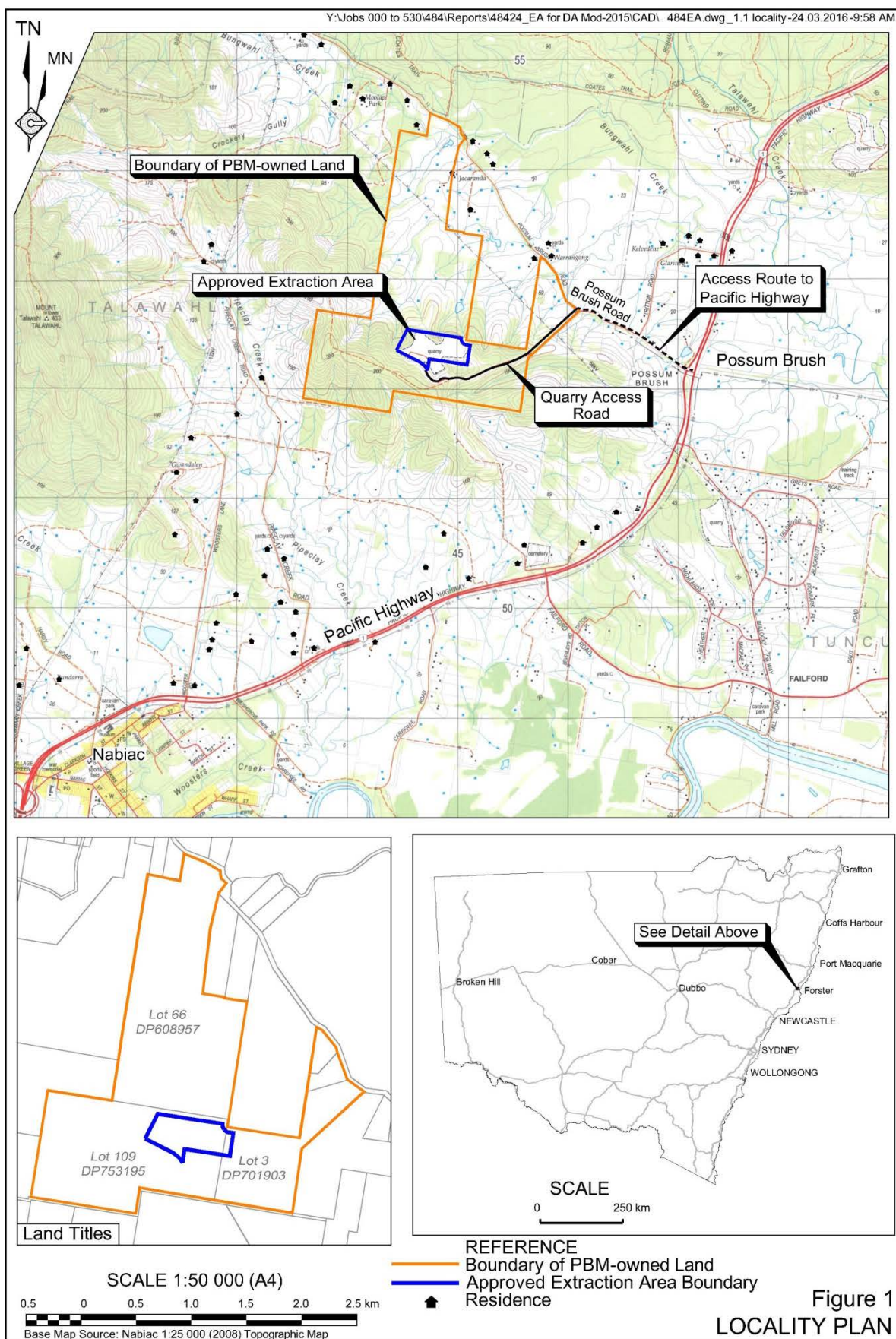


Figure 1 Locality Plan

2. LEGAL AND OTHER REQUIREMENTS

2.1 DEVELOPMENT CONSENT

DA 283/97 was formally modified as Mod 4 by the Executive Director, Resource Assessments and Compliance as a delegate of the Minister of Planning on 1 April 2016 pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). DA 283/97 includes the conditions that PBM needs to comply with and sets out the matters that need to be addressed within this plan. Relevant water-related conditions in DA 283/97 are reproduced in **Table 1** together with a reference to the sections of the Plan where each condition is addressed.

Table 1
Development Consent Requirements Relating to Water Management

Schedule (Cond. No.)	Condition Requirement	Plan Section
3(15)	The applicant shall ensure it has sufficient water for all stages of the development, and if necessary, adjust the scale of the quarrying operations to match the available water supply.	5.3
3(16)	The Applicant shall comply with the discharge limits in any EPL, or with section 120 of the POEO Act	2.2
3(17)	In the event that groundwater in excess of negligible quantities is intersected during quarrying operations, the Applicant shall undertake a hydrological investigation, in consultation with DPI Water, to the satisfaction of the Secretary. The investigation must report on groundwater sources, levels, yields and quality; identify any risk to groundwater uses or groundwater dependent ecosystems and propose recommended management measures.	5.3.3
3(18)	The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. In addition to the standard requirements for management plans (see condition 2 of Schedule 5) this plan must:	This document
	(a) be prepared in consultation with the EPA and DPI-Water	4.6 & Appendix A
	(b) be submitted to the Secretary for approval within three months of the date of approval of Modification 4, unless otherwise agreed by the Secretary	This document
	(c) include a Site Water Balance that includes details of: <ul style="list-style-type: none"> – sources and security of water supply; – water uses, losses and management on site; – any off-site water transfers; and – reporting procedures; and 	5
	(d) include a Surface Water Management Plan that includes: <ul style="list-style-type: none"> – detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the development; – a detailed description of the surface water management system on site, including the: <ul style="list-style-type: none"> - clean water diversion system; - erosion and sediment controls; - stormwater runoff controls; 	4 5

Schedule (Cond. No.)	Condition Requirement	Plan Section
	<ul style="list-style-type: none"> - dirty water management system; and - water storages; and - a program to monitor and report on: <ul style="list-style-type: none"> - any surface water discharges; - the effectiveness of the water management system; and - surface water flows and quality in local watercourses; and - measures that would be implemented to minimise water use on site; - identification of all reasonable and feasible measures to improve the quality of surface water within and around the site <p>The Applicant shall implement the management plan as approved from time to time by the Secretary.</p>	<p>6</p> <p>5</p> <p>5</p>
5(2)	<p>The Applicant shall ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:</p> <p>a) detailed baseline data;</p>	4
	<p>b) a description of:</p> <ul style="list-style-type: none"> - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; and - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; 	<p>2</p> <p>2</p> <p>3</p>
	<p>c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p>	5,
	<p>d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> - impacts and environmental performance of the project; and - effectiveness of any management measures (see (c) above); 	6, 7
	<p>e) a contingency plan to manage any unpredicted impacts and their consequences;</p>	8
	<p>f) a program to investigate and implement ways to improve the environmental performance of the project over time;</p>	7
	<p>g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or - performance criteria; and 	8,9,10
	<p>h) a protocol for periodic review of the plan.</p> <p>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</p>	12
5(7)	<p>The Applicant shall notify, at the earliest opportunity, the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the project, the Applicant shall notify the Secretary and any other relevant agencies as soon as practicable after the Applicant becomes aware of the</p>	10

Schedule (Cond. No.)	Condition Requirement	Plan Section
	incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	
5(8)	The Applicant shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	11

2.2 ENVIRONMENT PROTECTION LICENCE

PBM currently holds Environment Protection Licence (EPL) 3393 for the operation of the Quarry.

This Water Management Plans has been prepared in a manner that is consistent with the EPL. The specific criteria outlined in EPL 3393 relevant to water quality are detailed in **Table 2** below.

Table 2 EPL 3393 Water Concentration Limits

Sampling Point	Frequency	Pollutant	Criteria
Dam 3 (Nominated as POINT 2 in EPL)	Within 24 hours after discharge	TSS pH Oil & Grease	< 50mg/L 6.5 - 8.5 10mg/l or non-visible

3. OBJECTIVES AND OUTCOMES

Table 3 presents the objectives and key performance outcomes for this Plan and the Quarry.

Table 3 Water Objectives and Key Performance Outcomes

Objectives	Key Performance Outcomes
a) To ensure compliance with the criteria of DA 283/97, EPL 3393 and reasonable community expectations.	i) Compliance with all relevant criteria and reasonable community expectations, as determined in consultation with the relevant government agencies.
b) To ensure sufficient water is available during all phases of the life of the Quarry for environmental and operational purposes	ii) Sufficient water is available for all Quarry-related purposes, including for environmental and operational purposes.
c) To ensure that effective sediment and erosion control measures are implemented and maintained.	iii) All water management structures constructed and maintained in accordance with Landcom (2004) and DECC (2008).
d) To ensure that effective chemical and hydrocarbon management is implemented and maintained.	iv) All chemicals and hydrocarbons are used in accordance with manufactures instructions, Safety Data Sheet requirements and Australian Standards in a manner that ensure risk of water contamination is reduced to an acceptable level.
e) To ensure that water within the Quarry Site is used in an efficient and environmentally responsible manner.	v) Water resources are managed in a manner that maximises environmental flows and minimises the potential for adverse impacts to water resources.
f) To ensure that an effective surface water program is implemented during the life of the Quarry.	vi) Water monitoring programs are sufficiently robust to detect any adverse water quality or quantity impacts associated with the Quarry to allow adaptive management measures to be implemented.
g) To ensure that appropriate contingency and emergency management plans are in place and annually reviewed.	vii) Contingency and emergency management plans are prepared for all relevant contingencies and annually reviewed and upgraded.
h) To implement an incident reporting program.	viii) Incidents (if any) recorded and recorded
i) To ensure that all relevant water-related information is made available in a timely and accessible manner.	ix) All relevant water-related information is available in a timely manner on the PBM website.

4. BASELINE DATA

4.1 EXISTING CATCHMENTS AND HYDROLOGY

The Quarry lies within the catchment of Bungwahl Creek, a tributary of the Wallamba River, which in turn flows into the northern end of Wallis Lake near Forster.

Figure 2 displays the local surface water catchments relevant to the Quarry, namely, the catchment of Bungwahl Creek upstream from the Pacific Highway and three small catchments (A, B and C) in which the Quarry components are located.

The entire extraction area, processing area and asphalt plant lie within the headwaters of Catchment Area A, a catchment of approximately 2.5km². The bulk of the extraction area lies within a smaller catchment within Catchment Area A, i.e. of Dam 3 (see also **Figure 3**). The western part of the existing extraction area currently drains to the west toward a small first order stream which in turn flows northeasterly towards Bungwahl Creek, 2.8km from the extraction area. Runoff from this section of the extraction area would cease in about Year 10 (end of Stage 2) (see **Figures 3**) as the extraction area would be fully internally draining.

The lower 0.5km of the Quarry Access Road lies within Catchment B, a catchment of approximately 2km². Runoff from this section of road flows largely to the northwest towards a first order stream which crosses Possum Brush Road, 1.3km north of the Quarry Access Road / Possum Brush Road intersection.

The Quarry Administration Office (**Figure 3**) and a 0.5km section of the Quarry Access Road lies within Catchment C. Virtually, all of the surface area of these components are sealed and therefore generate negligible sediment-laden runoff.

4.2 LAND USE

Land ownership surrounding the Quarry Site is dominated by agricultural land, rural lifestyle blocks and State Forest. **Figure 1** highlights the substantial buffer of heavily vegetated land and farmland, owned and managed by the Quarry which surrounds the extraction area. A major transport route, A1 Pacific Highway, is located in the neighbourhood, approximately 1.3km to the west of the quarry.

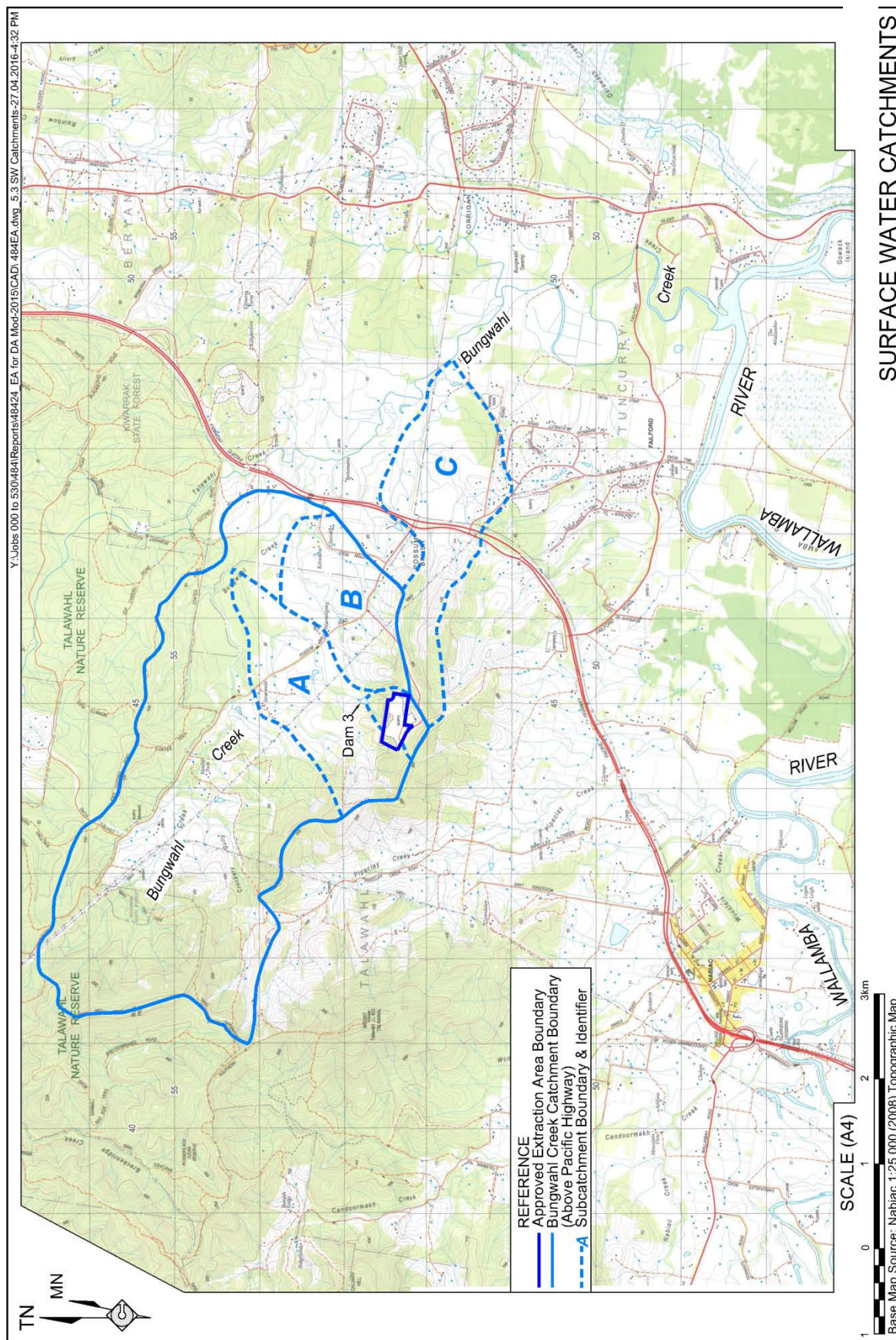


Figure 2 Surface Water Catchments

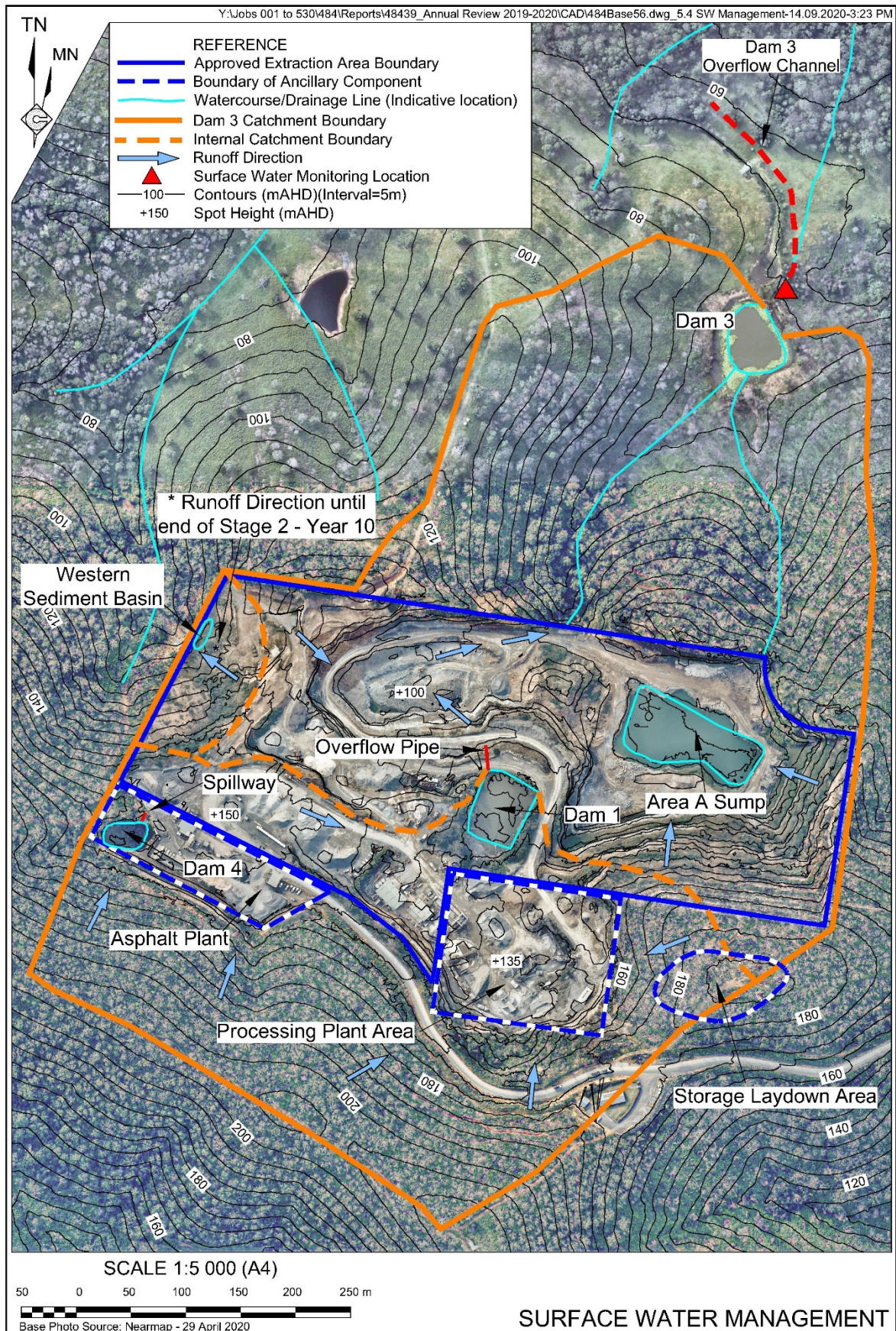


Figure 3 Surface Water Management

4.3 WATER QUALITY

The Quarry operates with a single licenced discharge point for surface water, i.e. the overflow from Dam 3 (see **Figure 2**). EPL 3393 requires the monitoring of the overflow within 24 hours of the commencement of overflow. Overflow from Dam 3 typically occurs between 0 and 6 times per year depending upon rainfall conditions and the operational water requirements. **Table 4** presents the results of surface water quality monitoring at the Dam 3 overflow throughout 2015. The results in **Table 4** confirm the quality of water overflowing from Dam 3 satisfied the limits nominated in EPL 3393. No exceedances in the EPL limits have occurred during any previous years.

Table 4 Surface Water Quality Results – Dam 3 Overflow

Date	pH	TSS*	Oil or Grease
21/01/15	7.2	10	Not Visible
28/01/15	6.7	37	Not Visible
23/03/15	7.1	18	Not Visible
03/05/15	7.4	8	Not Visible
23/05/15	7.2	8	Not Visible
* TSS = Total Suspended Solids			
Source: PBM 2014-2015 Environmental Management Report			

4.4 AQUATIC HABITAT

There is no aquatic habitat within the extraction area nor any groundwater dependent ecosystems within PBM's property.

4.5 WATERFRONT LANDS

There are no quarry-related activities undertaken within 40m of any first or second order streams marked on the topographic map within PBM's property. All drainage lines on the property are well grassed often with no defined bed or banks. Therefore, there is no requirement for Controlled Activity Approvals.

4.6 GOVERNMENT AGENCY CONSULTATION

The following government agency consultation was undertaken in the preparation of this Plan.

- The draft Water Management Plan was forwarded to the EPA and DPI Water for comment on 14 June 2016
- A response was received from DPI - Water on 11 July 2016. The Draft Water MP was amended and a letter outlining the amendments provided to the DPI.
- A response was received from EPA on 22 July 2016. The EPA did not provide any comments on the Draft Water Management Plan.

Evidence of consultation is provided in Appendix A.

5. SITE WATER BALANCE & MANAGEMENT

5.1 INTRODUCTION

The following site water balance provides an overall description of where all water is sourced, where it is used, how much of it is used and where it ultimately ends up. It identifies the proposed storages and their volumes and whether they are used for dirty water (e.g. sediment basins, pumping dams, sumps) or for clean, useable, water (either as part of the works or for agricultural purposes).

5.2 WATER USES AND DEMAND

5.2.1 On-site Water Demand

The key quantities of water used annually on site are as follows, i.e. with ranges provided reflecting the annual sales of 370 000tpa (average) and 500 000tpa (maximum).

- Dust suppression (via the 22 000L on-site water truck) = 16ML to 21ML
- Dust suppression (on the processing plant) = 7.4ML to 10ML
- Pugmill/wetmix plant usage = 6.6ML to 10ML

In total, approximately 30ML to 41ML would be used annually. For the purposes of the water balance, evaporation from the on-site dams and the Area A sump (a combined 14 000m² surface area) would be approximately 14ML/yr based upon 1m/yr i.e. assuming an evaporation factor of 70% of 1 423mm/yr.

5.3 SOURCES AND SECURITY OF WATER SUPPLY

5.3.1 Water Supply

Water for dust suppression and washdown is primarily sourced from Dam 1 (15ML capacity). It has adequate capacity to supply the amount of water required in most of the year but, during very dry periods, water is pumped from the internal quarry sump (17ML capacity) and Dam 3 (15ML capacity). In total, the water storage allocated to supply water for quarry-related purposes have a combined capacity of approximately 47ML.

Water for the asphalt plant is supplied solely from Dam 4 (6ML capacity).

Potable water is sourced from rainwater. Eight (8) rainwater tanks totalling 125 000L of storage capacity are installed throughout the quarry, and plumbed directly to the crib rooms and offices. Should rainwater fail to provide sufficient supply, potable water is purchased.

5.3.2 Water Security

PBM's on-site experience over the pasts 23 years has established that the three water sources have been most reliable in supplying the Quarry's needs.

Figure 4 presents an indicative schematic of the water balance displaying the input, usage and losses. This schematic reflects PBM's experience on site particularly during the extreme years of 2007-2008 and 2013-2014. It is noteworthy, that PBM has not experienced any water shortages to date and the current storage capacity of 53ML on site would provide a high level of availability for the water requirements in the event annual sales approached 500 000tpa.

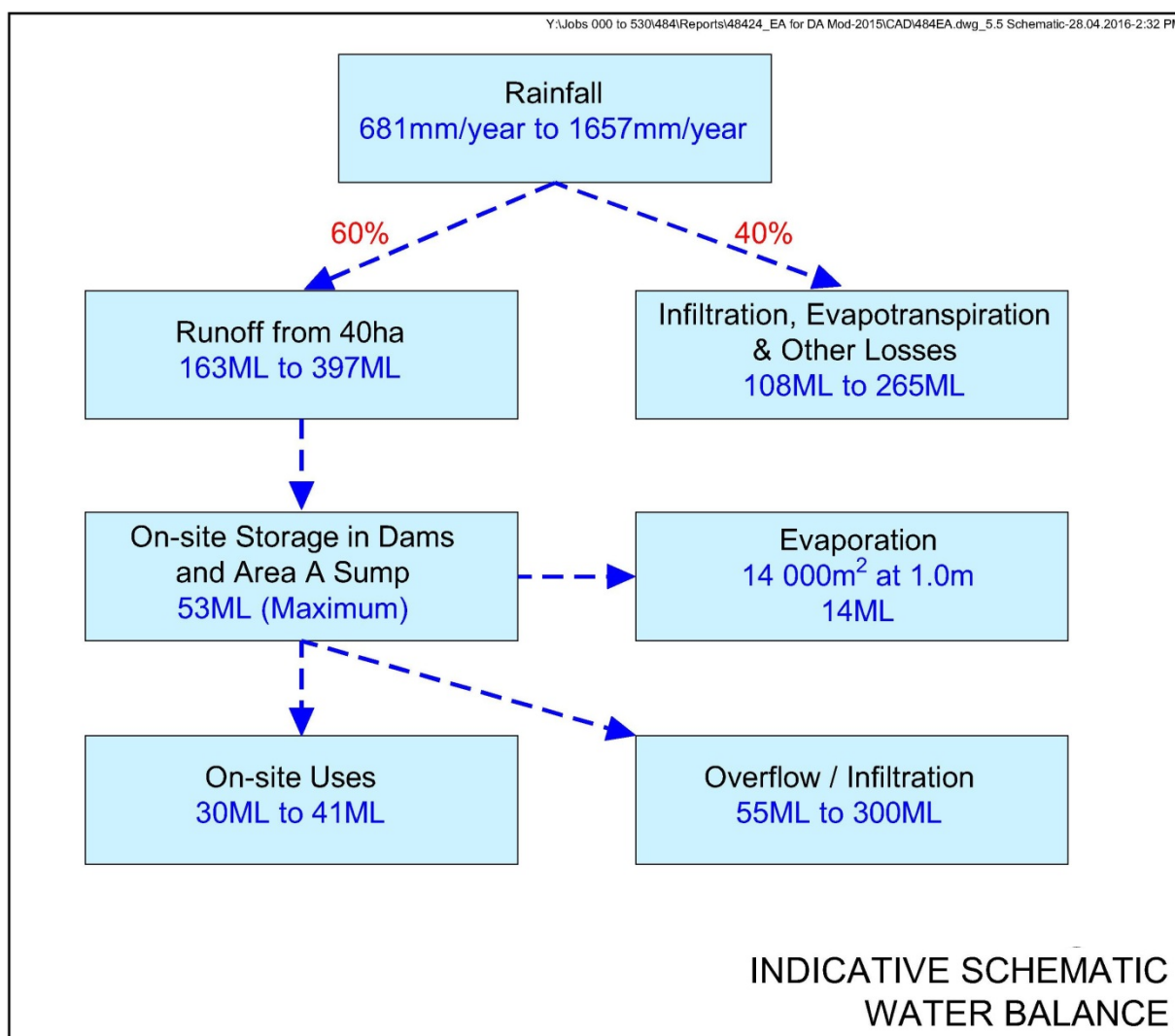


Figure 4 Indicative Schematic Water Balance

5.3.3 Groundwater Management

To date groundwater has not been intercepted at the quarry, nor is it expected to be intercepted throughout Stage 2. However should any permanent unforeseen groundwater discharges from the quarry face or floor become evident over time, PBM will undertake a hydrological investigation, in consultation with DPI Water. The investigation will include proposed recommended management measures..

5.4 WATER MANAGEMENT

PBM would continue to operate the Quarry in a manner that results in all runoff generated within the extraction area and surrounds reporting to the dams and sumps within the extraction area or elsewhere on the Company's property. **Figure 3** displays the watercourses surrounding the Quarry and the key surface water management structures used to ensure all sediment-laden water is retained within the Company's property. **Plates 1 to 6** show each of the dams, sump and sediment basin on site.

Watercourses within the Company's property are poorly defined and typically do not display an incised channel. Furthermore, the watercourses are often well vegetated. PBM has previously constructed a contour bank from the overflow of Dam 3 to convey any overflow in a northwest direction at the request of a neighbour more than 20 years ago.

For the purposes of quarrying operations, PBM relies upon three dams and the a sump in Area A to collect, treat and retain stormwater for onsite use. The sediment basin at the western edge of Area B was installed as part of a suite of control measures to address sediment and erosion control in this area.

The quarry is completely dependent on collecting, storing and efficiently reusing stormwater as this is the only source of water supply for the development. Mains water is not available to the quarry. As such PBM's water reliance will continue to be made principally upon recovering water within Dam 1 for on-site uses, scaling the operation to match the on-site water supply. Water would be pumped from Dam 3 and/or Area A Sump during dry periods when the water level is low in Dam 1.

PBM actively works to conserve water on site, through the following water minimization techniques:

- minimising reliance on and use of clean water by harvesting sediment-laden water from disturbed areas for on-site dust suppression and the manufacture of blended products and asphalt
- dust suppression is undertaken on a needs only basis – and not as a scheduled activity regardless of need
- water from truck wash areas is diverted into the retained stormwater system for reuse
- quarterly inspections of all water supply infrastructure to minimise undetected leaks
- replacement program to upgrade all sprinklers and hoses to efficient low volume hardware where suitable

Dam 1 is a dam largely excavated within Extraction Area A with a retained dam wall. The dam collects runoff from the southern side of the Quarry incorporating the processing plant, asphalt plant, product stockpile areas and internal roads. The dam is fitted with a 0.9m diameter overflow steel pipe in the north-western corner of the dam. Dam 1 has a capacity of approximately 15ML with a pump positioned to distribute water to the on-site water truck and the dust suppression system within the processing plant.

Dam 3 has a capacity of approximately 15ML and overflows to the northwest via a 200m long overflow channel to a point where runoff discharges to a stabilised area away from the nearby watercourses. The licenced discharge point from the Quarry is located at the start of the vegetated overflow channel (see **Figure 3**). This dam receives runoff principally from overflow from northern side of Extraction Area A and the overflow from Dam 1.

Dam 4 has a capacity of approximately 6ML and effectively collects upslope runoff above the asphalt plant and the excavated slopes adjacent to the dam storage. This dam has largely been excavated with a small dam wall constructed on its south-eastern side. A rock-lined spillway is positioned on the north-western corner of the dam wall. Overflow from this dam reports to Dam 1. Water from this dam is used within the asphalt plant and is required to provide deluge water for the asphalt gas tank via the two high pressure hydrants at both ends of the gas tank.

A sump has been developed in the north-eastern corner of Extraction Area A in an area extracted to approximately 90mAHD. The sump collects runoff from Area A and its elevated surrounds. This water is retained within the sump given it is a suitable back-up supply in the event Dam 1 requires a top-up during dry periods.

In times of excess rainfall, stormwater may exit the void through a single point north of the sump in Area A. This overflow point leads to Dam 3. The natural drainage of water from the void will continue up until the sump falls below the Dam 3 inlet height of +65m AHD. This is projected to occur near the end of Stage 4. After this time, and if required, excess stormwater will be mechanically lifted from the sump to Dam 3.

All water structures within the quarry are designed for the capture, containment and recirculation of sediment laden surface water. As such these water structures are not considered under the Maximum Harvestable Rights of the property. At present this includes the water structures as listed below:

- Dam 1 (Pugmill)
- Dam 3 (EPL Monitoring Point)
- Dam 4 (Asphalt)
- Area A Sump
- Area B Sediment Basin

Photos of each of these water structures can be found in Plates 1-6. Notwithstanding this, PBM accepts the requirements for licensing any clean water taken in excess of the Maximum Harvestable Rights of the property.



Plate 1 **Dam 1**
(E484M_038)



Plate 2 **Dam 3**
(E484M_062)



Plate 3 **Overflow Channel from Dam 3**
(E484M_010)



Plate 4 **Dam 4**
(E484M_039)



Plate 5 **Area A Sump**
(E484M_011)



Plate 6 **Area B Sediment Basin**
(E484M_045)

5.5 EROSION AND SEDIMENT CONTROLS

The Possum Brush Quarry has been operational for a period of approximately 35 years. At this stage, with the exception of a 0.8ha area in Extraction Area B, all disturbed areas are located within the catchment of the extraction area itself. Therefore, the need for erosion and sediment controls in the extraction area are limited and are not addressed further.

PBM has constructed a sediment barrier and rock-lined sill at the northern and lowest point of the 0.8ha area to collect sediment generated from that section of the Extraction Area B. It is noted, that the 0.8ha area in Extraction Area B will be ultimately incorporated within the extraction area within a further 10 years, thereby avoiding the need for any external erosion and sediment controls.

6. SURFACE WATER MONITORING PROGRAM

6.1 INTRODUCTION

Negligible changes will occur to the existing management of surface water throughout Stage 2 of the Quarry's operations. Reliance will continue to be placed upon the current successful monitoring program, as documented in EPL 3393.

6.2 SURFACE WATER CRITERIA

Criteria imposed within EPL 3393 for the Quarry (*Condition L2.5*) are as follows.

- pH = 6.5 to 8.5
- Total Suspended Solids = <50mg/L
- Oil and Grease = 10mg/L or non visible

6.3 SURFACE WATER MONITORING

As per EPL 3393, PBM will continue to sample water from Dam 3 on overflow events. The monitoring point is located at the channel approximately 20m north of the dam spillway and is designated by a permanent sign post. Collected samples are to be placed on ice in a cooler box to and delivered to an NATA registered laboratory for analysis.

7. EVALUATION OF COMPLIANCE

As per Environmental Management Strategy Section 7.

8. CORRECTIVE AND PREVENTATIVE ACTIONS

As per Environmental Management Strategy Section 8.

9. COMPLAINTS HANDLING AND RESPONSE

As per Environmental Management Strategy Section 9.

10. INCIDENT REPORTING

As per Environmental Management Strategy Section 10.

11. PUBLICATION OF MONITORING INFORMATION

As per Environmental Management Strategy Section 11.

12. PLAN REVIEW

As per Environmental Management Strategy Section 12.

13. REFERENCES

DECC (2008). *Managing Urban Stormwater. Soils and Construction.* Volume 2e Mines and Quarries. NSW Department of Environment and Climate Change, Sydney.

Landcom (2004). *Managing Urban Stormwater. Soils and Construction.* Volume 1.

Appendix A Government Department Consultation

From: landuse.enquiries@dpi.nsw.gov.au
To: gse@pacificbluemetal.com.au
Subject: Possum Brush Quarry Water Management Plan
Date: Friday, July 8, 2016 1:30:32 PM
Attachments: [DPI Water Response - Possum Brush Quarry Water Management Plan.pdf](#)

Good afternoon,

Please see attached formal DPI response for the above project.

Regards,

Adam Oehlman | Project Support Officer
Planning Policy and Assessment Advice
NSW Department of Primary Industries | Strategy and Policy
Level 11 | 323 Castlereagh St | Sydney NSW 2000
T: +61 2 9934 0805
E: adam.oehlman@dpi.nsw.gov.au
W: www.dpi.nsw.gov.au

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.



**Department of
Primary Industries**

Contact Christie Jackson
Phone 02 6763 1426
Email christie.jackson@dpi.nsw.gov.au
Our Ref: OUT16/25773

Pacific Blue Metal Pty Ltd
PO Box 6
NABIAC NSW 2312

Email: gse@pacificbluemetal.com.au

Attention: Stacey Tyack

Dear Ms Tyack,

Draft Water Management Plan Possum Brush Quarry

I refer to your email dated the 14 June 2016 seeking the Department of Primary Industries – Water's (DPI Water) comments on the Draft Water Management Plan for Possum Brush Quarry. DPI Water has reviewed the plan and our comments are outlined as follows.

- As previously identified, there is unlikely to be any impact/intersection of groundwater during the proposed quarrying operations. However, the potential still exists and as such the Water Management Plan should document and include a commitment to the following as previously outlined:

Should any permanent unforeseen groundwater discharges from the quarry face or floor become evident over time, an appropriate licence shall be obtained. The application for a licence would require:

1. An assessment of the discharge against the Aquifer Interference Policy, and
 2. The development of a groundwater management plan in consultation with DPI Water.
- Section 9.3.1 Water Supply outlines water is sourced from a number of dams on the project site. The water management plan should outline the source of water for each dam including dams which contain dirty water that must be captured and contained on the site and the dams which contain clean water captured under the Maximum Harvestable Rights for the property. The water management plan should also outline the volume of water allowed to be captured under the Maximum Harvestable Rights for the property.

NSW Department of Primary Industries
Level 11, 323 Castlereagh Street Sydney NSW 2000
Tel: 02 9934 0804 landuse.enquiries@dpi.nsw.gov.au ABN: 72 189 919 072



DPI Water has no further comments on the water management plan.

If you require clarification on any of the above please contact Christie Jackson on (02) 6763 1426 at the Tamworth office.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "M Isaacs".

Mitchell Isaacs
Director, Planning Policy & Assessment Advice
8 July 2016



QUARRY
113 Possum Brush Road
Possum Brush NSW 2430

HEAD OFFICE
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allocator@greatlakesaggregates.com.au



ABN: 70 078 666 556 ACN: 078 666 556

QUARRY
107 Bullocky Way
Failford NSW 2430

12 July 2016

Mitchell Isaacs
Director, Planning Policy and Assessment Advice
NSW Department of Primary Industries
Level 11 323 Castlereagh Street
SYDNEY NSW 2000
Email: landuse.enquires@dpi.nsw.gov.au

Dear Mr Isaacs,

Re: Response to DPI Comments on Draft Water Management Strategy

Thank you for providing comment on the Draft Water Management Plan for Pacific Blue Metal MOD 4 DA 287/93.

For your reference I have provided a response to each of your comments below.

DPI Comment 1: Reference to Groundwater Management.

The following reference to Groundwater Management has been included in the Draft Water Management Plan.

9.3.3 Groundwater Management

To date groundwater has not been intercepted at the quarry, nor is it expected to be intercepted throughout Stage 2. However should any permanent unforeseen groundwater discharges from the quarry face or floor become evident over time, an appropriate licence shall be obtained and a Groundwater Management Plan developed.

DPI Comment 2: Water Supply and Harvestable Rights

Section 9.5 Water Management (page 22) provides details of the sources of water for each of the water structures on site.

All water structures within the quarry are designed for the capture, containment and recirculation of sediment laden surface water. As such these water structures are not considered under the Maximum Harvestable Rights of the property. At present this includes the water structures as listed below. For your reference, photos of each of these water structures can be found in Plates 1-6 in the Draft Water Management Plan.

- Dam 1 (Pugmill)
- Dam 3 (EPL Monitoring Point)
- Dam 4 (Asphalt)
- Area A Sump
- Area B Sediment Basin

P A C I F I C B L U E M E T A L P T Y L T D



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Failford NSW 2430

Notwithstanding this, PBM accepts the requirements for licensing any clean water taken in excess of the Maximum Harvestable Rights of the property.

If you have any questions please don't hesitate to contact me.

Kind regards,

Stacey Tyack
QSE Manager
Pacific Blue Metal

P A C I F I C B L U E M E T A L P T Y L T D



OUT16/32854

Ms Stacey Tyack
Pacific Blue Metal
PO Box 6
NABIAC NSW 2312

pbm@pacificbluemetal.com.au

Dear Ms Tyack,

**Possum Brush Quarry
Comments on Proponents Response to DPI Comments on Draft Water Management
Plan (V15/4528#2)**

I refer to your email dated 18 August 2016 to the Department of Primary Industries in respect to the above matter.

Comment by DPI Water

DPI Water has reviewed your comments in relation to DPI Water's review of the draft Water Management Plan for Possum Brush Quarry. DPI Water is satisfied with the response provided and the inclusion of our recommendations into the Draft Water Management Plan.

For further information please contact Christie Jackson, Water Regulation Officer, Tamworth, 02 6763 1426, christie.jackson@dpi.nsw.gov.au

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'G. White'.

Graeme White
A/Director, Planning Policy & Assessment Advice
7 September 2016



DOC16/345971-01, EF13/3417

Pacific Blue Metal Pty Ltd
Great Lakes Aggregate Pty Ltd
PO Box 6
NABIAK NSW 2312

qse@pacificbluemetal.com.au

Attention: Stacey Tyack

Dear Ms Tyack

Possum Brush Quarry - Draft Water Management Plan

Thank you for forwarding the subject plan for our records.

The Environment Protection Authority (EPA) encourages the development of such plan to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, the EPA does not review these documents as our role is to set environmental objectives for environmental management, not to be directly involved in the development of strategies to achieve those objectives.

Should you have any questions please contact Rebecca Akhurst on 02 4908 6807.

Yours sincerely

A handwritten signature in blue ink that reads 'P. Jamieson' followed by the date '19-7-16'.

PETER JAMIESON
Head Regional Operations Unit - Hunter
Environment Protection Authority

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