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Boral Quarries

Peppertree Quarry

ABORIGINAL HERITAGE MANAGEMENT PLAN

DECEMBER 2021

Document Control

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ERM	20/01/2011	Original Final		1.0
Boral - R Wallace	20/07/2012	1st Review Final Draft for Boral		2.0
Boral - R Wallace	03/08/2012	2nd Review Final Draft for AMC		3.0
Boral - R Wallace	25/01/2013	3rd Review Final Draft for		4.0
Boral – S Makin	7/11/ 2016	1st Review Mod 4 draft for Boral	A Shedden	5.0
Boral – S Makin	4/04/17	Final AHMP submitted (including DP&E OEH and mgt committee comments)	A Shedden	6.0
Boral – S Makin & EMM – R Desic	7/02/2020	Update to incorporate management requirements for Mod 5		7.0
Boral – S Makin & EMM – R Desic	July 2021	Update to incorporate management requirements for Mod 5 and 6		7.0
Boral – S Makin & EMM – R Desic	October 2021	Update to incorporate details of stakeholder engagement		7.0
Boral – S Makin & R Snape	November 2021	Update to clarify RAP consultation outcomes and incorporate Modification 7 changes to consent conditions and language following SSD transition.		7.0
Boral – S Makin & EMM – R Desic	December 2021	Update to incorporate details of stakeholder engagement (Heritage NSW)		7.0

Contents

Introduction

1.1 Background

Boral Resources (NSW) Pty Ltd (Boral) was granted Project Approval (06_0074) to establish and operate the Peppertree Quarry (a granodiorite hard rock quarry, formerly called the Marulan South Quarry) including all in-pit quarrying activities and supporting infrastructure such as a rail siding and loading facility, processing plant and water supply dams under Part 3A of the Environmental Planning and Assessment Act, 1979 (EP&A Act) in February 2007.

The Project Approval in 2007 required the preparation and implementation of a number of management plans to guide the environmental management of the quarry throughout its operational life. In accordance with the Conditions of Approval (CoA), a Aboriginal Heritage Management Plan (AHMP) was first prepared by ERM for Boral in 2011.

In October 2019, the Project Approval was modified for the fifth time under Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act), to develop a new overburden area with associated infrastructure, additions and changes, along with modifications to the quarry Western Overburden Emplacement (WOE) (hereafter referred to Modification No.5).

Following the issue of Modification 5, the transitional provisions of the EP&A Act relating to former Part 3A projects were repealed and project approvals transitioned to the State Significant Development classification, assessed under Part 4 of the EP&A Act.

The now State Significant Development consent has been modified twice under section 4.55 (1A) of the EP&A Act over the period of 2020 and 2021 as follows:

- Modification 6 (approved in April 2020) to allow the replacement of the existing air filtration network with two baghouse air filtration units and associated ducting attached to the existing and approved secondary and tertiary processing facilities (i.e. crushing and screening plant). The baghouses are located within the current operating plant footprint.

- Modification 7 (approved in September 2021) for the reconfiguration of a sediment basin located to the west of the Western Overburden Emplacement and the removal of a tree.

As a result of the initial AHMP actions, field and salvage works identified the importance of the heritage of the site. The cultural value of the area was also recognised and Boral initiated additional topsoil monitoring.

This AHMP has therefore been prepared in response to Schedule 2B, Condition B.50 of the development consent and represents the third review of the document since originally submitted to the DP&E in January 2011. It has been prepared to outline the ongoing works and commitment Boral has with the AMC and to meet the requirements of the Approval.

This document updates the 2017 AHMP to incorporate changes associated with Modification 5, Modification 6 and Modification 7, recommendations from the Independent Audit undertaken in November 2018 and actions identified from the 2018 and 2019 Annual Review outlining water management associated with current quarry activities.

In accordance with the requirements of CoA B51, this updated AHMP will be submitted to the Planning Secretary of the Department of Planning, Industry and Environment (DPIE) for approval prior to the commencement of any work in the Modification 5 overburden emplacement area.

The AHMP is a dynamic document which will be updated over the life of quarry operations until the development consent end date of December 2038.

1.2 OVERVIEW OF OPERATIONS

The Quarry is located in Marulan South, 10 km south-east of Marulan, 35 km east of Goulburn and approximately 175 km south-west of Sydney, within the Goulburn Mulwaree Local Government Area (LGA) in the Southern Tablelands of NSW.

Peppertree Quarry has an identified resource area of approximately 250 million tonnes, which dependent upon extraction rates, would allow quarrying for 70 years or more over an area of approximately 104 hectares (ha), within a 650 ha parcel of land owned by Boral.

The development consent was issued for an initial operation period of 30 years, commencing in the northern portion of the resource area with an area of approximately 70 ha (refer Figure 1) which is bordered by a densely vegetated area to the east, which flanks a steep gorge that extends into Morton National Park. A rail spur runs adjacent to the western site boundary and there are a small number of rural properties to the north and west of the quarry. The nearest residences are located around 1.5 km from the quarry to the west in Marulan South and to the east on Long Point Road. The Boral Cement limestone mine is located immediately south of the quarry.

Quarry construction commenced in 2011 with operations commencing in early 2014.

Typical quarrying operations involve the stripping of overburden and the extraction of hard rock using open-cut drill and blast techniques.

Overburden is stripped by dozer, loaded onto trucks using excavators and/or front end loaders and transported to the overburden emplacement areas, where it is spread and shaped by dozer.

Traditional drill and blast methods are then used to break up the hard rock. A drill rig stationed on top of each production bench drills a series of holes that are later charged with explosives, detonators and delays. Boral apply standard practice of limiting the maximum instantaneous charge to stay within the relevant noise and vibration criteria.

Blasted rock is then processed on-site using various crushers and screens to obtain the desired product. Material is initially crushed in a primary mobile crusher located within the pit, with blasted rock fed directly into the primary mobile crusher by excavator. After passing through the primary crusher, the crushed material is taken from the pit along a series of conveyors to the first set of screens located to the northwest of the pit and material is stockpiled in a surge pile. Material in the surge pile is reclaimed and conveyed to the main processing area where it undergoes further crushing, screening and shaping. Product material is stored in the various covered storage bins prior to being dispatched off-site by train.

The proposed project layout is outlined in Figure 1.1.

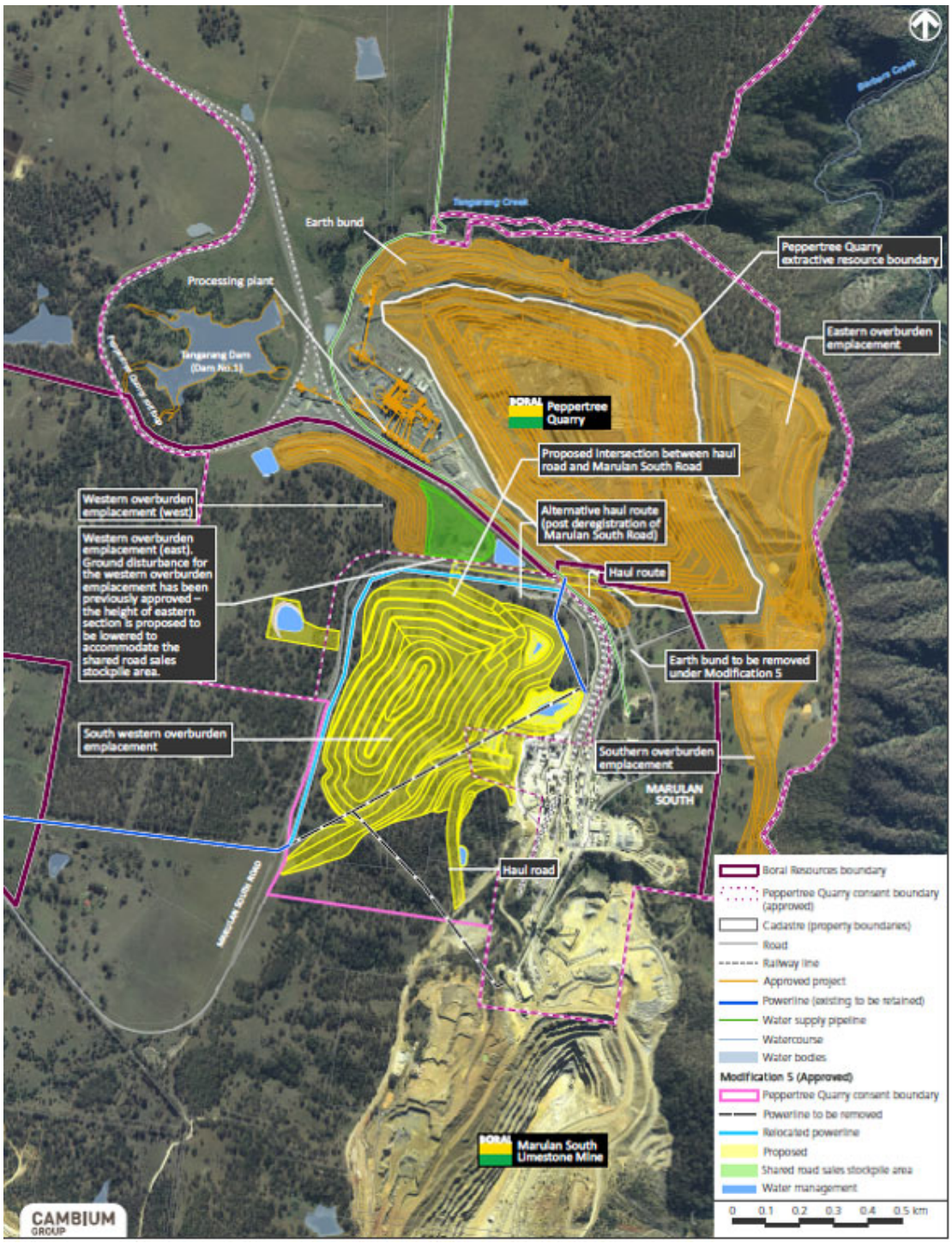


Figure 1: Site Layout

1.3 SCOPE AND OBJECTIVES OF THIS AHMP

In line with the principles of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter 1999) the primary objectives of this AHMP are to identify, protect, conserve, present and transmit the Aboriginal heritage values associated with the land, on which Boral's Peppertree quarry will be excavated.

As required by the condition of consent, the plan:

- Identifies the Aboriginal sites that will be conserved and those that will be impacted by quarrying.
- For Aboriginal sites to be conserved, a series of management measures have been developed that will allow for their in-situ retention during the quarry's active lifetime and subsequent rehabilitation (i.e. conservation for future generations).
- As a number of Aboriginal sites will be impacted by the proposed quarry, this AHMP provides management measures designed to off-set the impacts through a combination of Aboriginal community involvement and archaeological excavation.
- Identifies the protocol for the ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site and
- Describes the measures that would be implemented if any new Aboriginal objects or relics are discovered during the project

Authorship

The original AHMP was prepared by environmental consultants Environmental Resources Management Australia (ERM) in January 2011. The second and third versions of the AHMP (October 2013; April 2017), were prepared by Boral in consultation with the AMC. This version has been updated by EMM Consulting Pty Limited (EMM) to include additional information related to Modification No.5, 6 and 7 in accordance with the CoA.

1.4 CONSULTATION

1.4.1 ABORIGINAL CONSULTATION

Community consultation for the preparation of the January 2011 AHMP stemmed from Aboriginal stakeholder groups that registered an interest in the 2006 Environmental Assessment preparation. The Aboriginal stakeholder groups that responded to the invitation to be consulted on the AHMP were Pejar Local Aboriginal Land Council (PLALC), Buru Ngunawal Aboriginal Corporation (BNAC) and Ngunawal Heritage Aboriginal Corporation.

Representatives from these three stakeholders groups subsequently formed the membership of the Aboriginal Heritage Management Committee (AMC) for Peppertree Quarry.

In accordance with the requirements of CoA 50(b), consultation has been undertaken with Heritage NSW (formerly the Office of Environment and Heritage (OEH)) as well as the AMC.

There has been Aboriginal consultation with additional parties for Modification No.5. Modification No.5 will share part of its project boundary with the Marulan South Limestone Mine Continued Operations Project (Limestone Mine Project) site (development consent August 2021), which has a

separate list of Registered Aboriginal Parties (RAPs) for consultation (EMM 2019). As the Modification No.5 area and the Limestone Mine Project have overlapping boundaries, both the AMC and Limestone Mine Project RAPs have been consulted about Aboriginal heritage management over this area during the Aboriginal cultural heritage assessment (ACHA) for Modification No.5 (EMM 2018). Aboriginal consultation for the Limestone Mine Project has followed a separate process since February 2014 and followed the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010). A total of 19 Aboriginal groups registered their interest in the Limestone Mine Project who are listed in Appendix 10 and the Limestone Mine Project ACHA (EMM 2019).

The AMC are the primary stakeholders in being consulted on and implementing management measures for the Modification No.5 area as it forms part of the Peppertree Quarry approvals which has existing protocols of AMC consultation and engagement in accordance with this AHMP. Limestone Mine Project RAPs will be offered to comment on project updates and management measures concerning the Modification No. 5 area where it overlaps with the Limestone Mine Project boundary. The AMC will be engaged for employment in Aboriginal heritage management measures related to Peppertree Quarry including activities related to approved development modifications.

This revision of the AHMP was prepared in response to the Modification No.5 CoA. During the preparation of the draft AHMP, a meeting was held on 28 January 2020 between AMC, Boral and EMM Consulting. Proposed updates to the AHMP were discussed and focussed on Aboriginal heritage management requirements associated with Modification 5. The outcomes and decisions made during the meeting are reflected in the management measures presented in this AHMP. RAPs were advised that they would be provided with a 'marked-up' version of the AHMP for review to confirm that the outcomes of the meeting were reflected in the updated AHMP, which was subsequently provided on 13 August 2021 (see paragraph below).

Table 1 outlines the representatives who attended and provided comment on the plan.

Table 1: AHMP review meeting attendance

Name	Organisation/Position	28 January 2020
Wally Bell	BNAC - Director	Attended
Dean Delponte	NHAC - Director	Attended
Delise Freeman	PLCL - CEO	Attended
Sharon Makin	Boral - Environmental Advisor Peppertree Quarry	Attended
Ryan Desic	EMM Consulting Pty Limited	Attended

Subsequent to the meeting, the AHMP draft was updated and issued to the AMC and Limestone Mine Project RAPs on 13th August 2021 RAPs were provided with a nominal three-week review period for comments to be supplied by the 3rd September 2021. No comments on the draft were received from any of the RAPs.

1.4.2 HERITAGE NSW CONSULTATION

The development consent stipulates that preparation of this AHMP must be prepared in consultation with Heritage NSW. During the preparation of the original AHMP, Heritage NSW (formerly OEH) was contacted in January 2011 through Dimitri Young, Area Manager Landscape and Aboriginal Heritage Protection of the OEH Queanbeyan office. OEH responded with the following statement: "OEH do not approve or endorse these documents (HMPs) or become involved in their preparation".

Following the preparation of the first revision of the AHMP, a copy was provided to the OEH (now Heritage NSW) by the Department of Planning and Environment (DP&E) for their records. Feedback was provided to DP&E (refer Appendix 1). Concerns expressed in the correspondence were considered in subsequent AHMP updates and revisions.

The 2016 drafted AHMP was issued to Jackie Taylor at OEH (now Heritage NSW). Comments in regards to the plan were provided on the third of February 2017 (refer Appendix 2) and have been included in the 2017 version of the AHMP.

OEH (now Heritage NSW) representatives Allison Treweek and Jackie Taylor visited Peppertree Quarry on the 1st March 2017 to inspect the site and to discuss their recommendation "that a reassessment of the significance of Aboriginal objects within the Peppertree Quarry area" be undertaken as part of the AHMP review.

It was outlined that a proposal was being developed to prepare both a scientific and cultural report which would assess the significance of the artefacts as well as describe the Aboriginal heritage "story" of the area. This will be conducted independent to the salvage works and the AHMP review. Heritage NSW and the AMC will be consulted as this brief and report is developed.

The AHMP (Version 7), updated after RAP review, was issued to Heritage NSW on 5 November 2021 for review and comment. Heritage NSW provided comments on 16 December 2021. The issues/comments raised by Heritage NSW have been addressed in this report. Appendix 2 provides Heritage NSW's comments, Boral/EMM's response to these comments and references to where in the AHMP their comments have been addressed.

1.5 RESPONSIBILITY FOR IMPLEMENTATION

The Quarry Manager carries ultimate responsibility for the implementation of this AHMP and providing the necessary resources as required. The site Environmental Officer is responsible for carrying out and/or coordinating the monitoring and reporting requirements of this plan.

Operations personnel (Quarry Supervisors) are responsible for arranging work as required under the plan and responding to adverse conditions. Quarry operations, are to be adjusted as appropriate to minimise impacts on heritage. Other site personnel are responsible for stopping work and reporting any possible heritage finds to the shift Supervisor immediately.

All staff are responsible for adhering to the conditions of the Site Declaration (refer Appendix 8) and respecting Aboriginal culture at all times.

1.6 ALIGNMENT WITH OTHER PLANS

This document builds upon information included in the existing AHMP prepared and approved in 2017 primarily to include provisions for the Modification No.5 CoA.

This plan also aligns with the Biodiversity and rehabilitation plan which acknowledges management of Aboriginal heritage in relation to topsoil removal.

Where applicable, the management actions in other plans associated with the site recognise the significance of Aboriginal heritage and incorporates or references the relevant management actions from the AHMP.

1.7 DOCUMENT STRUCTURE

The structure of the Management plan is outlined in Table 2.

Table 2: Structure of the Management plan

Section	Content
1	Provides an overview of the project, and objectives of the plan
2	Details the statutory requirements as outlined in the conditions of consent dated October 2019 and April 2020
3	Describes the existing environment of the site and indigenous works undertaken to date
4	Describes the general management actions to be undertaken to implement and manage the heritage values of the area
5	Describes the management actions specific to Modification No.5
6	Outlines incident planning and responses
7	Financial provisions for work required
8	Describes cultural heritage training protocols
9	Outlines the monitoring, reporting and review requirements
10	Provides a list of references used in this document
11	Provides Appendices

2 STATUTORY REQUIREMENTS AND GUIDELINES

2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The project was declared a 'major development' under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Major Development) 2005. Since Project Approval was granted in 2007. In 2020, the project approval was transitioned from being a former Part 3A Project to a State Significant Development consent administered under Part 4 of the EP&A Act. Since 2007 there have been seven approved modifications to the now transitioned development consent, as detailed below:

Modification 1 (2009) approved for exploratory blasting and test pitting in order to verify the design of the processing plant;

Modification 2 (2011) approved for the construction of a new rail line rather than use the existing rail facilities to the Limestone Mine; and

Modification 3 (2012) approved the construction of a high voltage power line from an existing substation to the processing plant and to provide a rail siding near the junction with the Main Southern Railway Line.

Modification 4 (2016) approved for the extension of daily in-pit operating hours and Establishment of a new overburden emplacement area.

Modification 5 (2019) approved development of a new overburden emplacement (South-west Overburden Emplacement – SWOE) among other minor amendments to the site, including additional sediment dams associated with the Western Overburden Emplacement

Modification 6 (2020) approved the replacement of existing dust extraction units with two baghouses and associated duct work. This modification does not involve matters that affect Aboriginal cultural heritage.

Modification 7 (2021) approved a minor amendment to the configuration of a sediment basin and tree removal. The modification does not impact on or involve matters that affect Aboriginal cultural heritage.

The quarrying operations will continue to be subject to the provisions of the EP&A Act for any subsequent changes or modifications to the operations. Additionally, the operations will need to be able to demonstrate compliance against the current CoA issued under the provisions of the EP&A Act.

Table 3 summarises the relevant to "post-construction" CoA of the development consent, presented in Schedule B of the development consent (DPIE, 2021).

Table 3: Conditions of Approval (DPIE, 2021): note BCS is incorrect and should be titled 'Heritage NSW'

CoA Reference	Condition of development consent	Referenced in AHMP
Heritage Operating Conditions		
B.45	The Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage item located outside the approved disturbance area, beyond those predicted in the document/s listed in condition A2(c).	Whole document –this AHMP outlines management for impacts to sites only within approved disturbance areas and does not permit impacts outside approved disturbance areas.
B.46	If suspected human remains are discovered on site, then all work surrounding the area must cease, and the area must be secured. The Applicant must immediately notify NSW Police and BCS, and work must not recommence in the area until authorised by NSW Police and BCS.	Section 5.2
B.47	If any previously unknown Aboriginal object is discovered on the site: (a) all work in the immediate vicinity of the object or place must cease immediately; (b) a 10 metre buffer area around the object or place must be cordoned off; and (c) BCS must be contacted immediately.	Section 5.1
B.48	Work in the immediate vicinity may only recommence if: (a) the potential Aboriginal object is confirmed by BCS upon consultation with the Registered Aboriginal Parties not to be an Aboriginal object; or (b) the Aboriginal Cultural Heritage Management Plan is revised to include the Aboriginal object and appropriate measures in respect of it, to the satisfaction of the Planning Secretary; or (c) the Planning Secretary is satisfied as to the measures to be implemented in respect of the Aboriginal object and makes a written direction in that regard.	Section 5.1
B.49	The Applicant must ensure that all known Aboriginal objects or Aboriginal places on the site and within any offset areas are properly recorded, in the Aboriginal Heritage Information Management System (AHIMS) Register, and those records are kept up to date.	Section 9.2.2
Aboriginal Cultural Heritage Management Plan		
B.50	The Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	This Document
	(a) be prepared by suitably qualified and experienced person/s	Section 1.3
	(b) be prepared in consultation with BCS and Registered Aboriginal Parties;	Section 1.4
	(c) describe the measures to be implemented on the site or within any offset area to:	
	(i) comply with the heritage-related operating conditions of this consent;	Refer to responses to Conditions B.45 to B.49
	(ii) ensure all workers on the site receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;	Section 8
	(iii) map and salvage or relocate the Aboriginal objects in the Tangarang Creek Dam 1 area and the Modification 5 disturbance area (shown in Appendix 5);	Measures completed at Tantangara dam previously are summarised in Section 3.5.1 Measures relating to Modification 5 are set out in Section 6.2
	(iv) protect, monitor and manage identified Aboriginal objects and Aboriginal places (including any proposed archaeological	Section 4 for general measures and Section 5 for Modification No.4 and

	investigations of potential subsurface objects and salvage of objects within the approved disturbance area) in accordance with the commitments made in the document/s listed in condition A2(c);	Modification No.5 specific measures.
	(v) protect Aboriginal objects and Aboriginal places located outside the approved disturbance area from impacts of the development;	Section 4.4
	(vi) manage the discovery of suspected human remains and any new Aboriginal objects or Aboriginal places, including provisions for burials, over the life of the development;	Section 6
	(vii) maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area); and	Section 4.12
	(viii) facilitate ongoing consultation and involvement of Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site;	Section 4.6
	(d) include a strategy for the care, control and storage of Aboriginal objects salvaged on site, both during the life of the development and in the long term, in consultation with Registered Aboriginal Parties.	Section 4.11
Management Plan Requirements		
D4	Management plans required under this approval must be prepared in accordance with relevant guidelines, and include:	
	(a) a summary of relevant background or baseline data;	Section 3
	(b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 2 (including this table)
	(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 2 (including this table)
	(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Whole document
	(e) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to condition D4(d);	Section 9
	(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6
	(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 9
	(h) a protocol for managing and reporting any; (i) incident, non-compliance or exceedance of the impact assessment criteria or performance criteria; (ii) complaint; or (iii) failure to comply with statutory requirements;	Section 9

	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development;	Whole document including figures
	(j) a protocol for periodic review of the plan; and	Section 9.1
	(k) a document control table that includes version numbers, dates when the management plan was prepared and reviewed, names and positions of people who prepared and reviewed the management plan, a description of any revisions made and the date of the Planning Secretary's approval.	Cover pages of document
D5	The Applicant must assess and manage development -related risks to ensure that there are no exceedances of the criteria and/or performance measures in PART B. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity: (a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not re-occur; (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and (c) implement remediation measures as directed by the Planning Secretary, to the satisfaction of the Planning Secretary.	
	Revision of Strategies, Plans and Programs	
D6	Within three months of: (a) the submission of an incident report under condition D9; (b) the submission of an Annual Review under condition D11; (c) the submission of an Independent Environmental Audit under condition D13; (d) the approval of any modification of the conditions of this approval (unless the conditions require otherwise); (e) notification of a change in development stage under condition A15; or (f) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the suitability of existing strategies, plans and programs required under this approval must be reviewed by the Applicant.	Section 9.3
D7	If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this approval must be revised, to the satisfaction of the Secretary and submitted to the Secretary for approval within six weeks of the review. Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.	Section 9.3
D8	The Applicant must continue to apply existing management plans, strategies or monitoring programs required and approved under this consent prior to the approval of any modification of this consent, until the approval of a similar plan, strategy or program is required as a result of the modification.	
	Reporting and Auditing	

D9	– Incident Notification The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it foes not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Section 9.2
D10	Non-Compliance Notification Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the noncompliance. The notification must be in writing to via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is noncompliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Section 9.2
D11	Annual Review By the end of March in each year after the commencement of development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the project, to the satisfaction of the Planning Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year; (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the: (i) relevant statutory requirements, limits or performance measures/criteria; (ii) requirements of any plan or program required under this consent; (iii) monitoring results of previous years; and (iv) relevant predictions in the documents listed condition A2(c). (c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; (d) evaluate and report on: (i) the effectiveness of the noise and air quality management systems; and (ii) compliance with the performance measures, criteria and operating conditions in this consent; (e) identify any trends in the monitoring data over the life of the development; (f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.	Section 9.2
D12	Copies of the Annual Review must be submitted to Council and made available to the CCC and any interested person upon request.	Section 9.2
D13	Independent Environmental Audit Within three years of the date of the commencement of construction, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the	

	project. The audit must: (a) be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary; (b) be conducted by a suitably qualified, experienced and independent team of experts (including any expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary; (c) be carried out in consultation with the relevant agencies and the CCC; (d) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, any relevant EPL, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals); (e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent; (f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and (g) be conducted and reported to the satisfaction of the Planning Secretary. Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.	
D14	Monitoring and Environmental Audits Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit. For the purposes of this condition, as set out in the EP&A Act, “monitoring” is monitoring of the project to provide data on compliance with the consent or on the environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.	

2.1.1 STATEMENT OF COMMITMENTS

The Initial Statement of Commitments contained in the 2006 Environmental Assessment (EA) outlined the following in regard to Aboriginal cultural heritage:

“The Aboriginal cultural heritage value of those areas immediately adjacent to proposed Dam 1 will be managed through an archaeological salvage recovery prior to impact by excavation and inundation.

This will include salvage excavation testing of the confluence of Tangarang Creek in Dam 1 followed by further excavation of the site(s) with the highest potential to allow recovery of representative archaeological features. Salvage will be undertaken by archaeologists and representatives of the Aboriginal groups registered for this assessment. Records of location details and will be lodged on the DEC Aboriginal site register."

Details of compliance against this commitment are presented in Section 3. In addition to the Statement of Commitments and development consent requirements, the scope of this AHMP has been determined through consultation with the AMC and observations and experiences during the excavation and salvage as well as monitoring during construction works to date.

2.2 *NSW National Parks and Wildlife Act, 1974* (NPW Act).

In NSW, Aboriginal cultural heritage is managed primarily under the *NSW National Parks and Wildlife Act, 1974* (NPW Act). However, the Peppertree project was assessed and approved under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

Part 3A has since been repealed by the NSW Government; however, many of its functions still remain under transitional provisions. Part 3A provided developers with 'comprehensive' approval for development, without the need for obtaining further approvals under different Acts. The Part 3A approval process involved requirements established by the Director General of NSW Planning to ensure all environmental factors are adequately considered and addressed.

Approval through Part 3A means that an Aboriginal Heritage Impact Permit (AHIP) is not required under Section 86 or 90 of the NPW Act. Accordingly, this AHMP is the appropriate document to manage heritage impacts associated with Peppertree Quarry.

2.3 Guidelines

Assessments of cultural heritage on the site and the methodologies outlined have been prepared in accordance with best practice and using the following guidelines:

- *Draft guidelines for Aboriginal cultural heritage impact assessment and community consultation* (DEC 2005) the guideline required for Part 3A matters;
- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (DECCW 2011); and
- *Code of practice for archaeological investigation of Aboriginal objects in NSW* (the Code) (DECCW 2010).

2.4 Overview of Modification No.5, Modification 6, and Modification 7

The primary purpose of the current 2021 AHMP update is in relation to Modification No. 5. In October 2019, Modification No. 5 was approved by DPIE under Section 75W of the EP&A Act. The modification allows Boral to:

- develop a new overburden area (South-west Overburden Emplacement – SWOE);
- extend the consent boundary to the south to encompass the SWOE;

- construct a new haul road from the pit to the SWOE;
- construct a new intersection at Marulan South Road to link the new haul road with the SWOE;
- amend the design of the Western Overburden Emplacement (WOE);
- remove the Western Earth Bund (which has not been constructed); and
- relocate a powerline which runs through the proposed SWOE site.

The scope of Modification No.5 is provided in Figure 1. EMM prepared an Aboriginal cultural heritage assessment (ACHA) and historical heritage impact assessment for Modification No.5. An overview of the ACHA and related management measures detailed in this AHMP are presented in Section 5.2.

There have been two further modifications approved between 2020 and 2021, Modifications 6 and 7. Modification 6 was approved in April 2020 for the installation and operation of 2 dust collectors associated with the screening and crushing operations of the quarry. The collectors and associated works were within the operating plant area and therefore did not impact on Aboriginal heritage.

Modification 7 was for a minor amendment to the configuration of the sediment dam west of the Western Overburden Emplacement. The area of works was captured in earlier iterations of the ACHMP and therefore did not require amendment of the plan.

2.5 Boral Commitments to Culture and heritage Management

2.5.1 Integrated Management System

The Quarry operates under a Boral integrated Health, Safety, Environment and Quality Management System (HSEQMS). The HSEQMS has commitments to the Boral Environmental Policy through established standards and procedures which require internal conformance to high levels of environmental performance with continual improvement objectives.

Boral have an established corporate and divisional risk-based audit program that periodically assess operational sites for conformance with HSEQMS requirements. In addition, the Quarry must be the subject of an Independent Audit every three years. An Independent Audit of the Quarry was most recently conducted in 2015 and 2018 with the next Audit due in 2021

The HSEQMS Cultural and Heritage Protection Standard (GRP-HSEQ-8-09) require each Boral operation quarry to preserve and maintain natural and man-made heritage values, infrastructure and culturally-significant artefacts and places. This is to be done through ensuring that:

- Cultural or heritage impacts of a site's activities shall be identified and where required, a Cultural and/or Heritage Management Plan shall be implemented.
- Employees involved in the management of; artefacts or places of cultural or heritage significance or, works that may potentially impact on artefacts or places of cultural or heritage significance, shall receive appropriate training to understand and meet their obligations.
- A Cultural and Heritage Management Plan shall be developed where required.

3 SITE CONTEXT

3.1 SITE DESCRIPTION

The Quarry is located in Marulan South, 10 kilometres (km) southeast of Marulan, 35 km east of Goulburn and approximately 175 km south-west of Sydney, within the Goulburn Mulwaree Local Government Area (LGA) in the Southern Tablelands of NSW (Figure 1). Access is via Marulan South Road, which connects the Quarry and Boral's Marulan South Limestone Mine with the Hume Highway approximately 9 km to the northwest (Figure 1). Boral's private rail line connects the Quarry and Limestone Mine with the Main Southern Railway approximately 6 km to the north.

The Quarry is located on Boral owned land approximately 650 hectares (ha) in size, which includes the Quarry site, approximately 70ha in size, additional granodiorite resources to the north and south and surrounding land. The site is zoned RU1 – Primary Production zone under the Goulburn Mulwaree Local Environmental Plan (LEP) 2009. Mining and extractive industries are permissible in this zone with consent.

3.2 LAND USE

The Quarry is bordered to the south by the Limestone Mine, to the east by Morton National Park and by rural properties to the north and west. Surrounding land uses include mining, grazing, rural properties including an agricultural lime manufacturing facility, fireworks storage facility, turkey farm and rural residential. The main access for these properties is via Marulan South Road. Rural residential properties are also located to the northeast of the Quarry along Long Point Road. These properties are separated from the Quarry by the deep Barbers Creek gorge.

3.3 TOPOGRAPHY

Peppertree quarry is located on a plateau in the Southern Tablelands area of New South Wales. The maximum altitude of this plain is 700 m. The deeply incised Bungonia Gorge lies immediately to the east of the quarry and rugged hilly terrain occurs beyond this.

The quarry area itself is relatively flat to gently undulating.

3.4 HYDROLOGY

Peppertree quarry site lies within the catchment of the Shoalhaven River which is located approximately 5.5 km to the south east. Other creeks within the local area include Barbers Creek 500 m to the east, Marulan Creek 2 km to the north, Kerillon Creek 3 km to the south west, and Bungonia Creek 4 km to the south. Small intermittent creeks run 200 m to the south, north and west, and Tangarang Creek runs west to east bordering the quarry operations.

Two smaller tier 2 surface water drainage channels cut across the footprint of the quarry and previously collected drainage from offsite. The Modification No.5 footprint includes only ephemeral drainage lines that intersect with hill slopes and hill crests.

Clean water diversion drains are now in place to manage this flow away from the site.

3.5 ABORIGINAL CULTURAL HERITAGE VALUES

3.5.1 HERITAGE WORK UNDERTAKEN TO DATE

Figure 2 presents the locations of artefacts found and heritage work undertaken through to 2013.

2006 - Environmental Assessment

The outcomes of the survey were a series of 'open' sites comprising one or more Aboriginal flaked stone artefacts (ERM 2006). In general the archaeological evidence suggested a low density of stone artefacts spread widely across the landscape. However, the areas immediately surrounding Tangarang Creek (located within the inundation area of a proposed water storage dam) were identified as having a higher density with a range of artefacts that warranted further investigation if they were to be impacted.

Eight sites were located within the proposed quarry footprint. The eleven sites in the proposed Dam 1 reservoir area were assessed as having high potential to contain subsurface deposits and moderate scientific significance for the density and frequency of artefacts (including the raw materials and artefact types) across the different landforms, which have the potential to contribute to archaeological research in the region.

2010 - Geotechnical works

Geotechnical works (19-22, 26-30 July 2010), monitored by an archaeologist (19-21 July) and the Aboriginal representatives (whole period), resulted in the identification of ten new Aboriginal sites within the PAA.

The new Aboriginal sites were located across a range of landforms. The majority of these sites were salvaged.

2011 - Excavation and salvage

In accordance with the AHMP, archaeological excavation was undertaken across Aboriginal sites MQ8–10, 12–17, 19, 23 and 24 (refer to Figure 2) (ERM 2012). Archaeological excavation was divided into two phases: 1) testing; and 2) open area excavation. This occurred across two time periods between 12 January 2011 to 9 February (20 days) and 28 February to 4 March 2011 (5 days).

The excavation team was led by archaeologists from ERM with involvements from members of the AMC and other representatives from their respective Aboriginal stakeholder groups.

The first phase involved laying out transects within the landscape in and around Tangarang Creek for test pitting to determine the areas for open excavation. The transect locations were determined through knowledge gathered during earlier archaeological assessments and through consultation with members of the AMC.

Following the definition of the extent of the Aboriginal archaeological deposit, the open area location(s) were determined. A total of ten open area trenches were initially expanded beyond the 500mm by 500mm test pit size. Of these, eight trenches were expanded beyond 1m by 1m. In total 122m2 of open excavation was undertaken within the study area.

A total of 2,089 pieces of artefactual stone were recovered from the test excavation and 20,956 pieces of artefactual stone recovered from open excavation—a total of 22,610 pieces of artefactual stone, representing 16,170 minimum number of individual artefacts.

Of the objects salvaged, the vast majority of artefacts were stone flakes, the resulting by-product of stone tool manufacture, indicating a strong Aboriginal occupation over the study area. Other objects/features were a stone arrangement, believed to be a burial located adjacent to Dam 1, three stone ovens, a number of possible hearths and a possible post hole potentially relating to a Gunyah.

2011/2012 – Pre-development topsoil monitoring

Immediately following the archaeological excavation and salvage during January and February 2011, Boral invited members of the AMC to monitor topsoil in areas to be impacted by initial quarry development. This included aspects of the noise bund, initial quarry pit, the processing plant area and the approaches to the rail embankment.

Objects salvaged during the topsoil monitoring included a hammer stone, two cooking stones, red and white ochre, a number of stone core's and large number of stones used for cutting and their by-products during manufacture.

2012 – Construction site topsoil monitoring

Throughout the construction phase, the AMC was involved in monitoring stockpiled topsoil which was spread on finished batters and landforms around the initial quarry pit, rail embankment and processing area.

Approximately 7506 artefacts were salvaged during this period.

2012 – Tangarang Creek rehabilitation

Following a large rain event in February 2012, and in consultation with the EPA, sediment from within Tangarang Creek was removed and stabilised. The AMC were invited to monitor the works due to the high Cultural heritage significance of the creek line and surrounding area.

No artefacts were uncovered during the works and all vehicle movements were kept away from identified heritage sites on adjacent banks.

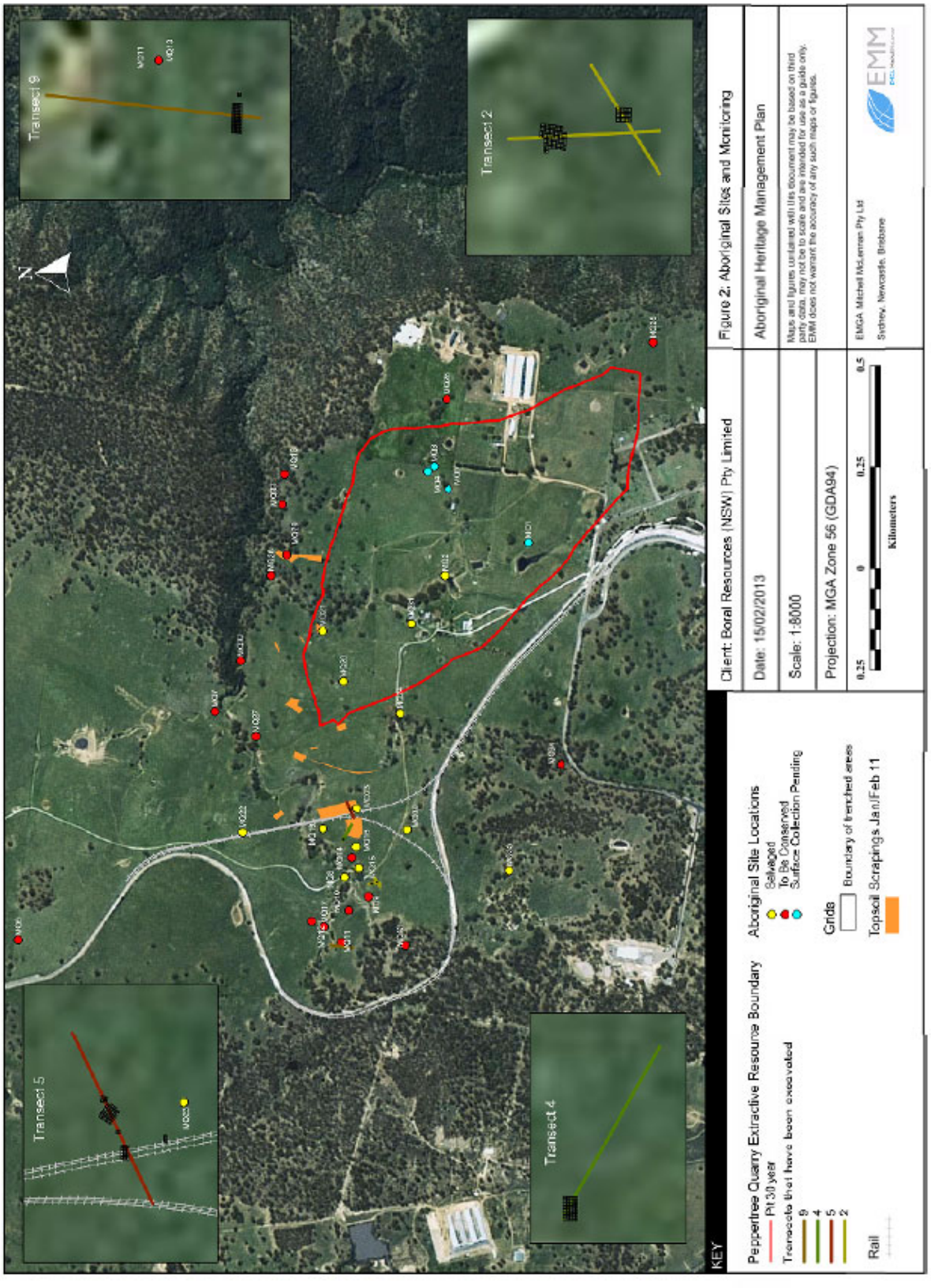


Figure 2: Aboriginal Sites and monitoring

2012-2013 – Modification 3 topsoil monitoring

In August 2012, Boral lodged a modification with the DP&E for a high voltage power line to supply the new processing plant and a minor extension to an existing rail siding a few kilometres north of the quarry. Members of the AMC were involved in the field work as part of the Environmental Assessment and were invited to inspect the ground disturbance in connection with the installation of the high voltage line, once the modification was approved.

Twenty two (22) artefacts were salvaged at the northern end of the high voltage line. These were found during the drilling for the installation of a pole.

2014-2016 – pit footprint topsoil monitoring (as per AHMP)

As detailed in the 2013 AHMP, topsoil monitoring works are required within a 50 metre radius of an identified artefact location or 100 metres of the first or second order stream.

Overburden removal and pit development were associated with the two surface water drainage channels traversing the site and therefore triggering the need for top soil monitoring.

Work commenced in 2014 and continued through to June 2016.

In total over 90 000 artefacts had been salvaged by the end of June 2016.

Figure 3 presents the areas of topsoil monitoring and salvage that occurred from 2014 to 2016.

Detail of the quadrants is contained in Appendix 3.

2016–2018 Assessment for Modification No.4 (2016)

Modification No. 4 was approved in August 2016, allowing an increase of in-pit operating hours by 6 hours per day, 7 days a week in order to meet annual production volumes up to the approved limit of 3.5 million tonnes per annum. The modification also incorporated a proposed new Southern Overburden Emplacement that has been designed as an extension to the existing Eastern Overburden Emplacement and is located entirely within both Boral owned land and the quarry's development consent boundary.

The Aboriginal and Historic Heritage Impact Assessment undertaken for the modification identified two Aboriginal sites in the study area, namely MQ25 (an artefact scatter previously collected) and MQ120 (a culturally modified tree) (EMM 2016). Some areas of moderate archaeological potential were also recorded within the study area.

Site MQ120 is outside the disturbance area and has not been impacted by the Southern Overburden Emplacement. It is recommended that this site is fenced to avoid disturbance.

It was assessed that the Southern Overburden Emplacement may result in disturbance to previously unidentified Aboriginal sites through soil compaction during overburden deposition. However, the study area was not considered to be able to provide information additional to what has been uncovered in the region, particularly the approved Quarry disturbance area, which has been subject to detailed archaeological investigation and which has provided a comprehensive

picture of the Aboriginal archaeological landscape. As such, further investigation in the area subject to the modification was not considered warranted.

No salvage of artefacts or works were required.

In February 2018 the AMC identified three trees with bark removal scars within the Modification 4 area during a site inspection. The AMC requested for further assessment to determine if the tree scars were of Aboriginal origin. Boral engaged scar tree specialist Andrew Long to conduct a site inspection of the trees on 15 February 2018. The trees are a small cluster located at MGA 56H 228891 E, 6149307 N. The assessment concluded that Tree 2 may be an Aboriginal scar tree and that Tree 1 and Tree 3 is unlikely to be an Aboriginal scar tree. Boral and the AMC consulted further about the management of the three trees and resolved to avoid impacting all the three trees. The overburden emplacement area design was subsequently modified avoid the three trees. Suitable long-term fencing is currently being sourced to secure the trees. The specialist assessment by Andrew Long is documented in Appendix No.9. Boral are committed to preparing an AHIMS site card for Tree 2 to document its status.

2018–2020 – Modification No.5

Section 5 of this AHMP summarises the Aboriginal cultural heritage assessments completed for the Modification No.5 areas in greater detail. The Aboriginal sites identified as part of this assessment is included in Table 4.

2020 – Cataloguing of artefacts

During 2020, cataloguing work was undertaken on the salvaged artefacts.

This process was undertaken on the Peppertree site with 3 AMC representatives overseen and directed by CHMA archaeologist Sophie Collins.

Each artefact was sieved to size, weighed and tool type identified. A statistical analysis identified that 5% of the collection needed to be further analysed as a representative sample. Each collection of artefacts was randomly sorted to provide the artefacts for more detailed analyses by the archaeologist. This work will be completed by mid 2022 with the preparation of a report on the nature of the artefacts.

Table 4 presents the details of all Aboriginal sites identified to date and their management status.

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

0 100 200 m

GDA 1994 MGA Zone 56

N

\\Emmsvr1\emm3\2020\J200321 - Peppertree Quarry MOD 5 Salvage\GIS\02_Maps\G001_ArchaeologicalSalvageResultsOverview_20210728_01.mxd 28/07/2021

KEY

- 8 Number of artefacts collected from grader scrapes within MQ boundary
- Excavation squares (1 x 1
- MQ boundary 50m x 50m
- Major
- Minor
- Vehicular track
- Named

INSET KEY

- Major
- NPWS
- State forest

Archaeological salvage results – overview

Peppertree Quarry
Aboriginal Heritage Management Plan
Figure 3

EMM
creating opportunities

Table 4: Aboriginal sites identified

Site	Contents	Management	Status
Burial 01	Stone arrangement characteristic of burial	Conserved	In situ – protective fenced
Scarred tree (2011)	Tree trunk	Destroyed	AMC advised not a scar tree
2011 (AHMP excavation)	22,610 stone artefacts	salvaged	onsite storage
Drainage line (2015)	420 stone artefacts	salvaged	onsite storage
Stockpile area (2014)	297 stone artefacts	salvaged	onsite storage
Mechanical sieve	541 stone artefacts	salvaged	onsite storage
MQ1	1 silcrete	Excavated and salvaged	onsite storage
MQ2	3 red silcrete (20 artefacts Oct 12)	Excavated and salvaged	onsite storage
MQ3	1 silcrete, 1 quartz	Surface collection pending (2017)	artefacts still onsite
MQ4	1 grey silcrete	Surface collection pending (2017)	artefacts still onsite
MQ5	1 grey silcrete	Surface collection pending (2017)	artefacts still onsite
MQ6	2 silcrete	Conserved	artefacts still onsite
MQ7	2 silcrete (7 further in 2010)	Conserved	artefacts still onsite
MQ8	4 silcrete, 2 quartz, 1 chert, 2 heat shatter	Excavated and salvaged	onsite storage
MQ9	3 chert, 1 silcrete,	Conserved	artefacts still onsite
MQ10	1 silcrete, 1 quartz	Conserved	artefacts still onsite
MQ11	4 silcrete, 2 chert, 2 quartz	Excavated and salvaged	onsite storage
MQ12	1 silcrete	Conserved	artefacts still onsite
MQ13	2 quartz, 2 silcrete	Conserved	artefacts still onsite
MQ14	1 silcrete	Conserved	artefacts still onsite
MQ15	1 granodiorite	Excavated and salvaged	onsite storage
MQ16	1 silcrete, 1 quartz	Excavated and salvaged	onsite storage
MQ17	2 quartz, 1 silcrete	Conserved	artefacts still onsite

Site	Contents	Management	Status
MQ18	'a number' of quartz & silcrete	Conserved	artefacts still onsite
MQ19	18 stone artefacts	Excavated and salvaged	onsite storage
MQ20	3 stone artefacts	Salvaged - topsoil monitoring	onsite storage
MQ21	3 stone artefacts	Salvaged - topsoil monitoring	onsite storage
MQ22	1 stone artefacts	Salvaged - surface collection	onsite storage
MQ22b	1 stone arrangement (Nov 11)	Conserved	artefacts still onsite
MQ23	80 stone artefacts	Excavated and salvaged	onsite storage
MQ24	50 stone artefacts	Excavated and salvaged	onsite storage
MQ25	29 stone artefacts	Excavated and salvaged	onsite storage
MQ26	2 stone artefacts	Surface collection pending	artefacts still onsite
MQ27	29 stone artefacts	Conserved	artefacts still onsite
MQ28	8 stone artefacts	Conserved	artefacts still onsite
MQ29	10 stone artefacts	Partial salvage under bund, undisturbed area conserved	Partially salvaged
MQ30	55 stone artefacts	Salvaged	onsite storage
MQ31	146 stone artefacts	Salvaged	onsite storage
MQ32	4 stone artefacts	Conserved	artefacts still onsite
MQ33	3 stone artefacts	Conserved	artefacts still onsite
MQ34	2 stone artefacts	Conserved	artefacts still onsite
MQ35	2 stone artefacts	Salvaged	onsite storage
MQ36	36 stone artefacts	Salvaged	onsite storage
MQ37	23 stone artefacts	Salvaged	onsite storage
MQ38	15 stone artefacts	Salvaged	onsite storage
MQ39	10 stone artefacts	Salvaged	onsite storage
MQ40	2435 stone artefacts	Salvaged	onsite storage
MQ41	162 stone artefacts	Salvaged	onsite storage
MQ42	523 stone artefacts	Salvaged	onsite storage
MQ43	286 stone artefacts	Salvaged	onsite storage
MQ44	44 stone artefacts	Salvaged	onsite storage
MQ45	6 stone artefacts	Salvaged	onsite storage

Site	Contents	Management	Status
MQ46	22 stone artefacts	Salvaged	onsite storage
MQ47	4 stone artefacts	Salvaged	onsite storage
MQ48	2 stone artefacts	Salvaged	onsite storage
MQ49	16 stone artefacts	Salvaged	onsite storage
MQ50	5 stone artefacts	Salvaged	onsite storage
MQ51	2 stone artefacts	Salvaged	onsite storage
MQ52	0 stone artefacts	nil	Not applicable
MQ53	3 stone artefacts	Salvaged	onsite storage
MQ54	7 stone artefacts	Salvaged	onsite storage
MQ55	5 stone artefacts	Salvaged	onsite storage
MQ56	5 stone artefacts	Salvaged	onsite storage
MQ57	3 stone artefacts	Salvaged	onsite storage
MQ58	10 stone artefacts	Salvaged	onsite storage
MQ59	31 stone artefacts	Salvaged	onsite storage
MQ60	14 stone artefacts	Salvaged	onsite storage
MQ61	133 stone artefacts	Salvaged	onsite storage
MQ62	0 stone artefacts	nil	Not applicable
MQ63	18 stone artefacts	Salvaged	onsite storage
MQ64	4 stone artefacts	Salvaged	onsite storage
MQ65	2 stone artefacts	Salvaged	onsite storage
MQ66	26 stone artefacts	Salvaged	onsite storage
MQ67	7 stone artefacts	Salvaged	onsite storage
MQ68	25 stone artefacts	Salvaged	onsite storage
MQ69	0 stone artefacts	nil	Not applicable
MQ70	0 stone artefacts	nil	Not applicable
MQ71	0 stone artefacts	nil	Not applicable
MQ72	34 stone artefacts	Salvaged	onsite storage
MQ73	28 stone artefacts	Salvaged	onsite storage
MQ74	0 stone artefacts	nil	Not applicable

Site	Contents	Management	Status
MQ75	56 stone artefacts	Salvaged	onsite storage
MQ76	91 stone artefacts	Salvaged	onsite storage
MQ77	81 stone artefacts	Salvaged	onsite storage
MQ78	31 stone artefacts	Salvaged	onsite storage
MQ79	750 stone artefacts	Salvaged	onsite storage
MQ80	305 stone artefacts	Salvaged	onsite storage
MQ81	109 stone artefacts	Salvaged	onsite storage
MQ82	101 stone artefacts	Salvaged	onsite storage
MQ83	112 stone artefacts	Salvaged	onsite storage
MQ84	280 stone artefacts	Salvaged	onsite storage
MQ85	121 stone artefacts	Salvaged	onsite storage
MQ86	82 stone artefacts	Salvaged	onsite storage
MQ87	128 stone artefacts	Salvaged	onsite storage
MQ88	101 stone artefacts	Salvaged	onsite storage
MQ89	4260 stone artefacts	Salvaged	onsite storage
MQ90	314 stone artefacts	Salvaged	onsite storage
MQ91	30344 stone artefacts	Salvaged	onsite storage
MQ92	13358 stone artefacts	Salvaged	onsite storage
MQ93	43 stone artefacts	Salvaged	onsite storage
MQ94	214 stone artefacts	Salvaged	onsite storage
MQ95	163 stone artefacts	Salvaged	onsite storage
MQ96	690 stone artefacts	Salvaged	onsite storage
MQ97	0 stone artefacts	nil	Not applicable
MQ98	235 stone artefacts	Salvaged	onsite storage
MQ99	109 stone artefacts	Salvaged	onsite storage
MQ100	1228 stone artefacts	Salvaged	onsite storage
MQ101	0 stone artefacts	nil	Not applicable
MQ102	1149 stone artefacts	Salvaged	onsite storage
MQ103	1097 stone artefacts	Salvaged	onsite storage

Site	Contents	Management	Status
MQ104	2826 stone artefacts	Salvaged	onsite storage
MQ105	1179 stone artefacts	Salvaged	onsite storage
MQ106	171 stone artefacts	Salvaged	onsite storage
MQ107	448 stone artefacts	Salvaged	onsite storage
MQ108	1615 stone artefacts	Salvaged	onsite storage
MQ109	76 stone artefacts	Salvaged	onsite storage
MQ110	40 stone artefacts	Salvaged	onsite storage
MQ111	49 stone artefacts	Salvaged	onsite storage
MQ112	6 stone artefacts	Salvaged	onsite storage
MQ113	24 stone artefacts	Salvaged	onsite storage
MQ114	7 stone artefacts	Salvaged	onsite storage
MQ115	0 stone artefacts	nil	Not applicable
MQ116	26 stone artefacts	Salvaged	onsite storage
MQ117	42 stone artefacts	Salvaged	onsite storage
MQ118	3 stone artefacts	Salvaged	onsite storage
MQ119	0 stone artefacts	nil	Not applicable
MQ120A	10 stone artefacts	Salvaged	onsite storage
MQ121	91 stone artefacts	Salvaged	onsite storage
MQ122	5 stone artefacts	Salvaged	onsite storage
MQ123	5 stone artefacts	Salvaged	onsite storage
MQ124	26 stone artefacts	Salvaged	onsite storage
MQ125	47 stone artefacts	Salvaged	onsite storage
MQ126	45 stone artefacts	Salvaged	onsite storage
MQ127	60 stone artefacts	Salvaged	onsite storage
MQ128	19 stone artefacts	Salvaged	onsite storage
MQ129	49 stone artefacts	Salvaged	onsite storage
MQ130	98 stone artefacts	Salvaged	onsite storage
MQ131	13 stone artefacts	Salvaged	onsite storage
MQ132	98 stone artefacts	Salvaged	onsite storage

Site	Contents	Management	Status
MQ133	194 stone artefacts	Salvaged	onsite storage
MQ134	32 stone artefacts	Salvaged	onsite storage
MQ135	35 stone artefacts	Salvaged	onsite storage
MQ136	106 stone artefacts	Salvaged	onsite storage
MQ137	35 stone artefacts	Salvaged	onsite storage
MQ138	17 stone artefacts	Salvaged	onsite storage
MQ139	43 stone artefacts	Salvaged	onsite storage
MQ140	42 stone artefacts	Salvaged	onsite storage
MQ141	29 stone artefacts	Salvaged	onsite storage
MQ142	14 stone artefacts	Salvaged	onsite storage
MQ143	nil	n/a	n/a
MQ144	250 stone artefacts	Salvaged	onsite storage
MQ145	44 stone artefacts	Salvaged	onsite storage
MQ146	132 stone artefacts	Salvaged	onsite storage
MQ147	nil	n/a	n/a
MQ148	15 stone artefacts	Salvaged	onsite storage
MQ149	25 stone artefacts	Salvaged	onsite storage
MQ150	12 stone artefacts	Salvaged	onsite storage
MQ120 (Mod 4)	Scarred tree	fence and conserve	In situ
Tree 1 (Mod 4)	Tree with scar	Avoid	In situ
Tree 2 (Mod 4)	Tree with scar	Avoid	In situ
Tree 3 (Mod 4)	Tree with scar	Avoid	In situ
MSL 017	Artefact scatter	To be salvaged	In situ
MSL 018	Artefact scatter	To be salvaged	In situ
MSL 019	Isolated find	To be salvaged	In situ
MSL 055	Subsurface artefact deposit	To be salvaged	In situ
MSL 056	Subsurface artefact deposit	To be salvaged	In situ
Tree 1 (Mod 5)	Tree with scar	To be salvaged; archival recording	In situ

Site	Contents	Management	Status
Tree 2 (Mod 5)	Forked tree	Inspection of fork cavity and salvage contents if required; archival recording	In situ
Tree 3 (Mod 5)	Tree with scar	To be salvaged; archival recording	In situ
Tree 4 (Mod 5)	Tree with scar	To be salvaged; archival recording	In situ
Tree 5 (Mod 5)	Tree with scar	To be salvaged; archival recording	In situ

4 IMPACTS TO ABORIGINAL CULTURAL HERITAGE SITES - MANAGEMENT ACTIONS

4.1 ABORIGINAL HERITAGE MANAGEMENT OBJECTIVES AND PERFORMANCE CRITERIA

The primary objectives of this AHMP are to identify, protect, conserve, present and transmit the Aboriginal heritage values associated with the land, on which Boral's Peppertree quarry will be excavated.

The performance criteria will be used to assess the success of the management actions and are outlined in Table 5.

Table 5: Aboriginal Heritage Management Objectives and Performance Criteria

Objective	Performance criteria
Identification of the Aboriginal sites that will be conserved and those that will be impacted by quarrying.	Methodology to be followed in AHMP and listing to be maintained
Conservation of identified Aboriginal sites to allow their in-situ retention during the quarry's active life time and subsequent rehabilitation (i.e. conservation for future generations).	Implementation of the management measures – fencing and signage of sites to be conserved Education and respect of indigenous values (induction / declaration)
Management with integrity of Aboriginal sites to be impacted by quarrying with through a combination of Aboriginal community involvement and archaeological excavation	All identified sites managed as per AHMP
Ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site	Follow protocol as per AHMP
Manage identification of any new Aboriginal objects or relics discovered during the operation of the quarry	Follow protocol as per AHMP

4.2 PROPOSED DEVELOPMENT

Quarry development to date has comprised the establishment of the initial quarry pit with the overburden used to construct the northern section of the noise bund, construction of Dam 1, rail embankment and the processing plant area.

The pit has continued to develop in a south eastern direction with a further overburden campaign undertaken in 2015 and 2016, with the overburden being emplaced as an extension of the noise bund to the south.

Within the next 12 months, the pit will extend more to the east with establishment of a new overburden emplacement to the south west of the quarry.

4.3 ABORIGINAL SITES ALREADY SALVAGED

Extensive salvage work has been undertaken since the excavation works in January / February 2011. Works have occurred in 2012, 2013, and extensive topsoil monitoring in 2014, 2015 and 2016. No further salvage works are required in the Habitat Management area / Tangarang Creek Area. Future salvage areas are located in the footprint of the SWOE (refer section 5).

The sites already salvaged are MQ1, MQ2, MQ 8, MQ11, MQ 15, MQ16, MQ19, MQ20, MQ21, MQ22, MQ23, MQ24, MQ25, MQ30, MQ31 and MQ35 through to MQ 150. Details are shown in Table 4.

4.4 ABORIGINAL SITES TO BE CONSERVED

Aboriginal sites to be conserved have been fenced (MQ6, MQ7, MQ27, MQ28, MQ29, MQ 32 and MQ 34). These primarily occur along the Tangarang Creek.

Additionally, Tree 1 (Mod 4), Tree 2 (Mod 4) and Tree 3 (Mod 4) will be conserved and Boral is currently organising suitable fencing to enclose the trees.

Sites MQ9, MQ10, MQ12, MQ13, MQ14, and MQ17 are located within the Habitat Management Area / Tangarang Creek Area and were not targeted during the excavation and salvage in January / February 2011. It is intended that these sites will remain in-situ and be conserved within the HMA. Some of these sites may have been flooded with the creation of dam 1.

These sites have and will be managed in line with the management measures presented in Section 4.9.

Sites MQ18 and MQ26 were left in-situ beneath overburden emplacement for noise bunds as agreed by the AMC. At the time, it was recognised that the artefacts were better left in contact with the earth rather than be disturbed.

Site MQ22b was identified as a stone marker arrangement. This arrangement was preserved insitu under the rail corridor at the request of the AMC representatives.

A rock formation identified as possible burial site was identified in 2011. This area occurs within the HMA and is double fenced for protection.

A potential scarred tree was identified on site initially by an ERM consulting archaeologist in 2006 in the existing quarry consent boundary. AMC representatives have inspected the tree and agree that it is not an Indigenous scarred tree and have not requested further management of the tree.

MQ 120 (scarred tree) identified as part of the Modification 4 heritage assessment will be fenced and sign posted.

4.5 ABORIGINAL SITES TO BE IMPACTED

Aboriginal sites that are yet to be impacted are within the 30 year resource area, and associated with the SWOE (modification 5) These sites will be managed in accordance with the management measures outlined in Section 4.8.

The area used for the southern overburden emplacement (Modification No.4) has been identified as having some areas of moderate archaeological sensitivity. It is anticipated that the Southern Overburden Emplacement may result in disturbance to artefacts through soil compaction during overburden deposition. Buried Aboriginal objects, if they exist, have the potential to be compacted, disturbed and moved a short distance during overburden emplacement, resulting in a loss of context and spatial patterning.

However, the type of landscape in which the southern overburden emplacement area is located (ridgeline) has been previously investigated in excavations for Peppertree Quarry, the Limestone Mine and throughout the wider Southern Tablelands region. These results have found that areas of ridgelines generally contain artefact densities of less than five artefacts per square metre and a low background scatter of artefacts. It is highly likely that similar low density scatters may be present and that the overburden area would therefore not be able to provide information additional to what has been uncovered in the region, particularly the approved Peppertree Quarry disturbance area, which has been subject to detailed archaeological investigation and which has provided a comprehensive picture of the Aboriginal archaeological landscape.

The potential for unavoidable harm to Aboriginal objects is acknowledged as a result of the proposed Southern Overburden Emplacement and this area has been managed in accordance with section 4.10.

The proposed SWOE portion of the Modification No.5 footprint has a similar archaeological context to the Southern Overburden Emplacement area of Modification No.4, except for a discrete area of moderate archaeological potential. The Modification No.5 footprint has specific management measures owing to the nature and significance of certain sites which require additional requirements (refer to Section 5.2). The sites to be impacted within the Modification No.5 footprint are MSL 017, MSL 018 MSL 019, MSL 055 and MSL 056.

Additionally, there are five trees with scars (Tree 1 Mod 5 to Tree 5 Mod 5) that will require management within the Modification 5 footprint (refer Section 5.2).

4.6 ABORIGINAL COMMUNITY CONSULTATION

4.6.1 ABORIGINAL MANAGEMENT COMMITTEE (AMC)

In accordance with the initial AHMP, Boral established an AMC for Peppertree Quarry. The AMC has, and will continue to be the primary mechanism that Boral will use to consult with members of the Aboriginal community.

The primary responsibilities and actions of the AMC are to:

- approve this AHMP (and subsequent reviews) and confirm that its content has been followed during the preparation and operation of the quarry;
- select relevant personnel to participate site topsoil monitoring when required in accordance with Section 4.6.2;
- determine the appropriate care of Aboriginal objects, that have and will be recovered during future development works;
- review of the Aboriginal cultural heritage awareness training within the Peppertree Quarry site inductions; and
- participate in environmental auditing processes as required for compliance with designated points of contact for the AMC groups.

The membership of the AMC is as follows:

Organisation	Senior representative(s)	Best Contact	Email
Pejar Local Aboriginal Land Council	Delise Freeman (or delegate)		
Buru Ngunawal Aboriginal Corporation	Wally Bell (Alternate Karen Denny)		
Ngunawal Heritage Aboriginal Corporation	Dean Delponte (or delegate)		

All correspondence with the abovementioned organisations will take place through these nominated representatives in the first instance. In the event that the designated contact is unavailable, the alternate members will be contacted.

Details of when to contact the nominated AMC representatives are presented in Section 4.6.2.

In addition to AMC consultation, the Limestone Mine Project RAPs will be consulted on Aboriginal cultural heritage matters related to the Modification No.5 assessment area. The Limestone Mine Project RAP responsibilities are listed in Section 1.4.1 of this document.

4.6.2 When to contact the AMC

Boral will contact the nominated AMC representatives following a number of possible triggers, as presented in Table 6.

Table 6: Triggers for AMC involvement

Action/Event	activity
Review of the AHMP	Following the AHMP's preparation for signoff, prior to issuing to the DPIE.
Involvement in initial topsoil excavation	One representative/delegate from each AMC organisation to be offered an invitation to monitor as nominated by senior representative.
Development and review of Aboriginal cultural heritage awareness training	To be coordinated by the Environmental Advisor and reviewed by the AMC.
Annual Review	AMC to be provided with a copy of the Annual Review.
Changes to the quarry and/or infrastructure plans for the quarry (that could impact known or unknown Aboriginal heritage sites)	AMC to be contacted during the planning stage for any changes that would be sought for a modification to the development consent.
In the event of any unexpected discovery of Aboriginal materials of significance on site	Immediately following discovery and reporting.

It is recognised that from time to time, mobile equipment may need to access parts of the 30 year quarry area for maintenance activities or to access certain parts of the site. Where possible, existing tracks will be utilised, however, in the event that existing tracks can't be used, Boral will choose paths that avoid known Aboriginal sites and minimise any ground disturbance.

4.6.3 Terms of engagement with the AMC

To provide consistency across the various groups within the AMC, and to align charging rates with current industry practice, the maximum rate that Boral will pay for a days fieldwork or attendance at meetings is $850 per day (8 hours), per member, which includes travel.

Boral will allow trainees to attend site accompanied by the nominated AMC representative however they must be over the age of 18 and will not be paid.

Boral will continue to investigate opportunities to provide training to members.

Work will be conducted onsite if a minimum of 2 representatives from 2 different organisations of the AMC are available.

Representatives will always work as a team. No individual representatives are to work alone on any sites.

4.7 MAPPING OF ABORIGINAL SITES

Maps of the quarry site showing Aboriginal objects as presented in this AHMP will be easily accessible to site staff, visitors and contractors. If new sites are discovered in areas not approved for disturbance, then the site maps will be updated to ensure that they are not disturbed.

Mapping of the salvage works is also to be undertaken.

During periodic reviews of this AHMP, any new Aboriginal objects identified and salvaged during approved quarry development, will be identified on AHMP maps.

4.8 TOPSOIL STRIPPING

Further topsoil stripping of the 30 year quarry footprint will need to occur at various stages throughout the life of the quarry. The monitoring of topsoil during these campaigns will be performed by members of the AMC, assisted by archaeologists as required.

The aim of the monitoring of topsoil stripping is to further understand the distribution of artefacts in the landscape and the materials used for artefact production.

Eight Aboriginal sites were identified within the quarry footprint, from the original 2011 assessment. Eight sites (MQ 20, MQ 21, MQ 31,MQ 5, MQ 4, MQ 3,MQ 2, MQ 1) have been salvaged through extensive topsoil monitoring (see Sections 2 and 3)

Over the past 8 years topsoil monitoring and salvage of artefacts has covered approximately 50 ha, with a total of 90 000 artefacts being collected.

Consulting archaeologists were on site to support the AMC when extensive finds were identified.

4.8.1 AREAS TO BE SUBJECT TO MONITORING

The focus for the monitoring of topsoil stripping have been those areas within the quarry footprint (except within emplacement areas) with potential to contain archaeological deposit and therefore assist in satisfying the aim stated above, including:

- areas within 100 m of second order or lower streams; and
- a 50 m^2 zone around previously identified sites (with the identified site being the centre of the 50 m^2 zone).

The above list represents the areas with the greatest potential to contain archaeological deposit based on an analysis of the landscape of the quarry footprint and a review of previous archaeological surveys in the Quarry area and the wider region.

The areas that have been monitored during topsoil stripping are shown in Figure 3, with the landscape analysis prepared by EMM Consulting presented in Appendix 4. The areas to be monitored may be updated if deemed appropriate by Boral and the AMC. No archaeological monitoring of topsoil stripping is proposed for overburden emplacement areas, including those approved for Modification No.4 and Modification No.5.

Additional areas to be monitored would be dependent on the nature of the development activity in a particular area and the landscape context indicating archaeological sensitivity. The decision to implement monitoring in the approved project disturbance boundary would be made in consultation between Boral, the AMC and a suitably qualified archaeologist to provide specialist advice.

4.8.2METHOD

To ensure that monitoring of the topsoil stripping in these areas is conducted in safe and scientifically rigorous manner the following steps will be followed during topsoil monitoring.

The area to be monitored will be divided into grid of 50 m2 squares. Coordinates for each square will be recorded from the centre of the square and each square will be given a number. Monitoring of each square will be recorded on an Archaeological Excavation Recording Form (see Appendix 5)

The grader or excavator will strip the grid square to be monitored, as per the instructions of the AMC.

When the equipment has completed the grid square or nominated section, the AMC representatives will investigate and assess the grid square for Aboriginal material.

Any Aboriginal material found will be placed in a sturdy plastic bag, labelled with the following information:

- Topsoil Monitoring;
- the date e.g. 16/10/12;
- the grid square number e.g. 1; and
- the bag number e.g. Bag 1 of 2.

Aboriginal material recovered from the same grid square will be placed in the same bag.

The grid square which has been monitored will be marked on the working topsoil monitoring map (see Appendix 6). Detailed mapping of High densities will be maintained and updated at the end of the working day.

Both these maps will be placed on the wall in the work room to be available to everyone for updating.

An update of works will be maintained and be visually available.

A handover meeting will occur at the beginning of each day to ensure all site representatives are aware of the progress of work.

Should more than 10 artefacts be located in an area of 50 cm square this area will be identified as a High Density (HD). A new collection bag will be used and marked with the HD details as above. Photographs will be taken of the High Density before work commences and during the hand excavation.

The HD area will be marked out to a 1 m by 1m square. This will be hand dug and sieved to identify the nature of the High Density. Hand digging will be in “spits” of no more than 10cm and identified in numerical order spit 1 ,2 etc. Artefacts collected from each slit in the HD square will be bagged together. Spits will continue until clay is reached or till determined by the AMC.

Should a total of 50 artefacts be identified in the $1m^2$ HD area then $1m^2$ areas will be marked out on each side of the original square. These squares will be hand dug and sieved.

Should more than 50 artefacts be identified in any of these squares then the 1 m^2 HD procedure continues around the identified square until a level less than 50 artefacts occurs in the pit or a total of 9m^2 is reached (a total of 9 pits) or as determined by the AMC

This process allows for the mapping of the extent of High Densities across the sites.

Monitoring forms will be collated at the end of the day. All bags will be checked to ensure they have the correct labelling and will be placed in identified boxes.

Following rain events, pre worked sites shall be reinspected. Surface artefacts collected will be bagged as per the above procedure and the number added to the total for that identified grid square.

On agreed completion of each grid, an Aboriginal Heritage Clearance Sheet (see Appendix 7) is to be completed. The Clearance sheet will be signed by

- the Boral nominated representative; and
- the members of the AMC (as listed in Section 1.3).

Artefacts collected during the monitoring of stripping will be managed according to the future curation of all Aboriginal materials recovered from the site as detailed in Section 4.11. The artefacts will be recorded and the information incorporated into the existing artefact database to allow the results to be compared to other archaeological work.

If human remains or significant Aboriginal material as described in Table 7 are uncovered during monitoring the process detailed in Section 5 should be followed.

The AMC will be given 2 week's notice to attend topsoil stripping campaigns for the purpose of topsoil monitoring. In the event that a topsoil stripping campaign is not planned, and due to operational urgency, 2 weeks notice cannot be given, Boral will use best endeavours to arrange the soonest possible time for the AMC to attend. Boral will allow 1 month from the start of monitoring before stripping commences.

4.9 HABITAT MANAGEMENT AREA (HMA)

The Habitat Management Area (Figure 2) has been established adjacent to the western end of Dam 1. This area is likely to contain Aboriginal archaeological deposits, being located within a landscape that has high archaeological potential for Aboriginal objects. As such the establishment and management of the Habitat Management Area should seek a collaborative approach with the AMC.

The AMC will be consulted and be involved where relevant with:

- planning the future management of this area;
- locations of planting;
- advice regarding on-going care and management of the revegetated woodland areas;
- undertaking interpretation of the area, especially with reference to Indigenous use of species within the Box Gum Woodland; and
- determining access agreements into this area, for Aboriginal and non-Aboriginal peoples.

All conserved sites within the HMA are fenced within the area and signposted as an "environmentally Sensitive site".

Areas of planting and planting methodologies have been discussed with the AMC to minimise disturbance to the soil and known artefacts.

The creation of the Habitat Management Area represents an opportunity for long term engagement between Boral and the local Aboriginal community.

4.10 Overburden emplacements

Soil will not be disturbed within the footprint of the overburden emplacements. Overburden areas have been assessed for the heritage potential and emplacement of overburden over undisturbed land has been agreed as part of the August 2016 modification and as part of Modification No.4 and Modification No.5 and with the AMC representatives. The Modification No. 5 SWOE has site-specific management set out in Section 5.2 of this document.

Earthworks associated with the overburden such as drainage, sediment dams or roads will be managed as per Section 4.8.

4.11 Management of recovered Aboriginal objects

Discussion with the AMC has defined the communities' requirements for future curation of all Aboriginal materials recovered from the site.

All salvaged artefacts from the site will remain on site, under Boral management in a secured area prior to being returned to the HMA and buried within designated locations. The specific location for reburial is not decided and will be determined with the AMC.

The reburial will be managed and undertaken by the AMC. The locations of the reburied objects will be registered with the OEH through lodgement of an AHIMS card. Should it be required, a "Care Agreement" will be enacted under Section 85A of the NPW Act.

Future access to the HMA and location of artefact reburial should be allowed by Boral for cultural and education reasons. Boral will notify the nominated AMC representatives for approval prior to access to the area.

Artefacts will be allowed for display and educational purposes only if approved by ALL of the nominated AMC representatives.

No artefacts are to be taken offsite, unless approved by ALL nominated AMC representatives. Should it be identified that artefacts have been removed from site, without permission, , the offending person will not be allowed to return to site.

4.12 Access to Aboriginal heritage sites

During the life of the quarry, members of the Aboriginal community wishing to access the Peppertree Quarry Habitat Management Area will be provided access to do so. The nominated AMC's representatives will be notified. Boral's responsibilities for the health and safety of all people who come to Peppertree Quarry means that access to the HMA will need to be managed like all contractors and visitors that come to site.

Accordingly, any person wishing to access the HMA should use the following protocol:

- Contact the Peppertree Quarry Office on 4841 1701 preferably 24 hours before wishing to access the Habitat Management Area to organise for someone to be available to escort them.
- On the day of site access, report to the quarry office reception and sign in upon arrival.
- Contact the Site Administrator to coordinate the appropriate site personnel to provide escort to the Habitat Management Area.
- Complete a visitor safety induction (if not already inducted)
- Boral requires all site visitors to comply with the site safety requirements and wear the appropriate personal protective equipment (Hi-visibility clothing, full length pants and shirt, safety boots, hard hat and safety glasses).
- The nominated site escort will then drive members to and from the Habitat Management Area as required.
- Sign out upon departure

4.13 MANAGEMENT OF SENSITIVE CULTURAL HERITAGE INFORMATION

Sensitive Aboriginal cultural information may include, but is not limited to:

- the specific location of Aboriginal sites;
- details pertaining to traditional Aboriginal activities; and
- Aboriginal ceremonial details.

The 2006 EA and this AHMP contain such details. Relevant senior and functional Boral personnel will be required to understand and know the contents of these documents. These reports should only be further distributed with the approval of the AMC. Where sensitive cultural heritage information is referenced, an amended version of this report will be placed on the quarry website for compliance with the development consent. The amended version of the AHMP will have culturally sensitive information and contact details removed.

This AHMP has included requirements for fencing Aboriginal sites that will be conserved. These areas can be described in future documents or site plans as ‘environmentally sensitive area’.

The management of any sensitive new information relating to Aboriginal cultural heritage will be discussed with the AMC on a case by case basis.

4.14 SEEKING EXTERNAL HERITAGE ADVICE

In the case of new and/or unforeseen Aboriginal heritage discoveries of significance, the procedures detailed in Section 5 should be followed.

External heritage advice may be sought when:

- reviewing technical aspects of this AHMP;
- archaeological expertise is legally required;

- advice may be needed on the recording and logging of Aboriginal objects;
- advice may be needed for the interpretation of any heritage values; and
- in the event that discussions between the AMC and Boral may require independent guidance or advice.

Following discussions with the AMC representatives and an extensive tender process, EMM are the preferred consultant for site heritage salvage works.

4.15 INTERPRETATION OF HERITAGE VALUES

The interpretation of Aboriginal heritage values has been considered through the following mediums:

- representation by a delegated member of the AMC to share information at meetings of the Peppertree Quarry Community Consultative Committee;
- provide opportunities for local community groups and schools to either visit the site;
- involvement of voluntary participation by university students to assist in heritage work or cataloguing of Aboriginal objects
- invitations to government bodies, such as DP&E and OEH to attend future heritage work;
- display non-sensitive Aboriginal cultural heritage information on the Peppertree Quarry website or visitor facilities.

4.16 BUSHFIRE AND EMERGENCY ACCESS MANAGEMENT

Peppertree Quarry is bordered by native vegetation to the north, east and west and is therefore in a bushfire prone area. Much of the site has natural (cleared pasture) or recently constructed features (such as noise bunds) that act as fire breaks which will minimise potential bushfire impacts. In the event that the site is threatened by bushfire, it will be necessary for Boral to protect its people and quarry assets (plant and equipment). It is also necessary to protect and minimise impacts of the Cultural Heritage values outlined in this plan.

In the event of a bushfire threatening the Peppertree Quarry site, it may be necessary for Boral (or the Rural Fire Service) to establish further fire breaks to stem the spread of the fire on the site, and to adjoining properties. A firebreak method, such as grading, would disturb the ground surface and potentially disturb Aboriginal sites.

Where bush fire management preparation work is required, representatives of the AMC will be consulted prior to the works and be present for site works, should Aboriginal sites be likely to be disturbed.

If a bushfire situation arises, and emergency fire break or disturbance activities are required to protect plant and equipment, known Aboriginal sites will be avoided in the first instance. Maps of Aboriginal sites will be used by site staff or provided to the relevant personnel involved in management of firebreaks.

If disturbance cannot be avoided, best endeavours will be used by Boral to keep members of the AMC informed of the fire break activities to ensure impacts are minimised.

In December 2019, bushfire emergency management was required due to extensive bushfires in NSW. The Rural Fire Service (RFS) created a fire break around the perimeter of the Quarry. Due to the emergency situation and short notice provided, Boral and the RFS walked the perimeter and did not identify any Aboriginal objects. Boral notified the AMC about the required grading and its location and were comfortable with the works proceeding without undertaking a site inspection.

4.17 Pre-work Daily review

During construction, as the site and work was constantly changing a process was in place to undertake a daily pre-work checklist to ensure that matters of Aboriginal cultural heritage were considered prior to daily site works.

With the quarry site in production and the majority of work now in the pit, processing or designated overburden area, as well as the majority of identified areas salvaged there is a reduced risk, as to the disturbance of identified sites.

The areas still to be monitored will be fenced and sign posted to limit any disturbance.

Regular fencing audits are conducted and not only assess boundary fences but “environmentally sensitive site” fencing as well. This ensures that fencing is maintained in a good condition.

Should an area be disturbed, work will be stopped, the area assessed for heritage potential as per this AHMP and if required AMC representatives advised.

A Daily tool box discussion is conducted by the Site Supervisor prior to each shift starting. If it is determined that previously undisturbed topsoil would be disturbed by works to be conducted on the day, these works will be delayed for 2 weeks until members of the AMC can be present for topsoil monitoring.

5 Modification 5. Specific Management measures

5.1 Assessment background

Modification No. 5 was approved by DPIE under Section 75W of the EP&A Act and is shown in Figure 1. An overview of the Modification No.5 development is presented in section 2.5 of this AHMP. EMM prepared the ACHA for Modification No.5 (EMM 2018).

The assessment for Modification No.5 was made on the basis that it is proposed on land that has previously been investigated for its Aboriginal cultural and historical heritage values. The land on which the WOE is proposed has previously been assessed for Aboriginal cultural heritage values as part of the environmental assessment for the quarry (ERM 2006). This also applies to the Modification No.5 haul route. The proposed WOE and the Haul route are on a previously proposed disturbance footprint layout that was approved under Modification No.2 for the Quarry.

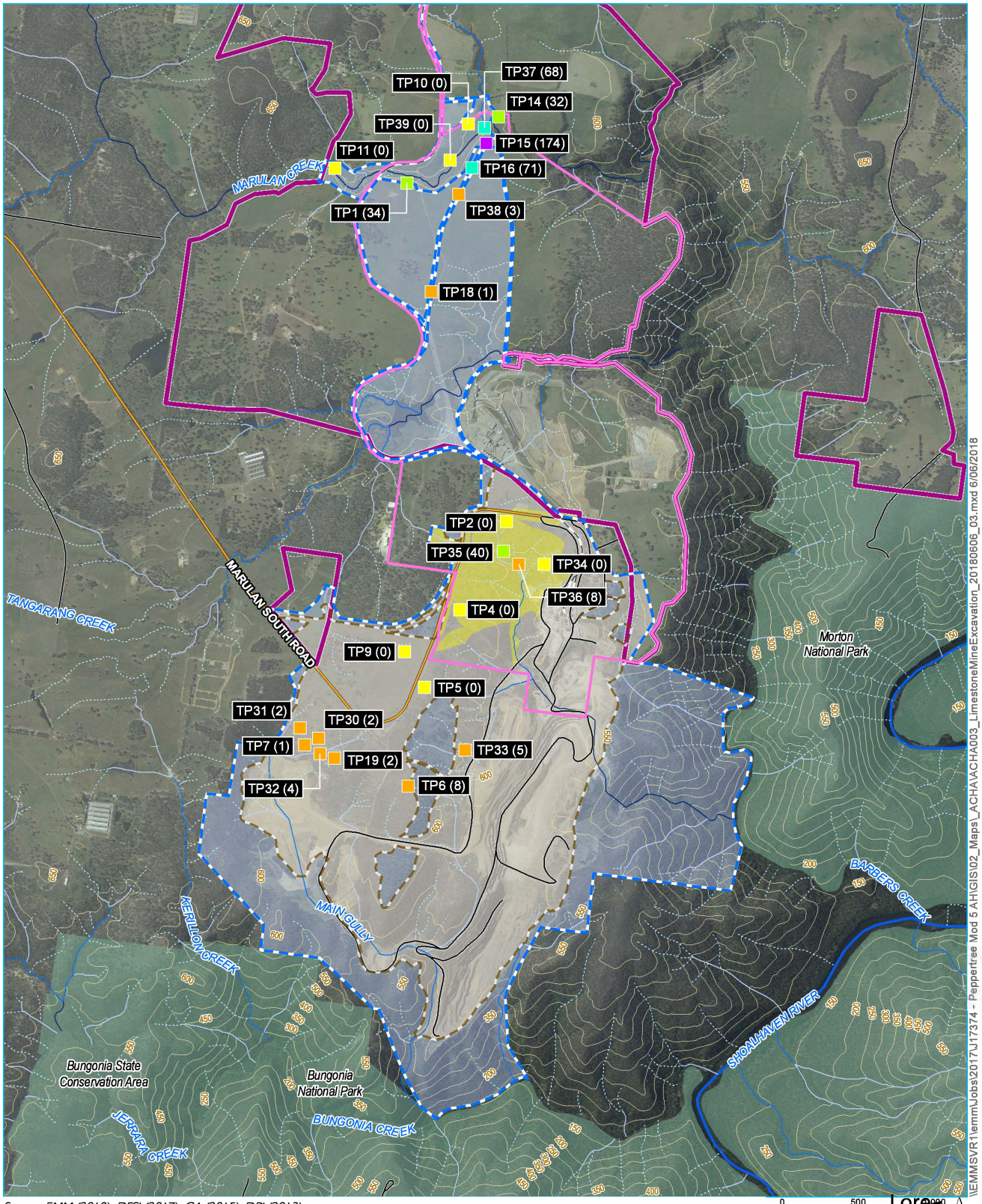
The remainder of the study area South-western Overburden Emplacement (SWOE) and associated infrastructure has previously been assessed by EMM as part the Limestone Mine Project (EMM 2019). The SWOE has been incorporated into the quarry’s consent boundary as the quarry will require access to the emplacement area prior to the time it would have potentially been approved under the Limestone Mine Project.

In 2015, EMM conducted an archaeological survey and test excavation in the Modification No.5 area as part of a wider survey and test excavation for the Limestone Mine Project (EMM 2019).

Specific to the modification area, the archaeological survey identified two artefact scatters (MSL 017 and MSL 018) and one isolated find (MSL 019) in the activity footprint. Of the broader archaeological excavation program, five 3 m x 1 m test pits (15 m2) were situated within the modification. Three test pits contained no artefacts whereas test pit (TP) 35 contained 40 artefacts (subsequently labelled site MSL 055) and TP36 contained only eight artefacts (subsequently labelled site MSL 056) (Figure 4). Using these data, EMM developed an archaeological sensitivity model as a guide to indicate subsurface archaeological potential. The Modification No.5 area was assessed to have low archaeological sensitivity apart from an area of moderate sensitivity surrounding site MSL 055 (Figure 5).

Four out of the five sites in the Modification No.5 area were assessed to be of low archaeological significance. MSL 055 was assessed to be of moderate archaeological significance. All five sites and the area of moderate archaeological sensitivity surrounding one site (MSL 055) will be impacted by Modification No.5. The Aboriginal sites within the Modification No.5 footprint are shown in Figure 5.

In December 2019, EMM conducted a scar tree assessment for five trees (Tree 1 Mod 5 to Tree 5 Mod 5) within the Modification No.5 footprint that were identified by AMC members during a site meeting in November 2019. Appendix 9 provides details of the assessment, consultation and management outcomes. Based on the outcomes of the assessment, EMM is of the opinion that there is not enough evidence present to support the tree scars to be Aboriginal cultural origin. EMM, Boral and the AMC discussed management options for the trees on 28th January 2020 during a monthly site meeting at Peppertree Quarry. The outcome of the meeting was that despite EMM's assessment, the AMC value the trees as culturally significant and requiring appropriate management. Boral advised that avoidance of the trees was not an option due to the constraints of project design and their removal is required. The AMC supported the tree removal under suitable management provisions which Boral agreed to. These measures are set out in Section 5.2 below.



\\EMMSVR1\emmJobs\2017\J17374 - Peppertree Mod 5 AH\GIS\02_Maps_ACHA\ACHA003_LimestoneMineExcavation_20180606_03.mxd 6/06/2018

Source: EMM (2018); DFSI (2017); GA (2015); DPI (2013)

KEY

- Boral Resources boundary
- Peppertree Modification 5
- Peppertree Quarry consent boundary
- Peppertree Modification 5 disturbance footprint
- Limestone Mine SSD project boundary
- Limestone Mine SSD disturbance footprint

Test pit name (number of artefacts)

- 0
- 1 - 10
- 11 - 40
- 41 - 100
- 101 - 200
- Rail line
- Main road
- Local road
- Contour (10 m)

Strahler stream order

- 1st order
- 2nd order
- 3rd order
- 4th order
- 8th order

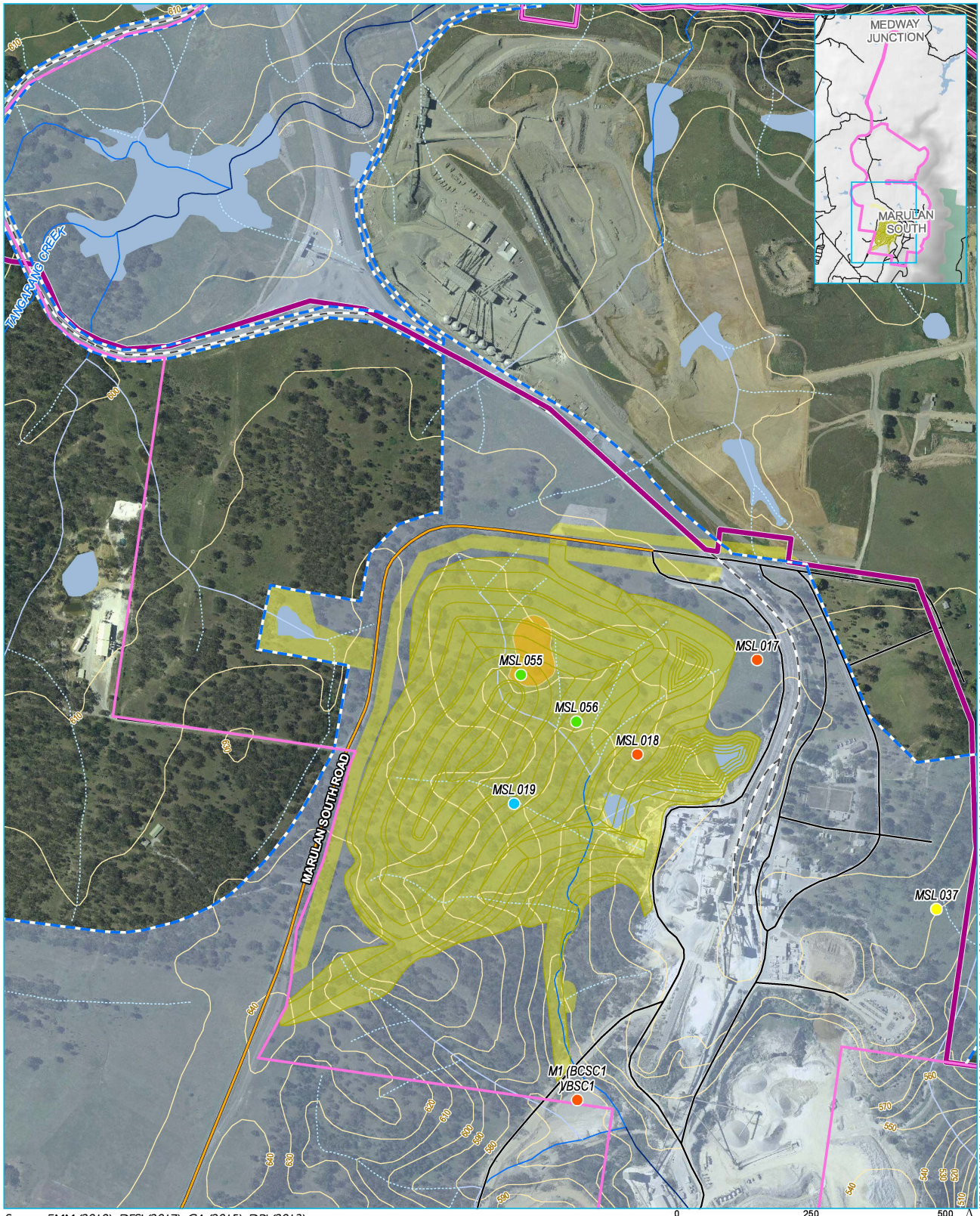
Test excavation results

Aboriginal Heritage Management Plan

Peppertree Quarry

Figure 4

EMM



\\EMMSVR1\emmJobs\2017\J17374 - Peppertree Mod 5 AH\GIS\02_Maps_ACHA\ACHA008_ArchSensitivity_20180606_03.mxd 6/06/2018

Source: EMM (2018); DFSI (2017); GA (2015); DPI (2013)

KEY

- Boral Resources boundary
- Peppertree Modification 5
- Peppertree Quarry consent boundary
- Peppertree Modification 5 disturbance footprint
- Peppertree Modification 5
- Proposed pit design
- Limestone Mine SSD project boundary
- AHIMS site type
- Artefact scatter
- Isolated find
- Not a scar tree
- Subsurface artefact deposit
- Archaeological sensitivity
- Moderate
- Rail line
- Main road
- Local road
- Contour (10 m)
- Waterbody
- Strahler stream order
- 1st order
- 2nd order
- 3rd order
- 4th order

Modification No.5 Site results

Aboriginal Heritage Management Plan
Peppertree Quarry

Figure 5

EMM

5.2 MANAGEMENT OF SITES WITHIN THE MODIFICATION NO.5 FOOTPRINT

Overview

In accordance with CoA (B.50 (iii) & (iv)), the Aboriginal sites within the Modification No.5 footprint will be managed in accordance with the management measures provided in the Modification No.5 ACHA. Additionally, management measures for the trees with scars identified within the Modification 5 footprint is also addressed in this section. A summary of the sites, their values and proposed management is presented in Table 7.

Table 7: Modification No.5 sites and management

Site Name	Site type	Management measure
MSL 017	Artefact scatter	Surface collection
MSL 018	Artefact scatter	Surface collection
MSL 019	Isolated find	Surface collection
MSL 055	Subsurface artefact deposit	Salvage excavation
MSL 056	Subsurface artefact deposit	Unmitigated impacts
Tree 1 (Mod 5)	Tree with scar	To be salvaged; archival recording
Tree 2 (Mod 5)	Forked tree	Inspection of fork cavity and salvage contents if required; archival recording
Tree 3 (Mod 5)	Tree with scar	To be salvaged; archival recording
Tree 4 (Mod 5)	Tree with scar	To be salvaged; archival recording
Tree 5 (Mod 5)	Tree with scar	To be salvaged; archival recording

Collection

All surface artefact sites (artefact scatters and isolated finds) in the Modification No.5 footprint will be collected by an archaeologist and members of the Peppertree Quarry AHMC. Sites MSL 017, MSL 018 and MSL 019 will be collected prior to overburden emplacement at these sites.

The entire extent of each site will be collected into labelled bags recording the site name, location and collection date. Collected Aboriginal objects will be retained in accordance with the provisions detailed in Section 4.11 of this AHMP.

Salvage Excavation

Site MSL 055 and its surrounding area of moderate archaeological sensitivity will be subject to salvage excavation. Salvage excavation will aim to retrieve the most significant portions of the site and will involve a two-stage process of further sampling followed by open area excavation. All salvage excavation will be completed by hand digging.

The first phase will involve further sampling using regularly spaced 1 metre squared pits dug to the base of the topsoil layer in each area of investigation to understand the spatial distribution of artefacts across the area of archaeological sensitivity. Excavation will be undertaken manually in designated salvage pits.

The information from the first phase will be used to expand areas into open area excavation. Expansion of pits will be based on the following:

- evidence of hearths or other significant features; and

- in the event that an artefact density of 50 artefacts or above is encountered in a 1 metre square, then at least one of the squares with such evidence will be expanded into an open area within the site being investigated. If an artefact density of 50 artefacts or greater is not identified in a 1 metre square, then the pit(s) with the highest artefact frequencies will be expanded.

The use of a density of 50 artefacts as a benchmark for the expansion of excavation areas is based on the archaeological character of the region, particularly from open area excavations at the main quarry are and Lynwood Quarry (approximately 7 km north-west). The regional archaeological context indicates that artefact densities of approximately 20 per square meter is considered of moderate to high artefact density (see Lynwood Quarry excavations; Umwelt 2007; 2008a; 2008b; 2009). However, comparable landforms from the quarry excavations at Tangarang Creek (1 km north) featured artefact densities of between 70 and 100 artefacts per square metres, with some areas displaying very high artefact density of between 100 and 200 artefacts per square meter (ERM 2012). Furthermore, preliminary data from recent salvage excavation at on hill crests and spurs adjacent to tributaries of Tangarang Creek within 1 km of MSL 055 identified some 1 m x 1 m squares with concentrations between 500 and 1000 artefacts and one pit with a total of 1722 artefacts (refer to Appendix 3 mapping) – notwithstanding, such high densities have only been found in exceptional circumstances.

Using the above data as a guide, artefact densities have been divided into the following categories in a conservative manner to guide management: it can be suggested that a regionally low artefact density is under 10 artefacts, moderate artefact density is between 10 and 50 artefacts and high artefact density is above 50 artefacts. As such, 50 artefacts uncovered in a 1 m^2 area are likely to correlate to moderate or high artefact densities warranting a stronger focus of an archaeological investigation.

Open area excavation will cease once a significant drop off in artefact frequencies is encountered in an expanded area (possibly indicating the boundary of specific activity areas), if an area of approximately 100 m^2 is reached, or if a representative sample of artefacts are gathered that are adequate for comparison with the assemblage gathered from previous excavation salvage excavation at Peppertree Quarry (decision to be made by Excavation Director in consultation with RAPs and Boral). Open area excavation can continue in special cases, particularly if high densities continue within the Project impact areas or certain features require further investigation.

If suitable conditions are identified, excavation will also aim to obtain suitable samples for Optically stimulated luminescence (OSL) dating, radiocarbon dating, residue and/or use-wear analysis and pollen analysis. Where feasible and water is available, wet sieving may occur.

The artefacts salvaged as part of the archaeological excavation and collection program will be subject to attribute analysis to understand manufacturing technology, site function and to compare the assemblage to studies completed in the wider region. As specified in Section 9.2.1, there is an extensive assemblage of artefacts retrieved from previous salvage activities that will be used in the preparation of an Aboriginal heritage report. The research design, including the scope and nature of analysis, for the Aboriginal heritage report is still being developed in consultation with the AMC and Boral. The excavation results and artefacts recovered from MSL 055 will be incorporated into the broader quarry Aboriginal heritage report using research, analysis and reporting methods that are consistent and comparable with the broader research design and approach.

Tree management

Tree 1 (Mod 5), Tree 3 (Mod 5), Tree 4 (Mod 5) and Tree 5 (Mod 5) will be managed by scar section removal and relocation. This will involve the following process:

- Each tree will have its location archivally recorded, using photography, and aerial photogrammetry if feasible.
- Boral, the AMC and an Arborist will inspect the trees to determine a suitable removal method. This is likely to involve sawing the tree above and below the scar(s) at each tree, allowing suitable buffers from the scar feature(s). Options to remove the trees with the tree crowns intact will be explored if feasible. The process of removal will be photographed. The methodology for the tree removal will generally be in accordance with the method attached to the scar tree assessment in Appendix 9, noting that tree-specific adjustments to the method may need to be employed on the day of tree removal.
- The removed sections of the trees may be treated to preserve the scar to prevent their deterioration. Any treatment option would be undertaken in consultation with the AMC, Boral and a suitably qualified curator. The process of treatment will be photographed.
- The trees will be relocated to the Peppertree Quarry HMA or other agreed site within the Project consent boundary for long term protection and be appropriately displayed using suitable materials in consultation with the AMC and Boral. The process of relocation and display will be photographed.

Tree 2 (Mod 5) is a forked tree where the AMC indicated that the hollow in the fork of the tree may have been used by Aboriginal people to store tools or cultural items. Accordingly, prior to removal of the tree, the cavity will be inspected for cultural material. This may involve partially sawing parts of the tree to provide access to the fork cavity. Methods to undertake this task will be determined by Boral, the AMC and an Arborist during a site inspection. Any identified cultural material will be recorded, bagged and labelled and stored securely at the Peppertree Quarry temporary storage facility.

The outcomes of the tree management activity will be documented in a report, including records of the original and new tree locations. The trees will be lodged on AHIMS with appropriate information included about the nature of the trees and their management.

6 STOP WORK PROCEDURES

6.1 NEW ABORIGINAL SITES OF SIGNIFICANCE

Should new Aboriginal objects of significance (as outline in Table 7) be identified (or suspected) within any part of the quarry footprint, then work in that area will cease.

In the first instance the Boral site manager will be consulted, who can confer with the Environmental Advisor. If the material is suspected to be Aboriginal, an exclusion zone and temporary fence of 10 metres x 10 metres established around the object so that the site works can continue while the AMC is consulted for appropriate action.

If the material is confirmed as Aboriginal and an object of significance, then management options should be sought from a suitably qualified practitioner, in conjunction with the advice of the AMC.

In accordance with CoA B.47, there are a number of actions required for 'previously unknown Aboriginal objects' discovered on the site. Boral assumes that the definition of 'previously unknown Aboriginal objects' relates to unexpected Aboriginal site types: such site types have been defined based the findings of previous ACHAs for the quarry and the archaeological findings during implementation of the AHMP. Table 7 makes the distinction between known/expected Aboriginal objects and unknown/unexpected objects and sets out appropriate management actions.

If unknown/unexpected Aboriginal objects are identified (which could include a number of Aboriginal site types not listed in Table 8) then the protocol listed under CoA B.47 and B.48 must be followed (Section 2.1, Table 3).

If the material is a human skeletal remain, then the procedures in the following section are to be followed.

Table 8: Aboriginal objects of significance

Category of Aboriginal object/Aboriginal site	Site type(s)	Management action
Known/expected	Isolated stone artefacts or artefact scatters **not** meeting the following definitions: 'high density' artefacts; stone axes; hammer stone; stone arrangements.	Collection of artefact(s) in a manner consistent with artefact collection methods as part of topsoil monitoring exercise as outlined in Section 4.8.2.
Known/expected	• High density of stone tool artefacts or their by-products (10 or more artefacts in a 500mm x 500mm area) • Stone axes	Collection of artefact(s) in a manner consistent with artefact collection methods as part of topsoil monitoring exercise as outlined in Section 4.8.2. If the area is outside of the designated monitor area, works are to cease. A 10 metre buffer area exclusion zone and

	• Hammer stones • Ovens/hearths • Stone arrangements • Aboriginal scarred or carved trees • Art sites • Other site types or places of significance not previously identified at the quarry.	temporary fence to be established around the material for works to continue while the Environment advisor confers with AMC to determine appropriate action prior to salvage. On the day of discovery, the advisor will email each of the AMC members with photos of the material and seek their confirmation in writing of the acceptance of required action.
Known/expected	• Scarred or carved trees	If suspected Aboriginal scarred or carved trees are identified, A 10 metre buffer area exclusion zone and temporary fence to be established around the material for works to continue while the Environment advisor confers with AMC to determine appropriate action prior to salvage. A suitably qualified archaeologist will be engaged to inspect the trees to determine if the scars are likely to be of Aboriginal origin. Dependent on the nature and significance of the scar, the following course of action will be undertaken in consultation with the AMC and Boral: • Options for avoidance and protection will be explored where feasible; • If the tree(s) cannot be avoided, and the AMC request for further management, the trees will be recorded removed and relocated using methods generally consistent with the tree management procedure presented in Section 5.2 of this document. • If the tree scars are ambiguous in nature (not confirmed to be of Aboriginal origin) and the AMC do not request further management, the trees will be removed without further management (however still subject to management provisions

		under any other relevant CoA, for example, ecological provisions).
Unknown/unexpected	Suspected burial site	Refer to procedures in the following section 6.2

Once the AMC are satisfied with the action taken to salvage the identified objects, an Aboriginal Heritage Clearance Sheet will be completed and signed off to document that the AMC is satisfied that all matters of Aboriginal heritage have been dealt with and quarrying works can proceed without further topsoil monitoring requirements.

The Aboriginal Heritage Clearance Sheet is attached as Appendix 7.

6.2 DISCOVERY OF HUMAN SKELETAL REMAINS

In NSW the following legislation may apply to the management of human skeletal remains:

- the Coroner's Act, 1980;
- the Public Health Act, 1991 and the Public Health (Disposal of Bodies) Regulations, 2002;
- National Parks and Wildlife Act, 1974; and
- the NSW Heritage Act, 1977.

The following actions should be undertaken, depending upon whether the suspected human skeletal material is revealed during quarry development activities.

Should possible human skeletal material be uncovered during site works or by natural erosion within any part of the project area, the following actions are required:

- all site works in the area surrounding the suspected burial site should cease;
- any soils excavated from the location of the burial (including all soils that have been recently removed from the works site) should be immediately identified, recovered (if removed from site) and stored adjacent to the potential burial;
- the area containing the suspected human skeletal material should be fenced off and isolated from access;
- the find should be reported to the local Police (required under law, Heritage NSW and the NSW Environment Line on 131 555;
- the relevant local Aboriginal elders (the AMC) should be contacted;
- it may be necessary to consult with a suitably qualified archaeologist;

If, following consultation, the remains are identified as Aboriginal, and more than 100 years old, then the AMC, Boral, the police and the Heritage NSW should discuss management of the burial.

Options may include: relocation of the remains to a designated off-site keeping place; or reburial at a location near to the original, but within an area that will not be impacted by the quarry. The

wishes of the Aboriginal community will help guide the actions. An AHIMS site card will then be completed and submitted to Heritage NSW .

If the skeletal remains are suspected to be less than 100 years old and/or not Aboriginal, then direction for their management should be determined by the Police, Heritage NSW , NSW coroner and, if relevant, the Aboriginal community.

If the skeletal remains are not human, then they should be dealt with archaeologically, in the context of their taphonomy (the study of decaying organisms over time and how they become fossilized).

7 FINANCES AND PROVISION

Funding of works associated with the AHMP will be from operational and capital budgets associated with the quarry operations.

8 TRAINING

8.1 CULTURAL HERITAGE AWARENESS TRAINING - INDUCTION

Boral, in consultation with the AMC, has prepared and been delivering Aboriginal cultural heritage awareness training to all site personnel and contractors who work at the quarry. This training will continue to form part of the site induction process.

The training package includes (but is not limited to) the following:

- an overview of Aboriginal cultural heritage values of the local area;
- procedures for stopping work and consulting the Boral project/environmental manager for cases detailed in Section 6; and
- information related to the relevant legislation for the protection of Aboriginal sites (offences under Section 86 NP&W Act, 1974) and penalties for knowingly or unknowingly disturbing and/or destroying an Aboriginal site (this should be included irrespective of this project's Part 3A status).

Every employee and contractor are asked to sign a Declaration to be able to commence work at the site (see Appendix 8)

8.2 SITE SPECIFIC TRAINING

Where identified by the environmental advisor or AMC representatives, additional site specific training may be developed and implemented and delivered to relevant personnel and contractors.

9 MONITORING, REPORTING AND REVIEW

9.1 MONITORING THE AHMP

This AHMP will be reviewed periodically and in accordance with CoA Schedule D Condition D6 by suitably qualified persons and representatives of the AMC to determine the efficacy of the plan and to ensure it continues to meet its objectives.

The management actions will be measured through regular environmental performance reviews and will be undertaken by the environment advisor, in discussion with the Quarry Manager.

The reviews will be used to assess progress in meeting the objectives and performance criteria.

Boral is required to prepare an Annual Review each year to report on the environmental performance of the site against the requirements within the development consent. The Annual Review is provided to the DPIE and BCD. The Annual Review will include an assessment of Boral's required actions against the AHMP requirements.

The Annual Review will also identify gaps where this AHMP has not been implemented and provide guidance and recommendations to address identified gaps.

Should a non-conformance to the plan be identified a report will be completed within the Boral incident management system.

9.2 REPORTING

9.2.1 ABORIGINAL HERITAGE REPORT

Due to the extensive nature and significance of Aboriginal Heritage, a report will be prepared on the completion of all salvage works.

This will detail the salvage works, findings, cultural values and significance of the Peppertree site. The report will be prepared by a suitably qualified professional in consultation with the AMC.

Due to the extensive timeframe of archaeological investigations, analysis and reporting, Boral will engage suitably qualified archaeologists to prepare interim reports for:

- The salvage excavation proposed at MSL 055;
- The broader salvage excavations and surface collection completed at Peppertree Quarry.

These interim reports will be prepare within a year of the completion of salvage excavation measures at MSL 055.

9.2.2 AHIMS

Depending on the location and nature of any newly identified Aboriginal objects, they will be recorded on AHIMS in the following manner:

- Aboriginal objects may be attributed to existing AHIMS sites and added to an inventory associated with that site; or
- A new AHIMS site card will be prepared if informative to represent a distinct site type or the spatial distribution of Aboriginal objects across the landscape.

Due to the number of artefacts collected across over one hundred identified sites, consultant advice has been to submit one AHMIS card for the quarrying area of the Peppertree site as a whole. This site will represent the results of topsoil monitoring and associated salvage measures. A review of the current AHIMS cards available will be undertaken. The data and review will be undertaken by a suitably qualified professional.

9.2.3 ANNUAL REVIEW

In line with the development consent, Boral will prepare an Annual Review to report on the environmental performance of the quarry against the development consent. The Annual Review will also report on compliance with this AHMP with copies provided to the AMC.

9.2.4 INCIDENT REPORTING

The Approval outlines a 3 staged approach to incident reporting where an incident is defined in the development consent, Schedule 1 as “An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance”

Initial Incident notification and reporting will be conducted In accordance with Condition D9, Schedule 2, where by “The Applicant must immediately notify the Secretary and any other relevant agencies of any incident”.

This incident notification requires a notification in writing to compliance@planning.nsw.gov.au identifying the project (application number and name) along with the location and nature of the incident.

In accordance with Appendix 8 of the Approval a more detailed written incident notification and report must be within 7 days of becoming aware of the incident and the initial immediate notification.

The following requirements will be included as part of the incident notification:

- Identify the project and application number.
- Provide details of the incident (date, time, location, a brief description of what occurred any why it is classified as incident).
- Identify how the incident was detected.
- Identify when the Applicant became aware of the incident.
- Identify any actual or potential non-compliance with conditions of approval.
- Describe what immediate steps were taken in relation to the incident.
- Identify further action(s) that will be taken in relation to the incident.
- Identify a project contact for further communication regarding the incident.

Finally, within 30 days of the date on which the incident occurred (or as otherwise agreed to by the Secretary), Boral will provide the Secretary and any relevant public authorities with a detailed report on the incident, which will include the following requirement:

- Summary of the incident.
- Outcomes of an incident investigation, including identification of the cause of the incident.

- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence.

- Details of any communication with other stakeholders regarding the incident. Boral maintains a safety and environmental incident reporting system. Any incidents that occur with reference to Aboriginal heritage will be entered into this system within 24 hours of occurrence. All logged incidents are dealt with internally and, if necessary, through a NSW regulatory authority. Following reporting, all incidents are investigated and appropriate management recommendations are implemented.

All logged incidents should be reported to the AMC.

9.3 REVIEW

9.3.1 REVIEW OF MANAGEMENT ACTIONS

Any non-compliances identified will be highlighted and an incident report completed. The Boral incident management process will be followed to ensure the noncompliance is understood and actions put in place to resolve the noncompliance.

9.3.2 REVIEW OF MANAGEMENT PLAN

Any revision of the AHMP will be reviewed by the AMC, with the final document being reviewed and approved by the Secretary of DPIE.

As per the CoA Schedule D, Condition 6, this plan will be reviewed

Within 3 months of the submission of an:

- Annual Review;
- incident report;
- audit report; and
- any modifications to this approval;
- notification of a change in project stage; and
- issue of direction of the Secretary which requires a review,

The plan will also be reviewed should a non-compliance occur.

9.4 RESPONSIBILITIES

The implementation of this AHMP will primarily be led by the site Environmental Advisor; however, the Quarry Manager will carry the ultimate responsibility for implementation. Table 9 details all relevant roles and responsibilities.

Table 9: AHMP roles and responsibilities

Person/Position	Company	Site Responsibilities
Quarry Manager	Boral	Responsible for providing adequate resources for the implementation of this AHMP and protective measures for areas identified for conservation.

		Submission of information to authorities including OEH
Environmental Advisor	Boral	Coordination of the preparation, implementation and reviews of this AHMP. Responsible for the ongoing protection of Aboriginal sites to be conserved within the approved project area. Responsible for Aboriginal cultural heritage inductions for all site workers. Review of information for submission to authorities
National Indigenous Manager	Boral	Establish and assist in maintaining good relationships with the AMC representatives Advising Boral staff on indigenous affairs and appropriate behaviours Mediate in the event of disputes
AMC (Aboriginal representatives)	Representatives from PLALC, BNAC and NHAC	Responsible for ongoing management and discussion of issues related to Aboriginal cultural heritage values and sites.
Archaeologist	Suitably qualified archaeologist	Providing advice to Boral and the AMC where legally required Preparation of information for submission to authorities including Heritage NSW. Analysis of artefacts Assisting in salvage works and methodology design Preparation of final site report

10 REFERENCES

EMM Consulting Pty Limited (EMM) 2013, *Peppertree Quarry Modification 3 Aboriginal heritage assessment,* prepared for Boral Resources (NSW) Pty Ltd.

- 2016, *Peppertree Quarry Modification 4 Aboriginal heritage assessment,* prepared for Boral Resources (NSW) Pty Ltd.

- 2018, *Aboriginal and historic heritage impact assessment, Peppertree Quarry Modification 5,* prepared for Boral Resources (NSW) Pty Ltd on 30 August 2018.

- *EMM 2019, Marulan South Limestone Mine Continued Operations Project, Aboriginal Cultural Heritage Assessment*, prepared for Boral Cement.

ERM Australia Pty Limited 2006, *Marulan South Quarry Aboriginal Heritage Assessment*, prepared for Boral Resources (NSW) Pty Ltd.

- 2006, *Marulan South Continuation of Operations: Aboriginal Cultural Heritage Assessment*, report for Blue Circle Southern Cement.

- *2012, Peppertree Quarry Archaeological Excavation Report*, prepared for Boral Resources (NSW) Pty Limited (draft only).

Umwelt 2005, *Environmental Impact Statement Proposed Lynwood Quarry Marulan*, report for Readymix Holdings Pty Ltd.

- 2007, Research Design and Methodology for Section 87 Subsurface testing and section 90 collection for the development impact area Lynwood Quarry Marulan, report prepared for Readymix Holdings Pty Ltd.

- 2008a, Stage 1 Report – Lynwood Quarry Project Area Marulan NSW Section 87 subsurface testing and Section 90 salvage under Aboriginal Heritage Impact Permits #1077225 and #1077294, report prepared for Readymix Holdings Pty Ltd.

- 2008b, Stage 2 Report – Lynwood Quarry Project Area Marulan NSW Section 87 subsurface testing and Section 90 salvage under Aboriginal Heritage Impact Permits #1077225 and #1077294, report prepared for Readymix Holdings Pty Ltd.

- 2009, Stage 2b report Lynwood Quarry project area Marulan NSW, results of subsurface testing of archaeological terrain units under s87/90 AHIP #1100264, report prepared for CMEX Australia.

11 APPENDICES

Appendix 1 OEH Correspondence

Appendix 2 Regulator and RAP consultation for relevant modifications

Appendix 3 2014 to 2016 topsoil monitoring quadrants

Appendix 4 Landscape analysis prepared by EMGA Mitchell McLennan

Appendix 5 Archaeological Excavation Recording Form

Appendix 6 Working topsoil monitoring map

Appendix 7 Aboriginal Heritage Clearance Sheet

Appendix 8 Aboriginal Heritage declaration

Appendix 9 Scar Tree Assessments for Modification No.4 and Modification No.5

Appendix 1

OEH Correspondence

NSW GOVERNMENT | Office of Environment & Heritage

Your reference : 06_0074
Our reference : DOC14/5179
Contact : Philip Boot
(02) 62297088

Ms Elle Donnelley
Planner
Mining & Industry Projects
Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Ms Donnelley

RE: Boral Peppertree Quarry Aboriginal Heritage Management Plan – Major Project 06_0074

I refer to your email and the copy of the Peppertree Quarry Aboriginal Heritage Management Plan (AHMP), dated October 2013, received by the Office of Environment and Heritage (OEH) on 17 January 2014. I apologise for the delay in replying.

OEH has reviewed the AHMP and provides the following comments for your consideration;

1. Under Section 2.1 – Heritage work undertaken to date of the AHMP (page 9 of 25); OEH notes that a range of archaeological investigations and activities have been undertaken at the Peppertree Quarry site since the submission of the Environmental Assessment in 2006. To date OEH has not received any reports on the progress and results of archaeological assessment related to the activities listed below:
    a) 2010 - Geotechnical works
    b) 2011/2012 – Pre development topsoil monitoring
    c) 2012 - Construction site topsoil monitoring
    d) 2012 – Tangarang Creek rehabilitation
    e) 2012-2013 - Modification 3 topsoil monitoring

    With the range of activities listed above, OEH is also concerned that there is no reference in the AHMP as to how the results of these activities have been recorded. OEH advises that reports on the results of salvage and monitoring activities conducted prior to and after the archaeological excavation program should be provided to OEH in order for Aboriginal site records to be updated in the Aboriginal Heritage Information Management System (AHIMS). Submission of the results of these activities, OEH Aboriginal Heritage Impact Record Forms, and any associated reports, is essential to maintain and improve the body of knowledge about site distribution patterns associated with Aboriginal use of the Marulan area and the surrounding landscape in pre-contact times.

2. OEH is concerned about the large amount of monitoring that appears to be occurring as part of the AHMP. Monitoring of areas during the construction/ earthworks stage is not generally appropriate (except in specific circumstances, such as the possibility of burials) and should never be used as an

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alternative to sub-surface testing. The issue of archaeological or potential archaeological sensitivity should have been resolved as part of the investigation stage, not during the development construction process. As such, OEH would like to be provided with information on the impacts that have occurred to Aboriginal objects during components of the project that were not previously considered in the Environmental Assessment (EA).

3. OEH is also concerned about the proposal to undertake further test excavation, after the EA has been submitted, within a number of proposed ancillary facilities (Table 7.59, page 371). OEH considers that all test excavation should be undertaken at the EA stage to ensure an adequate understanding of the Aboriginal heritage values prior to Project approval and to allow for appropriate management measures to be considered before the Project design is completed.

4. OEH Aboriginal Site Record cards have not been provided for sites MQ30, MQ31, MQ32, MQ33, MQ34 and MQ35. This notification is a requirement of Section 89A of the *National Parks and Wildlife Act 1974* (NPW ACT) (which is not turned off by Part 3A of the EP&A Act). The provision of Aboriginal site recording forms to the AHIMS Registrar allows OEH to adequately assess the cumulative development impacts to the archaeological heritage of the area.

5. There are discrepancies between Table 2.1 and the data held in AHIMS that should be noted and corrected. These are:

   MQ1 to MQ5, MQ8 to MQ18, MQ20 to MQ26 and MQ27 to MQ28 are listed as destroyed on AHIMS.

   MQ6, MQ7, MQ19 and MQ27 are the only undisturbed sites listed on AHIMS within the development area.

   Two additional sites that are shown on AHIMS to be within the AHMP boundary are not listed in Table 2.1. These are Peppertree Burial 01 (AHIMS # 52-4-0264) and Peppertree Scarred Tree 02 (AHIMS # 52-4-0265).

6. OEH is concerned about the statement in Section 3.3 that sites are considered to have been conserved beneath overburden emplacement for noise bunds. Recent archaeological investigation of this issue on Hume Highway duplication development sites has shown that placement of large piles of soil on top of open surface/sub-surface archaeological deposits actually causes severe irreversible harm to Aboriginal objects and is not a suitable conservation method.

7. Section 3.3 also contradicts the current AHIMS records and AISR forms for sites MQ9, 10, 12, 13, 14 and 17 as it indicates that they will be conserved when the ASIR forms state that the sites were subjected to salvage excavation undertaken in accordance with the Aboriginal Heritage Management Plan.

8. Given the large number of Aboriginal objects recovered during excavation and monitoring, OEH remains to be informed about the current and future management of those objects. What has happened to the excavated and salvaged objects and who currently holds them? If they are to be returned to the Aboriginal community then a Care Agreement between Aboriginal custodians, the development proponent and OEH is required under section 85A of the NPW Act.

9. OEH notes that under Section 5.2 and Figure 3 additional monitoring is proposed for site works that involve stripping of topsoil. As OEH has not been provided with a copy of the results of the previous archaeological monitoring activities it is not possible to provide advice as to whether further monitoring is warranted as proposed in Appendix E. Given that the aim of monitoring outlined in the AHMP is to further understand the distribution of artefacts in the landscape, OEH questions whether there has been an adequate consideration of cumulative impacts to Aboriginal cultural heritage values during development. Given the large number and high densities of artefacts recorded within the Peppertree Quarry area there is some potential that the Aboriginal heritage values of the area

are higher than previously recognised. A reassessment of the significance of Aboriginal objects within the Peppertree Quarry area should be undertaken by the proponent.

10. Section 5.2 contains no discussion of the roles of each individual involved in the archaeological monitoring. Who will be responsible for producing monitoring reports? OEH notes that the stated aim for monitoring is to understand the distribution of artefacts in the landscape and the materials used for artefact production. Who will undertake this analysis and who will be responsible for preparation and provision of AHIMS site record cards to OEH?

11. Section 5.3 includes a proposal to revegetate. Does proposed planting activity have any potential to impact recorded Aboriginal sites and archaeological deposits? Has the archaeological potential of the revegetation areas been assessed?

12. Section 6.2 discusses protocols for discovery of human skeletal remains at page 24. Confirmation and management of any Aboriginal burials must be undertaken with OEH and NSW Police. Boral must also consult with the OEH Heritage Branch if skeletal remains are suspected to be less than 100 years old and non Aboriginal.

13. At Section 7 responsibilities for undertaking analysis of artefacts and submitting information to OEH should be clarified and clearly delineated.

14. Are the copies of clearance forms at Appendix D compiled to assist with salvage reporting?

15. The AHMP does not include a references section or a list of all reports prepared to date.

16. OEH advises that Aboriginal Site Impact Recording (ASIR) Forms for each Aboriginal site that has been impacted must be submitted to ensure AHIMS data can be updated. Copies of the ASIR forms are available on the OEH website at:
http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf

OEH is happy to discuss or clarify the above comments with you or the proponent. Please contact Dr Philip Boot on (02) 6229 7088 or via email at philip.boot@environment.nsw.gov.au if you require any further information.

Yours sincerely

ALLISON TREWEEK
Senior Team Leader, Planning - South East
Regional Operations Group
OFFICE OF ENVIRONMENT AND HERITAGE

Appendix 2 Regulator and RAP consultation for relevant modifications

OEH Correspondence February 2017

NSW GOVERNMENT | Office of Environment & Heritage

MP 06_0074
DOC16/600426-1

Sharon Makin
Stakeholder and Environment Advisor - Marulan South
Boral Property Group
Peppertree Quarry
843 Marulan South Road
Marulan NSW 2579
via email: sharon.makin@boral.com.au

Dear Ms Makin

Aboriginal Heritage Management Plan (AHMP) for Peppertree Quarry (Marulan South)

I refer to your email to the Office of Environment and Heritage (OEH) requesting comments on the above management plan. We have reviewed the latest version of the AHMP, received on 19 January 2017, and provide the following comments for your consideration;

Section 1.3 Scope and objectives of this AHMP
We note the commitment of Boral to undertake ongoing Aboriginal heritage assessment, Aboriginal consultation and management measures in line with the conditions of the Major Project Approval.

Section 3.5.1 Heritage work undertaken to date
We note that the section under 2014-2016 – pit footprint topsoil monitoring (as per AHMP) remains to be completed in this version of the AHMP.

A number of the Aboriginal sites listed in Table 4: Aboriginal sites identified do not have artefact numbers completed in the contents column. These are: MQ18, MQ52, MQ62, MQ69, MQ70, MQ71, MQ74, MQ97, MQ101, MQ115, MQ119 and MQ123. Except for MQ18, we recommend the contents of these sites be clarified given that the status for each of them states they are now in onsite storage.

We note that, since the October 2013 AHMP, there has been a large increase in the number of Aboriginal sites now recorded for the project. In 2013, 35 sites were listed in Table 2.1: Aboriginal sites identified. In this current AHMP, there are at least an additional 96 sites listed. The sites MQ91 and MQ92 are significantly dense in size at 30344 and 13358 artefacts retrieved at each site respectively. Due to the large number and high densities of artefacts being recorded, OEH continue to question whether there has been an adequate consideration of cumulative impacts to Aboriginal cultural heritage values as part of this development. We recommend that a reassessment of the significance of Aboriginal objects within the Peppertree Quarry area be undertaken by the proponent as part of the AHMP review.

Section 4.4 Aboriginal sites to be conserved
Site MQ22b should be discussed as a site to be conserved as identified in Table 4.

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Section 9.2.2 AHMIS (sic)
The acronym for the Aboriginal Heritage Information Management System is misspelt and should be AHIMS.

OEH support discussion regarding the consultant advice to submit only one AHIMS card for the Peppertree site as a whole. We would be concerned as to whether recording the entire development area as one site adequately represents the spatial and contextual background of the archaeological values.

We are happy to discuss or clarify the above comments with you. Please contact Jackie Taylor on (02) 6229 7089 or via email at rog.southeast@environment.nsw.gov.au if you require any further information.

Yours sincerely

ALLISON TREWEEK 3/2/17.
Senior Team Leader, Planning - South East
Regional Operations Division

Ryan Desic
Associate Archaeologist – Heritage Team Leader
EMM Consulting Pty Ltd
email: rdesic@emmconsulting.com.au

Your reference: MP06_0074
Our reference: DOC21/1026205

Dear Mr Desic

Updated Peppertree Quarry Aboriginal Heritage Management Plan

Thank you for providing Heritage NSW with the opportunity to comment on the revised Aboriginal Heritage Management Plan (AHMP) for the Peppertree Quarry on 15 November 2021.

We note Condition B50 of the consolidated project approval (representing the September 2021 Modification) requires consultation with the Biodiversity, Conservation and Science Directorate (BCS) within the Department of Planning, Industry and Environment. As the regulation of Aboriginal cultural heritage matters transferred to Heritage NSW, within the Department or Premier and Cabinet, on 1 July 2020 we consider any reference to BCS in relation to Aboriginal cultural heritage is a reference to Heritage NSW.

Heritage NSW has reviewed the AHMP (marked version 7.0 and dated October 2021) and provides detailed comments in **Attachment A** in relation to Aboriginal cultural heritage matters only. We note the AHMP, at this stage, only incorporates revisions as a result of Modification 5 and 6 approvals. We recommend any relevant changes from the recently approved Modification 7 also be incorporated into the AHMP.

We continue to support Boral's ongoing commitment to continuing consultation with the Aboriginal community and to managing Aboriginal cultural heritage values in accordance with the approved Aboriginal Heritage Management Plan (AHMP).

Heritage NSW is available to discuss our comments and AHMP process further if required. If you have any questions regarding the above advice please contact me on (02) 6229 7089 or email jackie.taylor@environment.nsw.gov.au.

Yours sincerely

Jackie Taylor
Senior Team Leader
Aboriginal Cultural Heritage Regulation - South
Heritage NSW
16 December 2021

Attachment A: Detailed Heritage NSW comments on Updated Peppertree Quarry Aboriginal Heritage Management Plan – Version 7.0, dated October 2021

AHMP section	Issue/Comment	Recommended Action
Section 2.1, page 12 of 79	This section provides an outline of the various modifications up to Mod 6.	Recommend this section be updated to include the recently approved Mod 7.
Section 2.1, Table 3, page 13 of 79	We note various sections of Table 3 refers to consultation with BCD.	Recommend this section be updated to include the recently approved Mod 7, noting that the updated consolidated consent incorrectly refers to now consulting with BCS instead of Heritage NSW.
Section 2.4, page 18 of 79	This section provides an overview of modifications 5 and 6.	Recommend this section be updated to include the recently approved Mod 7.
Section 3.5.1, 3rd para, page 25 of 79	This paragraph refers to Boral committing to preparing an AHIMS site card for Tree 2.	Confirm whether this site card has been submitted and recommend including the relevant AHIMS number in this section.
Section 4.8, page 38 of 79	This section outlines the ongoing management measure of monitoring topsoil stripping.	Based on the amount of monitoring that has occurred on site previously, we recommend consideration be given to whether there any changes in the methodology that need to be considered as part of the AHMP that could assist in answering any additional research questions?
Section 5.2, page 48 of 79	This section summarises the upcoming management measures proposed for MSL 017, MSL 018, MSL 019, MSL 055 and MSL 056.	Based on the amount of salvage that has occurred on site previously, we recommend consideration be given to whether there are any changes in salvage methodology that need to be considered as part of this AHMP that could assist in answering any research questions? Given the length of time this project has been going, we recommend an interim report be prepared and submitted to AHIMS on the results of the salvage excavations to date. This will ensure valuable information from the salvage excavations is available sooner, rather than waiting for the

		finalised broader quarry Aboriginal heritage report.
Section 6.2, page 53 of 79	This section still references BCD as the contact for human skeletal remains.	Recommend references to BCD in this section be changed to Heritage NSW. Notification of human remains should be made to the NSW Environment Line on 131 555 as well as NSW Police.
Section 9.1, page 55 of 79	This section references BCD.	Update BCD to Heritage NSW.
Section 9.2, page 55 of 79	Section 9.2.1 outlines that a report will be prepared on the completion of all salvage works.	Given the length of time this project has been going, we recommend an interim report be prepared and submitted to AHIMS on the results of the salvage excavations. This will ensure information from the salvage excavations is available sooner than waiting for the finalised broader quarry Aboriginal heritage report.
Section 9.4, Table 9, page 58 of 79	This Table refers to OEH.	Update OEH to Heritage NSW.
Appendix 1, page 62 of 79	The last page of the OEH letter is missing.	Include all 3 pages of the OEH letter.
Appendix 2, page 64 of 79	We note the previous comments by the then Office of Environment and Heritage (OEH) recommending a reassessment of the significance of the Aboriginal objects within the Peppertree Quarry area.	We request clarification as to whether this reassessment has occurred.
Appendix 9, page 78 of 79	We note the assessment, consultation and recommendations for the culturally modified trees.	We strongly support the ongoing consultation with the AMC and RAPs during these recommended management measures and recommend this consultation continues to occur through the life of the project.

Level 3, 175 Scott Street
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17 December 2021

Sharon Makin
Environment Business Partner NSW/ACT
Boral Property Group

Re: Peppertree Quarry Aboriginal Heritage Management Plan Update December 2021. Response to Heritage NSW submission.

The following table provides responses to Heritage NSW's comments on the Aboriginal Heritage Management Plan (AHMP) for Peppertree Quarry Aboriginal Heritage Management Plan (AHMP) (Project Approval 06_0074). Heritage NSW's comments were provided on 16 December 2021.

Reponses provided in the table below are also reflected in the updated draft AHMP version for the Department of Planning, Industry and Environment's (DPIE's) consideration.

Yours sincerely,

Ryan Desic
Associate Archaeologist - Heritage Team Leader
rdesic@emmconsulting.com.au

Level 3, 175 Scott Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au
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AHMP section	Issue/ Comment	Action required	Response
Section 2.1, page 12 of 79	This section provides an outline of the various modifications up to Mod 6.	Recommend this section be updated to include the recently approved Mod 7.	This section has been updated to include Modification 7.
Section 2.1, Table 3, page 13 of 79	We note various sections of Table 3 refers to consultation with BCD.	Recommend this section be updated to include the recently approved Mod 7, noting that the updated consolidated consent incorrectly refers to now consulting with BCS instead of Heritage NSW.	The heading of Table 3 includes the statement: "note BCS is incorrect and should be titled 'Heritage NSW'". The Conditions of Approval are kept the same in the table to reflect the direct transcription from the approval document.
Section 2.4, page 18 of 79	This section provides an overview of modifications 5 and 6.	Recommend this section be updated to include the recently approved Mod 7.	This section has been updated to include Modification 7.
Section 3.5.1, 3rd para, page 25 of 79	This paragraph refers to Boral committing to preparing an AHIMS site card for Tree 2.	Confirm whether this site card has been submitted and recommend including the relevant AHIMS number in this section.	A site card is yet to be prepared and submitted for this site. Boral will aim to prepare and submit a site card for this site within the first quarter of 2022.

AHMP section	Issue/ Comment	Action required	Response
Section 4.8, page 38 of 79	This section outlines the ongoing management measure of monitoring topsoil stripping.	Based on the amount of monitoring that has occurred on site previously, we recommend consideration be given to whether there any changes in the methodology that need to be considered as part of the AHMP that could assist in answering any additional research questions?	The management measure of monitoring and topsoil stripping is primarily an Aboriginal community driven process. Although previous monitoring has led to the identification and salvage of Aboriginal objects, it is largely unsuitable as a controlled archaeological method and therefore limited in addressing research questions. The provision for potential future monitoring has been retained in the AHMP in consultation with the AMC. Notwithstanding the above, the monitoring process previously employed will be documented as part of the overall Peppertree Quarry salvage excavation report. This will include commentary and evaluation on the effectiveness and limitations of monitoring and topsoil stripping as an archaeological salvage method. With this considered, any future monitoring will retain the same method as previous used for comparative reasons.
Section 5.2, page 48 of 79	This section summarises the upcoming management measures proposed for MSL 017, MSL 018, MSL 019, MSL 055 and MSL 056.	Based on the amount of salvage that has occurred on site previously, we recommend consideration be given to whether there are any changes in salvage methodology that need to be considered as part of this AHMP that could assist in answering any research questions? Given the length of time this project has been going, we recommend an interim report be prepared and submitted to AHIMS on the results of the salvage excavations to date. This will ensure valuable information from the salvage excavations is available sooner, rather than waiting for the	**Response to first paragraph of comment:** We agree that there has been a large amount of salvage undertaken previously at the quarry, which is not necessary to be repeated in scope to answer key research objectives and satisfy AMC requests. The primary objectives of salvage excavation in this area are to: • retrieve a sample of artefacts from the local area with a southerly aspect towards Bungonia (Main Gully) for comparisons with the extensive assemblages retrieved from the landscape to the north facing Tangarang and Marulan creeks. • Obtain dates through OSL techniques with the aim to build a chronology for the area. This was not explored in previous methods but advances in technology have made this a more feasible option in recent years. • Limit disturbance from archaeological investigations/salvage as the area will be covered by overburden, and the AMC consider this a lesser impact from a cultural perspective than open cut quarrying that has occurred to the north. Considering the above, Boral has proposed an approximate two-week (10 day) salvage excavation stint in consultation and agreement with the AMC

AHMP section	Issue/ Comment	Action required	Response
			and EMM – noting that there is still contingency for salvage excavation to continue in special circumstances. As such the salvage methodology provided in Section 5.2 (paragraph six under heading of 'Salvage Excavation') has been modified to provide the following parameters for salvage excavation: "Open area excavation will cease once a significant drop off in artefact frequencies is encountered in an expanded area (possibly indicating the boundary of specific activity areas), if an area of approximately 100 m^2 is reached, or if a representative sample of artefacts are gathered that are adequate for comparison with the assemblage gathered from previous excavation salvage excavation at Peppertree Quarry (decision to be made by Excavation Director in consultation with RAPs and Boral). Open area excavation can continue in special cases, particularly if high densities continue within the Project impact areas or certain features require further investigation." The intent of this change has been made with consideration to Heritage NSW's comment, and the acknowledgement of being held to salvage excavation quotas based on square meterage alone is not commensurate with the objectives of the salvage excavation, given that ~90,000 stone artefacts have already been retrieved from Peppertree Quarry and are currently undergoing analysis. **Response to second paragraph of comment:** Boral will prepare an interim salvage excavation report for excavations at MSL 055 and an interim salvage excavation report for the broader salvage excavations and surface collection completed at Peppertree Quarry. The findings of these interim reports will be expanded on in the 'Aboriginal heritage report' specified in Section 9.2.1. Section 9.2.1 has been updated to reflect these commitments.
Section 6.2, page 53 of 79	This section still references BCD as the contact for human skeletal remains.	Recommend references to BCD in this section be changed to Heritage NSW. Notification of human remains should be made to the NSW Environment Line on 131 555 as well as NSW Police.	Section 6.2 has been updated to reflect these comments and requested changes.

AHMP section	Issue/ Comment	Action required	Response
Section 9.2, page 55 of 79	Section 9.2.1 outlines that a report will be prepared on the completion of all salvage works.	Given the length of time this project has been going, we recommend an interim report be prepared and submitted to AHIMS on the results of the salvage excavations. This will ensure information from the salvage excavations is available sooner than waiting for the finalised broader quarry Aboriginal heritage report.	This comment has been addressed in response to Heritage NSW's previous comment about Section 5.2. Boral will prepare an interim salvage excavation report for excavations at MSL 055 and an interim salvage excavation report for the broader salvage excavations and surface collection completed at Peppertree Quarry. The findings of these interim reports will be expanded on in the 'Aboriginal heritage report' specified in Section 9.2.1. Section 9.2.1 has been updated to reflect these commitments.
Section 9.4, Table 9, page 58 of 79	This Table refers to OEH.	Update OEH to Heritage NSW.	This comment has been addressed in the relevant section.
Appendix 1, page 62 of 79	The last page of the OEH letter is missing.	Include all 3 pages of the OEH letter.	This has been provided in the final update.
Appendix 2, page 64 of 79	We note the previous comments by the then Office of Environment and Heritage (OEH) recommending a reassessment of the significance of the Aboriginal objects within the Peppertree Quarry area.	We request clarification as to whether this reassessment has occurred.	This assessment has not yet occurred. Boral is commitment to provide an assessment of significance as part of the Aboriginal heritage report described under Section 9.2.1. This will be appropriate timing for the assessment as it will include the results of the extensive salvage and analysis completed for the quarry.
Appendix 9, page 78 of 79	We note the assessment, consultation and recommendations for the culturally modified trees.	We strongly support the ongoing consultation with the AMC and RAPs during these recommended management measures and recommend this consultation continues to occur through the life of the project.	Boral has had regular and ongoing consultation with the AMC over the management of culturally modified trees. The AMC will be consulted through the life of the project with respect to Aboriginal cultural heritage matters.

Stakeholder correspondence for Modification 5

Ryan Desic

From: Ryan Desic
Sent: Friday, 13 August 2021 1:41 PM
To: baduchts@gmail.com; walbell@bigpond.net.au; corroboreecorp@bigpond.com; duncanfalk@hotmail.com; GulgunyaNHAC@hotmail.com; ghal6522 @bigpond.net.au; dghoskinsmckenzie@gmail.com; tina.kingbrown@gmail.com; KoomurriNAC@hotmail.com; cshaun@y7mail.com; kanga26@live.com.au; murrabidgeemullangari@yahoo.com.au; ngunawalhac@gmail.com; Nundagurri@gmail.com; pejar1@bigpond.com; thunderstoneegm@gmail.com; Walbunja@gmail.com; wullunglb@gmail.com; yerramurra@gmail.com
Cc: Sharon Makin
Subject: Peppertree Quarry Modification 5: notice of updated management plan for Aboriginal heritage within the Marulan South Limestone Mine Continued Operations Project boundary

Dear Registered Party,

Introduction

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Marulan South Limestone Mine Continued Operations Project (MSL project) at Marulan South NSW. This letter is to advise that EMM Consulting Pty Limited (EMM) has been engaged on behalf of Boral Resources (NSW) Pty Ltd to update the Aboriginal heritage management plan (AHMP) for the nearby Peppertree Quarry project which has had Modification 5 approved by the Department of Planning Industry and Environment (DPIE).

We have provided a link to two files for your review and comment. The aims of the letter and draft AHMP are to:

- explain how the updates to the Peppertree Quarry AHMP interacts with the MSL project;
- outline how cultural heritage management will be undertaken for an area which is shared by both projects (the Modification 5 area); and
- invite your comments on the cultural management measures proposed for Modification 5 area where it is shared by the MSL project and Peppertree quarry. A draft of the Peppertree Quarry AHMP is provided with this letter.

Notes for your review and comment on the draft AHMP

If you have specific comments for the draft document, please identify the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter. You will note that there are greyed out sections of the document that will be updated based on further consultation and amended for the final report.

When to respond by

If you wish to comment on the draft ACHA, please provide your consolidated comments within three weeks days (ie by **3 September 2021)**. If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Downloading the documents

The document is available to download using the following link:

https://spaces.hightail.com/receive/YoAHffSn28

Regards,

Ryan Desic
Associate Archaeologist – Heritage Team Leader
Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)

EMM
creating opportunities

T 02 9493 9500
M 0411 329 712
D 02 9493 9541
Connect with us

NEWCASTLE | Level 3, 175 Scott Street, Newcastle NSW 2300

Ryan Desic

From: Ryan Desic
Sent: Monday, 23 August 2021 2:57 PM
To: Jackie Taylor
Subject: RE: Peppertree Quarry Modification 5: notice of updated management plan for Aboriginal heritage within the Marulan South Limestone Mine Continued Operations Project boundary

Hi Jackie,

Thanks for the heads up. I have sent the files so please let me know if there are any issues with you receiving them.

Regards,

Ryan Desic MAACAI
Associate Archaeologist – Heritage Team Leader
Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)

creating opportunities

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M 0411 329 712
D 02 9493 9541
Connect with us

NEWCASTLE | Level 3, 175 Scott Street, Newcastle NSW 2300

From: Jackie Taylor <Jackie.Taylor@environment.nsw.gov.au>
Sent: Monday, 23 August 2021 2:27 PM
To: Ryan Desic <rdesic@emmconsulting.com.au>
Subject: RE: Peppertree Quarry Modification 5: notice of updated management plan for Aboriginal heritage within the Marulan South Limestone Mine Continued Operations Project boundary

Hi Ryan,

Thanks for your time earlier. Just confirming, I can't open this link due to network restrictions. If you could send it again via wetransfer that would be great.

Cheers,
Jackie

Jackie Taylor | **Senior Team Leader, Aboriginal Cultural Heritage Regulation - South**
Heritage NSW, Department of Premier and Cabinet
Level 3, 11 Farrer Place, Queanbeyan NSW 2620
T: 02 6229 7089 | M: 0408 201 239 | Jackie.taylor@environment.nsw.gov.au
Website Facebook Instagram LinkedIn

I acknowledge and respect the traditional custodians and ancestors of the lands I work across.

The Heritage Management System is live from 31 May. More information is available here

Heritage NSW and coronavirus (COVID-19)
Heritage NSW has taken steps to protect the safety, health and wellbeing of our staff, communities and customers. Whilst our offices remain open, we have put in place flexible working arrangements for our teams across NSW and continue to adapt our working arrangements as necessary. Face-to-face meetings and field work/site visits with our customers are subject to rules on gatherings and social distancing measures. We thank you for your patience and understanding at this time.

From: Ryan Desic <rdesic@emmconsulting.com.au>
Sent: Friday, 13 August 2021 2:16 PM
To: Jackie Taylor <Jackie.Taylor@environment.nsw.gov.au>
Cc: Sharon Makin <Sharon.Makin@boral.com.au>
Subject: Peppertree Quarry Modification 5: notice of updated management plan for Aboriginal heritage within the Marulan South Limestone Mine Continued Operations Project boundary

Hi Jackie,

We have sent an updated draft of the Peppertree Quarry AHMP to RAPs for the Marulan South Limestone Mine along with the existing AMC for Peppertree Quarry. This is consistent with discussions about consultation approach during the Modification 5 assessment. The updated AHMP also has information about additional assessment of trees with scars in the Modification 5 footprint that were identified by AMC members after the MOD 5 ACHA had been completed. If you recall our previous conversations, our additional investigation concludes that the trees are unlikely to be Aboriginal scar trees. Regardless, the AMC would like to see the trees removed and relocated for display as a management measure. Boral have agreed to this approach and we have set out procedures to manage this approach.

The details of all this and other management for MOD 5 is provided in the draft document at the link below. We have offered RAPs 3 weeks for review and have considered presenting this to Heritage NSW concurrently to avoid any delays in the review and comment period. As always I am happy to talk through any items over the phone or happy to line up a meeting if we need more rigorous discussion with Boral.

https://spaces.hightail.com/receive/Mz4gsUM7Vf

Thank you for your time.

Regards,

Ryan Desic
Associate Archaeologist – Heritage Team Leader
Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)

T 02 9493 9500
M 0411 329 712
D 02 9493 9541

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Appendix 3

2014 to 2016 topsoil monitoring quadrants

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

0 100 200 m

GDA 1994 MGA Zone 56

N

\\Emmsvr1\emm3\2020\J200321 - Peppertree Quarry MOD 5 Salvage\GIS\02_Maps\G001_ArchaeologicalSalvageResultsOverview_20210728_01.mxd 28/07/2021

KEY

- 8 Number of artefacts collected from grader scrapes within MQ boundary
- Excavation squares (1 x 1
- Map extent
- MQ boundary 50m x 50m
- Major
- Minor
- Vehicular track
- Named

INSET KEY

- Major
- NPWS
- State forest

DRAFT

Archaeological salvage results – overview

Peppertree Quarry
Aboriginal Heritage Management Plan
Figure 4

EMM
creating opportunities

KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

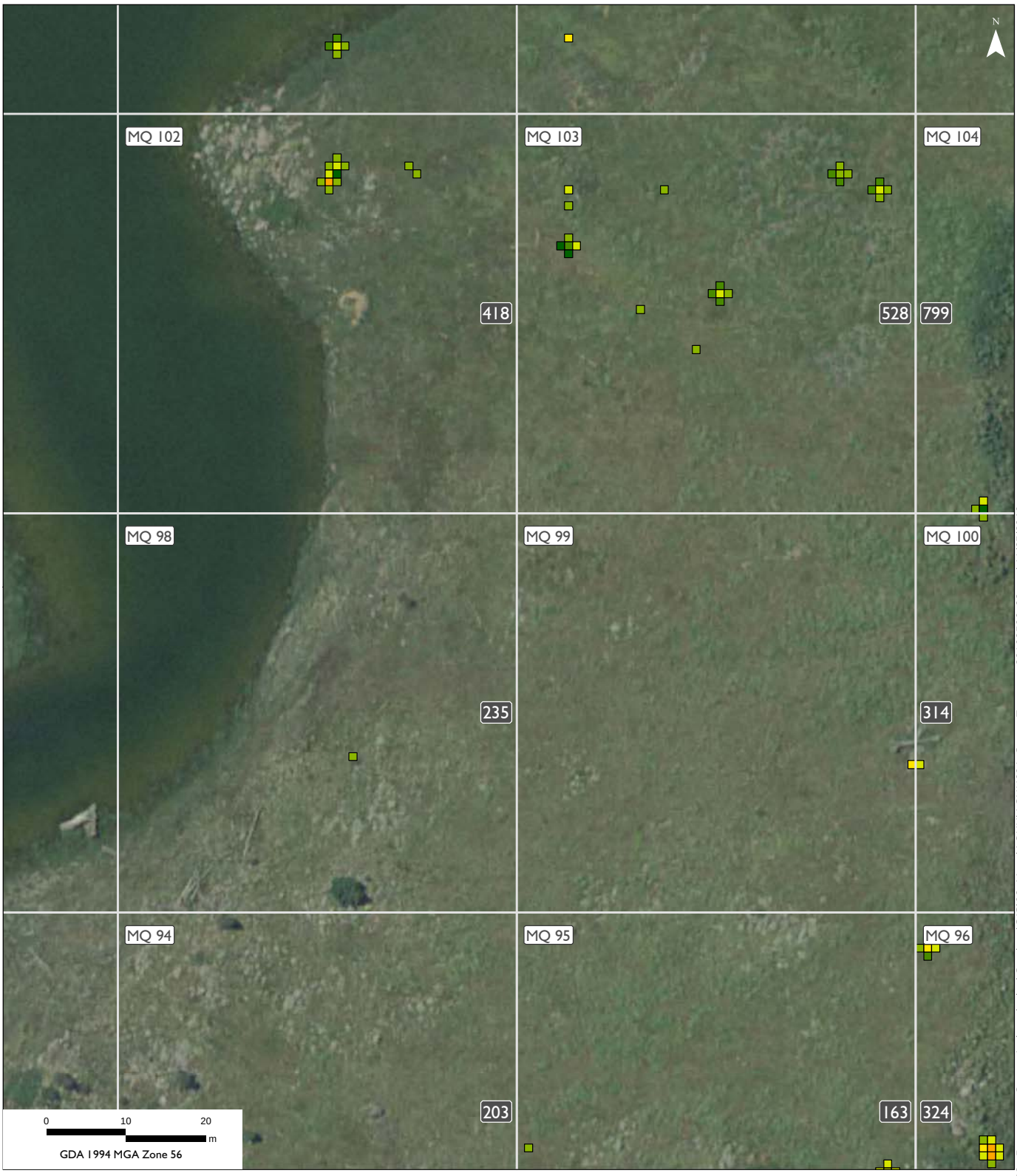
MQ boundary 50m x 50m

\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 1

Peppertree Quarry Aboriginal Heritage Management Plan

Figure 5



KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

MQ boundary 50m x 50m

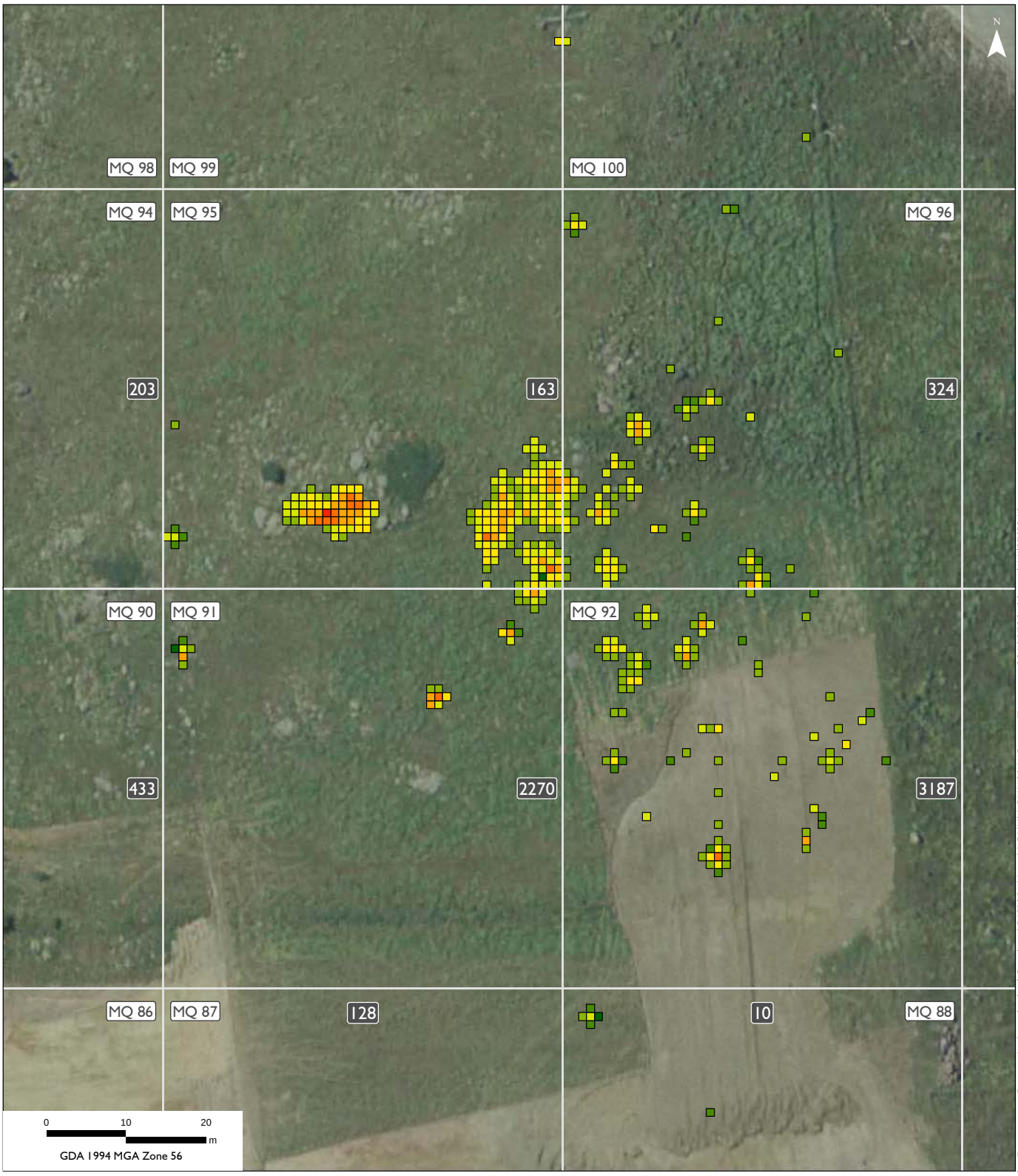
\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 2

Peppertree Quarry Aboriginal Heritage Management Plan

EMM

Figure 6



KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

MQ boundary 50m x 50m

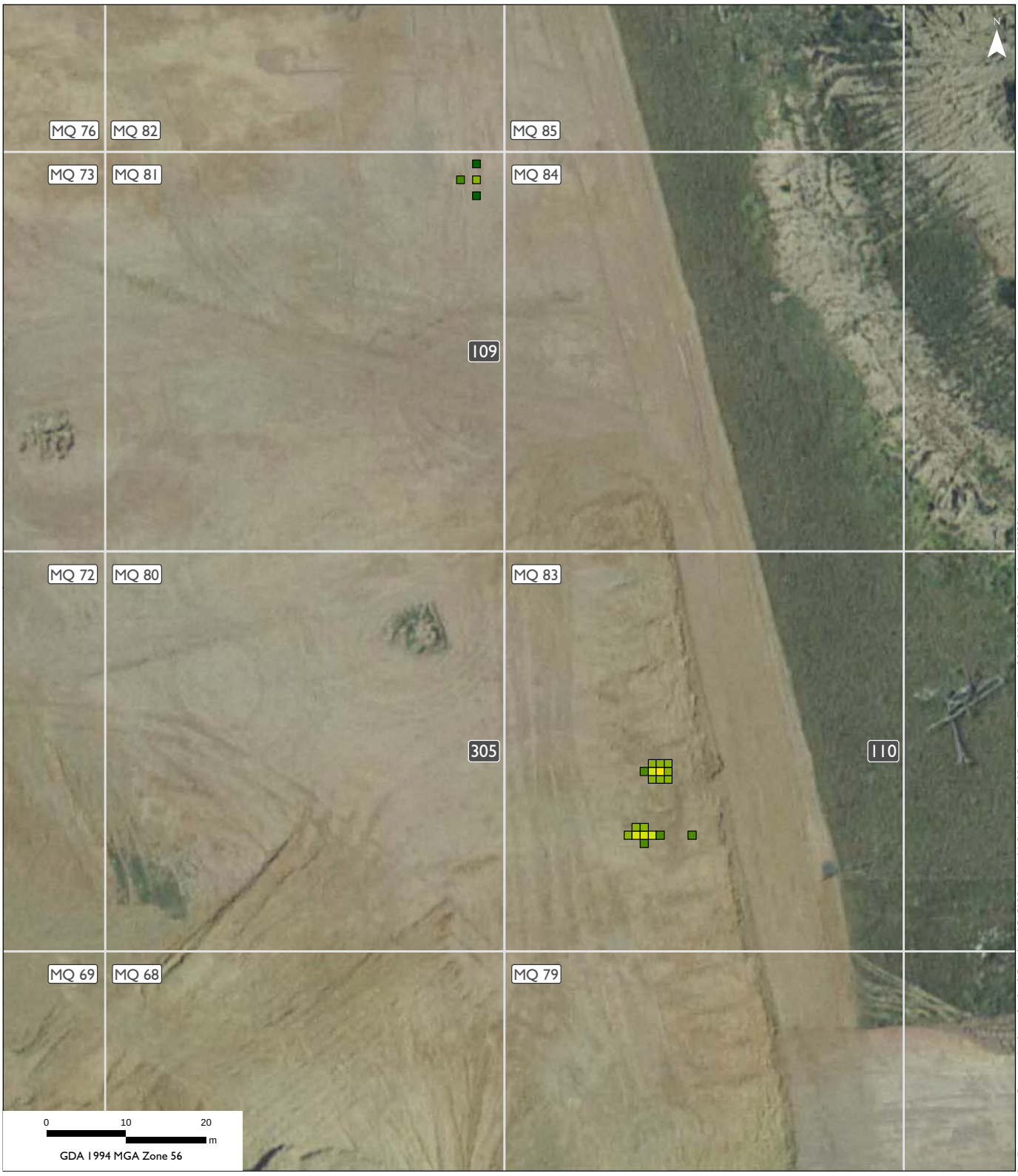
\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 3

Peppertree Quarry Aboriginal Heritage Management Plan

EMM

Figure 7



KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

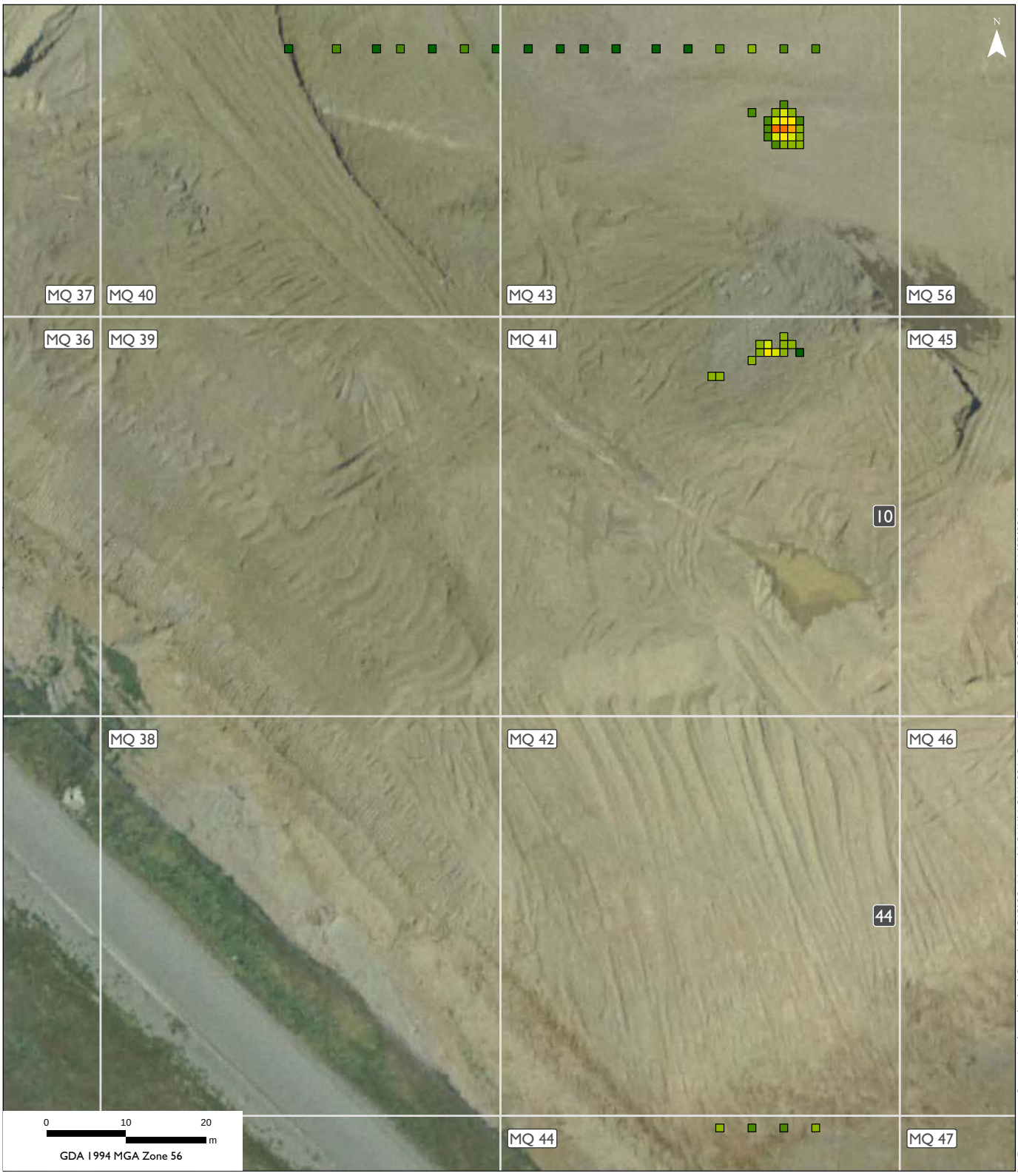
MQ boundary 50m x 50m

\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 4

Peppertree Quarry Aboriginal Heritage Management Plan

Figure 8



KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

MQ boundary 50m x 50m

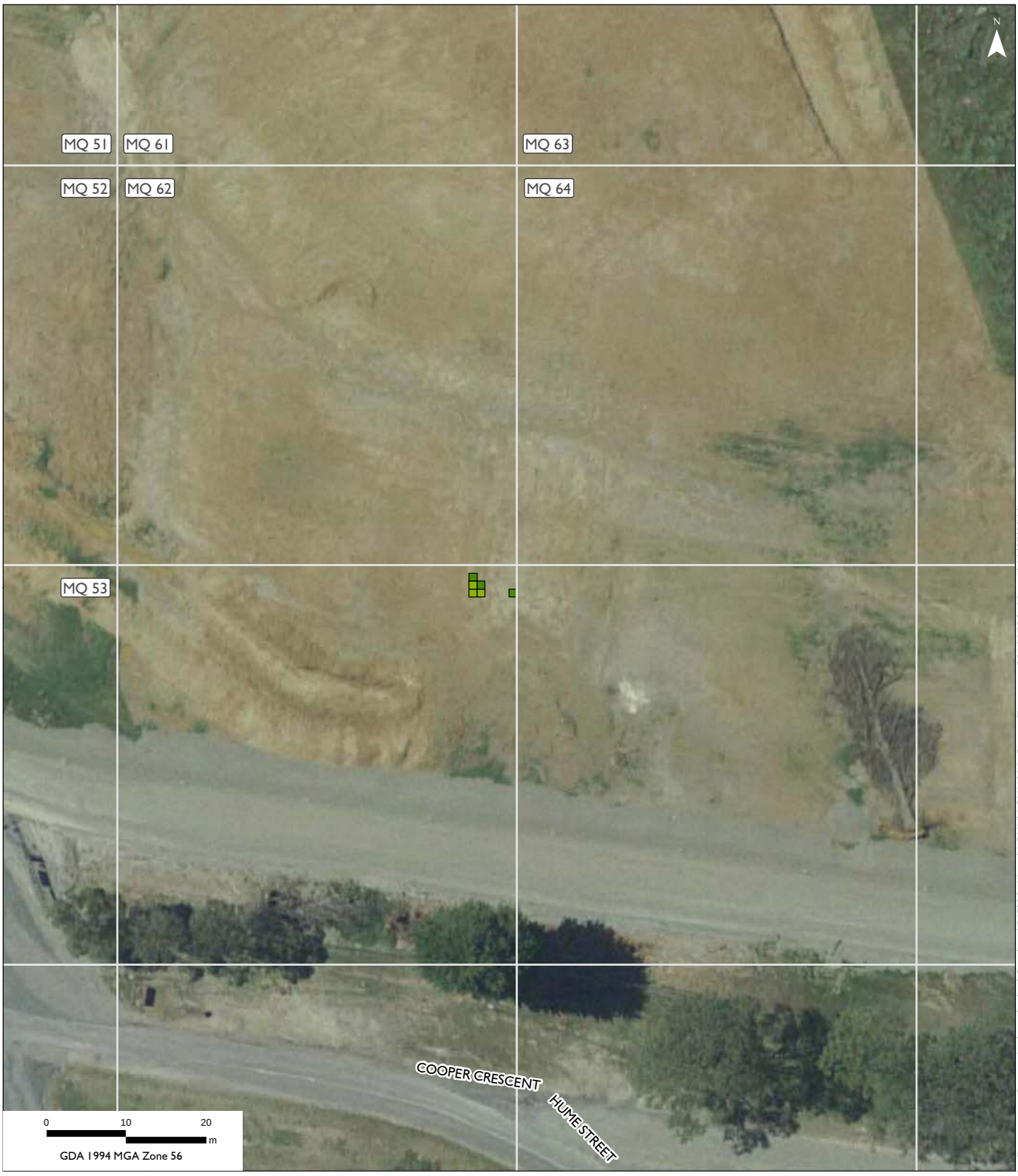
\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 5

Peppertree Quarry Aboriginal Heritage Management Plan

EMM

Figure 9



KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

MQ boundary 50m x 50m

\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160506_03.mxd 11/05/2016

Archaeological salvage results - map extent 6

Peppertree Quarry Aboriginal Heritage Management Plan

EMM

Figure 10

KEY

Artefacts per 1m x 1m square

- 0
- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 500
- 501 - 1000
- 1722

8 Number of artefacts collected from grader scrapes within MQ boundary

MQ8 MQ grid number

MQ boundary 50m x 50m

\\emgammsvr1\emgamm\Jobs\2015\J15046 - Peppertree Quarry Archaeological Services\GIS\02_Maps\ACHH\ACHH001_SurveyTransect_20160525_04.mxd 25/05/2016

Archaeological salvage results - map extent 7

Peppertree Quarry Aboriginal Heritage Management Plan

Figure 11

Appendix 4

Landscape analysis prepared by EMM Consulting

EMM
EMGA Mitchell McLennan

Ground Floor, Suite 01, 20 Chandos Street

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19 November 2012

Rod Wallace
Project Manager - NSW/ACT Planning & Development
Boral Property Group
Greystanes House, Level 4 South
Lot 107, Clunies Ross Street,

Prospect NSW 2148

Re: Aboriginal Heritage Management Plan - Topsoil Stripping Method

Dear Rod,

In response to your brief of 21 September 2012 please find enclosed the revised methodology for the monitoring of topsoil stripping at the Peppertree Quarry.

This method provides a clear and scientific basis for monitoring works at the Quarry. The aim of monitoring is to understand the distribution of artefacts in the landscape and the materials used for artefact production. These results will be able to be compared with previous excavations completed at the quarry and add to the knowledge of Aboriginal heritage in the area. The method includes a detailed, archaeological sound basis for monitoring based on areas of archaeological potential within the landscape.

To ensure that this method can be easily implemented a monitoring form has also been devised. It will be completed during monitoring. When compiled the monitoring forms will provide detailed information on the monitoring completed and the artefacts uncovered.

If you have any further questions regarding the method please do not hesitate to contact myself or Neville Baker.

Yours sincerely

Rebecca Moore
Archaeologist
rmoore@emgamm.com

1.1 Topsoil stripping

Further topsoil stripping of the 30 year quarry footprint will need to occur at various stages throughout the life of the quarry. The monitoring of topsoil during these campaigns will be performed either by members of the AMC or the AHA.

If the proposed AHA role is not created on the position is vacant, then the AMC will be given 2 weeks notice to attend topsoil stripping campaigns for the purpose of topsoil monitoring. In the event that a topsoil stripping campaign is not planned, and due to operational urgency, 2 weeks notice cannot be given, Boral will use best endeavours to arrange the soonest possible time for the AMC to attend. Boral will allow one month from the start of monitoring before stripping commences.

The aim of the monitoring of topsoil stripping is to further understand the distribution of artefacts in the landscape and the materials used for artefact production.

Eight Aboriginal sites were identified within the quarry footprint. Currently four sites (MQ 20, MQ 21, MQ 31 and MQ 2) have been salvaged through extensive topsoil monitoring (see Sections 2 and 3). The remaining four sites (MQ 1, MQ3, MQ 4 and MQ 5) were identified as requiring surface collection which will be completed prior to topsoil stripping.

1.1.1 Areas to be subject to monitoring

The focus for the monitoring of topsoil stripping will be those areas within the quarry footprint with potential to contain archaeological deposit and thus assist in satisfying the aim stated above, including:

- areas within 100 m of second order or lower streams; and
- a 50 m^2 zone around previously identified sites (with the identified site being the centre of the 50 m^2 zone).

The above list represents the areas with the greatest potential to contain archaeological deposit based on an analysis of the landscape of the quarry footprint and a review of previous archaeological surveys in the Project area and the wider region.

The landscape analysis considered landforms such as hills, ridges, slopes and waterways. The quarry footprint is located on a predominately flat area, with some simple slopes and no defined hills or ridges. ERM (2009:36) classified this landscape type as of low archaeological potential, based on archaeological modelling and the results of the site survey which located few sites within the flat landforms of the quarry footprint. Thus the majority of the quarry footprint does not require topsoil monitoring as artefacts are not predicted to occur.

Landscape areas which will require monitoring are those within 100 m of second order or lower streams. The majority of sites within the quarry footprint were identified within 100 m of a second order stream. The definition of stream order is based on the Strahler system with the stream number increasing based on the size and strength of the stream. Second or first order streams are characterised by intermittent flow, semi-permanent pools and may not contain a permanent flow of water. Three second order streams are present in the quarry footprint, one which has been previously monitored during topsoil stripping (NSW Land and Property Management Authority 2012). No higher order streams are present in the quarry footprint (NSW Land and Property Management Authority 2012). In archaeological terms second order streams and lower are used intermittently. Artefacts while present, are likely to be in lower concentrations, reflecting the infrequent habitation of the area. Monitoring of the topsoil stripping in these areas is warranted.

Previous archaeological surveys for the Project area and the wider region have confirmed the landscape analysis above; artefacts in the region are predominantly located with 100 m of water (ERM 2009:21; Umwelt 2005; Navin 1990; Koettig 1983; Lance and Koettig 1986). Previous archaeological survey identified eight sites within the quarry area and all were located within 100 m of a water source (ERM 2009). Based on this information, areas within 100 m of second order streams or 50 m^2 areas around previously identified sites are most likely to contain archaeological deposit which will be able to contribute to the overall aim of topsoil monitoring.

ERM (2009:15) also found that as distance from environmental foci such as reliable water, hill slopes and ridge tops increases artefacts are less likely to be present. High levels of disturbance were also noted within the quarry footprint which would have revealed artefacts if they were present in areas other than the sites identified. No topsoil stripping monitoring is warranted for areas over 100 m from water or which are not within 50 $m^2$of an identified site. Stop work procedures for the discovery of new Aboriginal sites of significance will remain in place.

1.1.2 Method

To ensure that monitoring of the topsoil stripping in these areas is conducted in safe and scientifically rigorous manner the following steps will be followed during topsoil monitoring.

- The remaining area to be monitored will be divided into grid of 50 m^2 squares. Coordinates for each square will be recorded from the centre of the square and each square will be given a number. Monitoring of each square will be recorded on a Peppertree Quarry Cultural Heritage Topsoil Monitoring Form.
- Before monitoring commences the monitor will be provided with a copy of the Peppertree Quarry Cultural Heritage Topsoil Monitoring Form, which will be filled out during monitoring (See Appendix 5).
- The grader will strip the grid square to be monitored.
- When the grader has completed the grid square the monitor will search the grid square for Aboriginal material.
- Any Aboriginal material found will be placed in a sturdy plastic bag, labelled with the following information:
    - Topsoil Monitoring;
    - the date eg 16/10/12;
    - the grid square number eg 1; and
    - the bag number eg Bag 1 of 2.

Aboriginal material recovered from the same grid square will be placed in the same bag.

- The grid square which has been monitored will be marked on the map attached to the Peppertree Quarry Cultural Heritage Topsoil Monitoring Form.

Monitoring forms will be collated and copies of the monitoring forms will be given to the following for sign off:

- the Boral environment manager;

Appendix 5

Archaeological Excavation Recording Form

Archaeological Excavation Recording Form

SITE/SQUARE:

Date: ..... .Recorder: ..... Spit depths (cm): .....

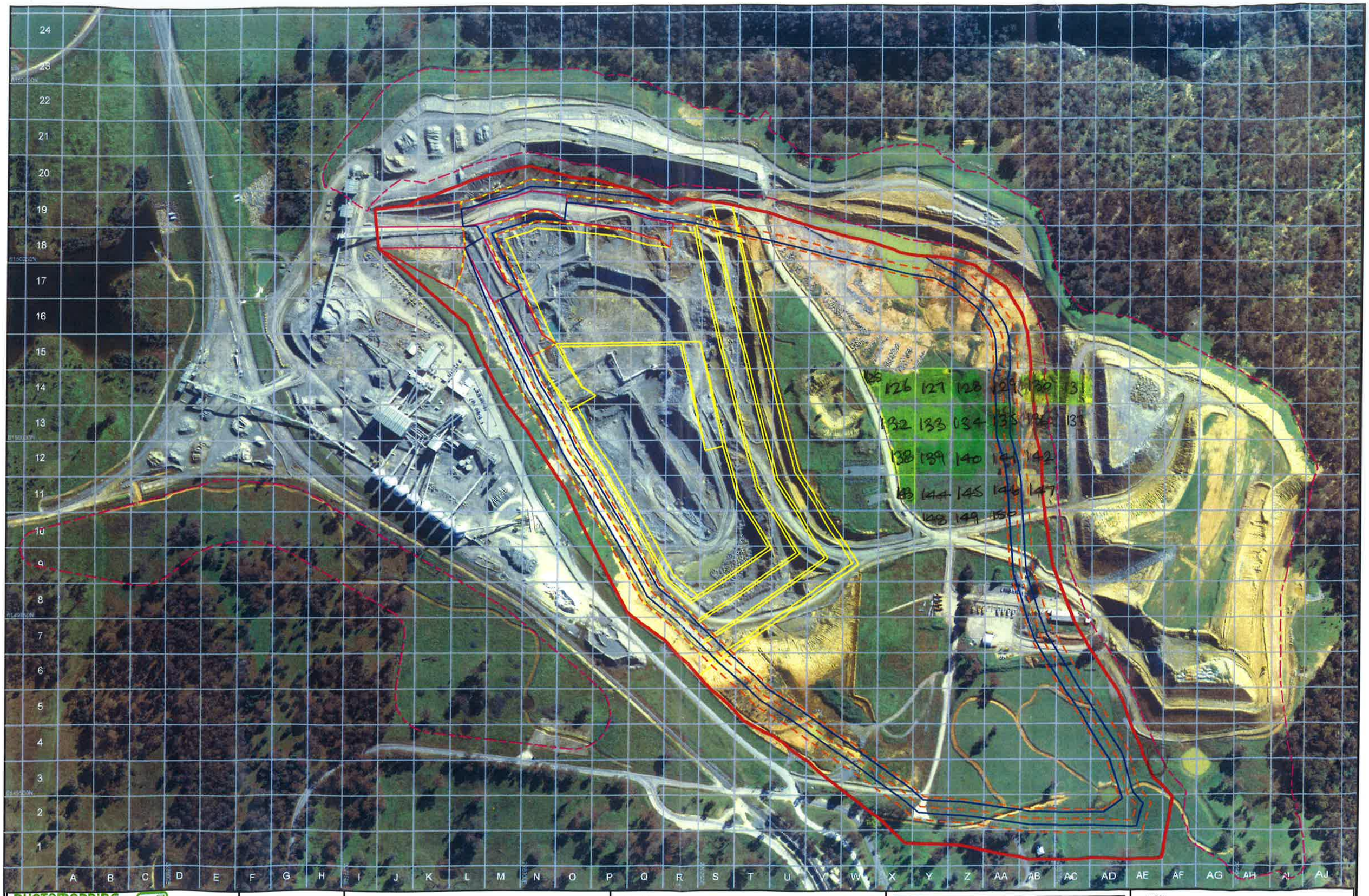
Spit/ Level	Start level	End level	Comments *(soil fabric, inclusions, roots, features, etc.) draw features on reverse side of form*	Artefacts? *(Y/N)*	Soil pH	Soil colour

Sheet ..... of .....

Appendix 6

Working topsoil monitoring map

progress of work as of
1st July 2016



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N

SCALE IN METRES
50 25 0 50 100 150 200

LEGEND:
- Final Toes
- Final Tops
- Ramps
- Pit Crest
- Dump Footprint
- Pit Design Phase 2

PEPPERTREE QUARRY
ORTHOPHOTO

BORAL RESOURCES (NSW) PTY LTD

SCALE 1 : 1500 @ A0	DRAWING NO. 3992 - 2
GRID DATUM : M.G.A.	HEIGHT DATUM : A.H.D.
DRAWN : K.W.	DATE : JUNE 2017
Compiled from aerial photography flown 28th April 2017	

Appendix 7

Aboriginal Heritage Clearance Sheet

Peppertree Quarry Cultural Heritage Clearance Form

Clearance Form #	
Name of Site	
GPS Location	
Date clearance granted	
Salvage undertaken	Yes No
If yes • Salvage undertaken by	
• Number of artefacts collected	
• Site identification number (MQ)	
• Date/s of salvage	
Site card required	Yes No

Long term site use:

Cultural heritage investigation at this site has been undertaken. No further cultural heritage action is required. The area as defined above is cleared for use and development. The topsoil is cleared for re-use on site. (Please tick)

☐ Yes

☐ No

Further Comments:

Signed by

Organization	***Name***	***Signature***
Boral		
Buru Ngunawal		
Ngunawal		
Pejar		

Appendix 8

Aboriginal Heritage declaration

zero|one|ten

PEPPERTREE QUARRY FULL SITE INDUCTION

BORAL

ABORIGINAL HERITAGE DECLARATION

Peppertree Quarry operates under a number of environmental management plans. One such plan is the Aboriginal Management Heritage Plan. The current Aboriginal Heritage Management Plan outlines a protocol for disturbance of soil. The Plan states that a trained Boral representative or Archaeologist is to be present during disturbance and representatives of the Aboriginal Management Committee (AMC) are to be informed if artefacts of significance are identified.

Due to the findings in archaeological excavation reports it has been agreed with the representatives of the Aboriginal Management Committee (AMC) that a formal process for clearance be developed and that the AMC will be consulted prior to any soil disturbance outside of the agreed cleared areas.

Therefore no new excavation, grading or disturbance to topsoil is to be undertaken unless approved by the Quarry Manager, Angus Shedden and the Environmental and Stakeholder Advisor, Sharon Makin.

No fencing either permanent or temporary associated with "Environmentally Sensitive sites" is to be removed or fenced areas accessed without approval.

Aboriginal culture and the AMC representatives are to be respected.

Declaration

I acknowledge that I have been given a presentation on the importance and management of Aboriginal heritage at Peppertree Quarry site and understand the information provided at this presentation specifically regarding the need to gain approvals prior to the disturbance of soils and access to environmentally sensitive sites.

I agree to comply with the requirements for management of aboriginal heritage.

Name: (please print)		**Company:**	
Signature		**Date:**	

Appendix 9 Scar Tree Assessments – Modification 4 (Andrew Long) Modification No.5 Footprint (EMM Consulting

Potential Aboriginal Scarred Trees

Peppertree Quarry

Report on an Inspection and Discussion of Likely Origin, Significance and Management Options

A Report to Boral Property Group

by Andrew Long

Andrew Long & Associates Pty Ltd

30th April 2018

Introduction

This report presents a specialist appraisal of three potential Aboriginal scarred trees at Peppertree Quarry, 843 Marulan South Road, Marulan, Southern Highlands, NSW, on land proposed for development as an overburden dump. The trees were identified as part of Aboriginal cultural heritage surveys undertaken for the project in 2017 in association with traditional owners (TOs), in accordance with an Aboriginal Heritage Management Plan (AHMP) (Boral Quarries 2017).

The objectives of this specialist study are to provide an expert opinion on the likely origin of the three potential scarred trees, with particular reference to the NSW Scarred Tree Manual (Long 2005), and whether they qualify as Aboriginal cultural heritage (ACH) in accordance with the NSW *National Parks and Wildlife Act* 1974. These instructions were confirmed by email and in discussions with Sharon Makin (Stakeholder and Environment Advisor - Marulan South, Boral Property Group).

Methodology

An inspection of the trees was undertaken by the consultant on 15th February 2018 in the company of TO representatives, during which the scars and the local context of the trees were documented. Detailed background studies have not been undertaken, and this opinion relies upon the AHMP (Boral Quarries 2017) and verbal information provided by the client and TOs.

The TOs were represented by the nominated representatives of the Peppertree Quarry Aboriginal Management Committee, namely Wally Bell (Buru Ngunawal Corporation), Delise Freeman (Pejar Land Council) and Dean Delponte (Ngunawal Heritage Corporation).

Description

The three trees occur in an approximate north-south alignment near the southern edge of an undulating plain (Photo 1), close to the deeply dissected gorge-like valley of Barbers Creek, a tributary of the Shoalhaven River. A number of cultural heritage places are located throughout this area, including extensive artefact scatters, confirming a traditional Aboriginal use of the area (Boral Quarries 2017).

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The trees are of the same or similar species, probably either yellow box (*E. Melliodora*) or blakeley's red gum (*E. Blakeleyii*). The trees have not been subject to an arborist assessment, but these species commonly occur elsewhere in the area and are known to be associated with Aboriginal tree scarring and bark use both in the area and elsewhere in eastern New South Wales.

The trees occur as scattered remnant woodland on former agricultural and pastoral land, which has been extensively cleared. Despite the proximity to a former township located to the west there is no evidence for mature exotic trees in the area and it is reasonable to presume the trees form part of the pre-European landscape, rather than a post-European planting programme. As such the apparent alignment of the trees is probably a coincidence resulting from the incomplete clearance of the surrounding land. As it is likely the landscape was largely cleared by the late 19th century, it is possible the trees are 100-150 years old, a timeframe within which Aboriginal people are likely to have still been undertaking some form of traditional activity in the area.

Although of mature age, the trees exhibit little evidence of damage to the primary crown structure, or development of a secondary crown, epicormic stems, hollows or extensive scarring that may characterise a overmature or senescent tree of greater age.

The trees (1-3) are described from south to north.

1. Tree 1 – a living eucalypt of mature age at the southern end of the alignment, characterised by a single bole with an estimated 25-30 metres in total height, including crown (Photo 2). The girth at breast height was measured to be 2.1 metres. The tree was in good health, with little evidence for damage to either crown or bole, apart from one small scar at the base of the southern side of the bole.

   This scar consisted of a single triangular aperture (0.30 m L x 0.3 m max. W) widely flaring at ground level (Photo 3). The aperture occurred at the base of vertical crease (0.7 m L) in the trunk, suggestive of an additional upper section of damage above the extant dry face, which has now been occluded by appressed overgrowth callus.

   Overgrowth on both left and right margins at the base of the tree was relatively small, measuring 0.18 m wide and 0.15 m deep, decreasing in width higher up the scar, indicating that the original scar was a longer, narrow strip measuring approximately one metre in length, flaring to approximately 0.66 metres at ground level.

   The exposed sapwood dryface had been subject to only mild drying/cracking with minimal insect activity, suggesting that it has not been exposed to extended weathering (Photo 4). There was no evidence of tool marks or other signs of cultural intervention.

   A definitive cause cannot be determined for the scar, however this is likely to be of natural or incidental origin. The shape and position of the original scarred area is not consistent with the deliberate removal of bark for traditional Aboriginal purposes, in particular the flaring base at ground level. The most likely causes are either fire damage, which tends to create flared triangular scars (Long 2005, 39), or impact from agricultural machinery, the latter of which is suggested by the occurrence of large granite rock on the ground surface at the base of the tree, probably cleared from the surrounding paddock.

   Given the relatively shallow overgrowth and the close position of the dryface in relation to the outer surface of the surrounding trunk, the scarring event occurred recently in the tree's life span, suggesting that it is of relatively modern origin. The near occlusion of this

mostly narrow scar is probably a reflection of the continuing vigour of the tree, which could respond rapidly and comprehensively to impact and damage.

2. Tree 2 – a living eucalypt of mature age at the centre of the alignment, characterised by a single bole with an estimated 30-35 metres in total height, including crown (Photo 5). The girth at breast height was measured to be 2.9 metres. The tree was in good health, with little evidence for damage to either crown or bole, apart from evidence of one limb lost on the upper bole and a small largely occluded scar at the base of the southern side of the tree.

   This scar consisted of a single elongated oval aperture (0.83 m L x 0.2 m max. W) terminating at a point 0.35 m above ground level (Photo 6). Lateral overgrowth was asymmetrical measuring 0.38 m wide and 0.20 m deep on left and 0.17 m wide and 0.40 m deep on the right, while vertical creasing at the upper termination suggested a further 0.20 m of longitudinal overgrowth. The original shape and dimensions of the scar are estimated to be a broad rectangular area 1 metre in length and 0.65 m wide.

   The exposed dryface has lost its original sapwood surface, and the underlying timber has been subject to moderate drying/cracking and splintering with minimal insect activity, suggesting that it has been exposed to extended weathering (Photo 7). As such there was no evidence of tool marks or other signs of cultural intervention.

   A definitive cause cannot be determined for the scar given the absence of tool marks and extent of overgrowth occlusion, however the size, shape and position of the original scarred area are consistent with the deliberate removal of a small bark slab for traditional Aboriginal purposes, possibly for use on a shelter or other construction (Long 2005, 23-25).

   Another key indicator is the relatively thick overgrowth and the embedded position of the dryface in relation to the surrounding surface of the trunk, suggesting that the scarring event occurred early in the tree's life span, increasing the likelihood of it occurring during the timeframe in which traditional Aboriginal activity was occurring in the area.

3. Tree 3 – a living eucalypt of mature age at the southern end of the alignment, characterised by a single bole with an estimated 30-33 metres in total height, including crown (Photo 8). The girth at breast height was measured to be 3.26 metres. The tree was in good health, with little evidence for damage to either crown or bole, apart from some recent epicormic development towards the base of the bole and a small scar at the base of the south side of the tree.

   This scar consisted of a single irregular triangular aperture (0.95 m L x 0.18 m max. W) widely flaring at ground level between root buttresses, exposing a concave dryface sloping outwards (Photo 9). The aperture occurred at the base of vertical crease (1.06 m L) in the trunk, suggestive of an additional upper section of damage above the extant dry face, which has now been occluded by appressed overgrowth callus.

   Marginal overgrowth at the base of the tree was relatively shallow, measuring only 0.1 m in depth suggesting that only minor incremental growth had occurred to the tree since scarring. By comparison, the average overgrowth width on each margin was higher (0-18-0.23 m W), suggesting rapid occlusion of the exposed timber through accelerated growth callus.

The exposed sapwood dryface had been subject to only mild drying/cracking with minimal insect activity, suggesting that it has not been exposed to extended weathering, with the exception of the flared base which had an outward sloping surface creating greater opportunities for exposure and water retention. There was no evidence of tool marks or other signs of cultural intervention.

A definitive cause cannot be determined for the scar, however this is likely to be of natural or incidental origin. The shape, position and morphology of the original scarred area is not consistent with the deliberate removal of bark for traditional Aboriginal purposes, in particular the concave dryface and the flaring base at ground level.

Consistent with Tree 1, the most likely causes are either fire damage, which tends to create flared triangular scars (Long 2005, 39-40), or impact from agricultural machinery.

On the basis of the relatively shallow overgrowth and the close position of the dryface in relation to the outer surface of the surrounding trunk, the scarring event occurred recently in the tree's life span, suggesting that it is of relatively modern origin. The near occlusion of this mostly narrow scar is probably a reflection of the continuing vigour of the tree, which could respond rapidly and comprehensively to impact and damage.

Conclusions

On the balance of evidence, it is my professional opinion that Tree 2 is an Aboriginal cultural heritage place, and as such receives protection from the *National Parks and Wildlife Act* 1974 (NPWS Act) and must be managed in accordance with the provisions of this Act and the AHMP relevant to the development and management of the property (Boral Quarries 2017). This opinion of based on my assessment of the likely age of the scar and that its size, shape, position and morphology is consistent with Aboriginal bark slab removal scars recorded elsewhere in south eastern New South Wales.

Further, it is my opinion that Tree 1 and Tree 3 are not Aboriginal cultural heritage places, and as such do not receive protection from the *National Parks and Wildlife Act* 1974 (NPWS Act). Therefore there are no compelling grounds for the trees to be preserved *in situ*, which could, subject to any other relevant environmental and planning conditions, be removed from their natural position.

Note that the outcome of this assessment has not included follow-up consultation with the nominated representatives of the Peppertree Quarry Aboriginal Management Committee, or with the Heritage branch of the Office of Environment and Heritage (OEH), and it would be prudent to ensure that my interpretation of the scarring origin is accepted by any other interested party before proceeding with an activity which may harm any of the trees.

References

Boral Quarries. 2017. Peppertree Quarry. Aboriginal Heritage Management Plan. April 2017 – Web. Final, version 6.0. Unpublished report by Boral Quarries.

Long, A. 2005. Aboriginal Scarred Trees in New South Wales. A Field Manual. Department of Environment and Conservation (NSW), Hurstville.

Photo 1: General view of the three trees (Tree 1 on right, Tree 2 centre, Tree 3 on left) showing their relative size and extent of crown development. Facing south east towards the deeply dissected Barbers Creek valley.

Photo 2: General view of tree 1, facing west. Note the relatively youthful crown development, showing little indication of damage or secondary growth. The scar is located at the base of the south side of the tree, on the left in this view obscured by the trunk.

Photo 3: The tree 1 scar, showing the widely flared aperture at the base of the trunk between root buttresses.

Photo 4: Close-up of the Tree 1 scar, showing a relatively small dry face exposure immediately at ground level, with evidence of occlusion above in the form of a vertical creaseline in the bark where two growth callus margins have become appressed.

Photo 5: General view of tree 2, facing west. Note the greater stature of the tree in comparison to tree 1 (left), but showing only limited indication of damage or secondary growth. The scar is located at the base of the south side of the tree, on the left in this view obscured by the trunk.

Photo 6: The tree 2 scar, showing a small elongated oval aperture near the base of the southern face of the trunk. Note the wide overgrown margins, suggesting an original scar wider and possibly longer than the current dryface suggests.

Photo 7: Close-up view of the Tree 2 scar, showing deeply overgrown margins and a narrow vestigial exposed dry face.

Photo 8: General view of tree 3, facing north west showing its mature stature and crown, but only limited indication of damage or secondary growth. The scar is located at the base of the south side of the tree, on the left of the exposed trunk.

Photo 9: The tree 3 scar, showing a very narrow elongated dryface, flaring at the base of the tree. Facing north.

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5 February 2020

Sharon Makin
Stakeholder and Environment Advisor - Marulan South
Boral
Peppertree Quarry
843 Marulan South Road
Marulan NSW 2579

Re: Aboriginal heritage advice - potential culturally modified trees - Peppertree Quarry, Marulan, NSW

Dear Sharon,

1 Introduction

Boral Resources (NSW) Pty Ltd (Boral) owns and operates the Peppertree Quarry (the quarry), a hard rock quarry located in Marulan South, New South Wales. In October 2019, the Project Approval was modified under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act), to develop a new overburden area with associated infrastructure additions and changes, along with modifications to the quarry Western Overburden Emplacement (WOE) (hereafter referred to as Modification No.5). EMM Consulting Pty Limited (EMM) is currently updating a previously approved Aboriginal heritage management plan (AHMP) for the quarry to address the modification's Conditions of Approval (CoA).

In accordance with the existing AHMP, Boral regularly consult with the Aboriginal Heritage Management Committee (AMC) for the quarry. During a monthly meeting between Boral and the AMC in October 2019, AMC members Delise Freeman (Pejar Local Aboriginal Land Council), Dean Del Ponte (Ngunawal Aboriginal Corporation) and Wally Bell (Buru Ngunawal Aboriginal Corporation) were briefed about the approved status of Modification No.5. As part of the meeting, Ms Freeman, Mr Del Ponte and Mr Bell were taken to inspect the proposed South West Overburden Area (SWOE), and during which time they identified several trees that featured scars of an indeterminate nature. Boral resolved to further investigate and assess the trees to determine if any of the scars were of cultural origin and would meet the definition (and associated protection) of Aboriginal objects under the *NSW National Parks and Wildlife Act 1974* (NPW Act).

EMM Heritage attended the quarry on 6 November 2019 to inspect and assess the subject trees, provide expert opinion and management recommendations where required. This letter provides a summary of our investigations and identifies any future steps that may be required as part of Modification No.5.

2 Assessment background

EMM prepared an Aboriginal Cultural Heritage Assessment (ACHA) for Modification No.5 (EMM 2018a). The assessment was undertaken as part of a broader investigation of the Marulan South Limestone Mine Continued Operations Project (Limestone Mine Project) for a range of proposed activities, and was not focussed specifically on Modification No.5. During this study, the Modification No. 5 footprint received targeted surface inspection with the Aboriginal community and no culturally modified trees were observed. The proposed SWOE, where the subject trees are located, has also previously been assessed by EMM as part the Limestone Mine Project (EMM 2019). Here, again an ACHA was undertaken in consultation with the

Aboriginal community. The SWOE has since been incorporated into the quarry's Modification No.5 curtilage for operational and access reasons.

In 2015, EMM conducted an archaeological survey and test excavation in the Modification No.5 area as part of a wider survey and test excavation for the Limestone Mine Project (EMM 2019). Specific to the modification area, the archaeological survey identified two artefact scatters (MSL 017 and MSL 018) and one isolated find (MSL 019) in the activity footprint. Of the broader archaeological excavation program, five 3 m x 1 m test pits (15 m^2) were situated within the modification. Three test pits contained no artefacts whereas test pit (TP) 35 contained 40 artefacts (subsequently labelled site MSL 055) and TP36 contained only eight artefacts (subsequently labelled site MSL 056). Using these data, EMM developed an archaeological sensitivity model as a guide to indicate subsurface archaeological potential. The Modification No.5 area was assessed to have low archaeological sensitivity apart from an area of moderate sensitivity surrounding site MSL 055.

The various assessments identified that historical vegetation clearance for pastoral and mining activities meant that there was a low risk of mature trees of sufficient age to feature cultural scarring or carving to be present in the modification footprint outside of those areas physically investigated (EMM 2019). The Modification No.5 ACHA resolved that if any further mature trees with potential cultural scarring or carving were identified, they would be managed under the discovery of new Aboriginal sites protocol set out in the quarry AHMP (EMM 2018a).

3 Site inspection and assessment

3.1 Rationale and method

Modified trees (either carved or scarred) can be difficult to robustly identify. Scars commonly occur on trees through natural processes such a branch tears, insect damage, storm and fire damage and faunal damage. Scars also can occur from mechanical damage from vehicles or farming equipment. However, ethnographic evidence does show that Aboriginal people extensively used bark and cambium for canoes, containers, shelters and implements amongst other uses. Background information regarding Aboriginal and subsequent historical land use has been gathered from the existing ACHAs (EMM 2018a, 2018b, 2019).

An inspection of the subject trees was undertaken by EMM Associate Archaeologist Ryan Desic on 6 November 2019 during which the scars and the local context of the trees were documented.[1] The fieldwork involved inspecting five trees that were flagged for verification with tape during the October AMC meeting. The fieldwork also involved inspecting the broader context of surrounding vegetation within an approximate 1600 m^2 area surrounding the subject trees on the same landscape context of hill slopes and broad crests.

The subject trees were assessed against the criteria outlined in *Aboriginal scarred trees in New South Wales: a field manual* (Long 2005). There are often ambiguities around the verification of Aboriginal cultural scars without direct evidence of anthropogenic scarring. Direct evidence often includes indicators such as tool marks preserved and visible on the sapwood (xylem) of a tree scar where overgrowth has been inhibited by scar dieback. As no direct evidence was available in the case of the subject trees, our assessment is based on the accumulated observation of a number of scar and tree attributes. The primary three attributes that would suggest that the scars may be of origin include: i) assumed age of tree at least over 100 years; ii) evidence of tool marks; iii) and original scar outline symmetrical and representative of traditional practises including curved (pre-form) scars, bark slab removal scars, toe holds, resource extraction holes, bark strip removal scars or insect procurement scars. Notwithstanding the above, the findings below are considered an opinion. The implications of this limitation are further discussed in the recommendations section of this letter.

[1] Ryan has over 10 years' experience in Aboriginal heritage management in NSW and has completed several ACHAs that have involved cultural scar tree assessment and management (eg EMM 2017; EMM 2018c; EMM 2019). Ryan has also worked with leading cultural modification scar specialists during ACHA preparation, including Andrew Long and Mal Ridges (EMM 2017).

3.2 Context

The landscape context of the subject trees comprises hill crests, spurs and slopes above ephemeral drainage depressions leading in a southerly direction. The large portions of the Modification No.5 area remains cleared from past agricultural land uses which is likely to extend as far back to the 19th Century as the result of early pastoral land grants in the c.1840s and the subsequent mining from the 1860s onwards (EMM 2018b). Vegetation now consists of open cultivated paddocks with scatters of eucalyptus trees or open woodland. The abundance of immature trees with smaller dimensions than the subject trees is indicative that timber in the area has for the most part been regenerated after this prior clearance. Available aerial imagery from 1972 partially showing the area where the subject trees exist indicates a cleared landscape at much earlier stages of regeneration than is present today (Plate 3.1). It is likely that the 1972 aerial resembles an earlier stage of tree regeneration after a history of even more widespread clearance. Unfortunately, the resolution of the imagery cannot robustly identify the presence or absence of the subject trees at this time.

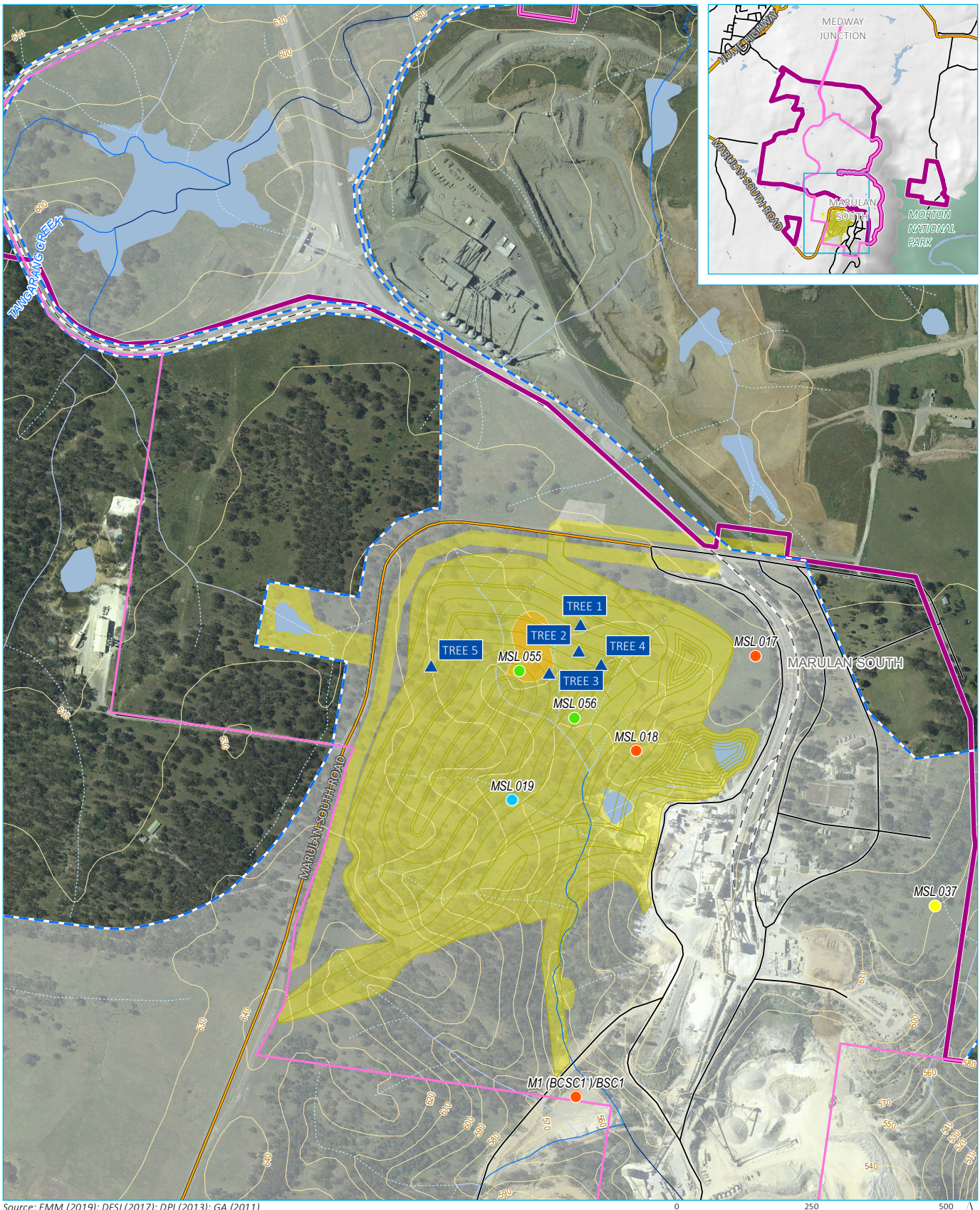
Plate 3.1 **A section of an aerial photograph from 1972 showing the town of Marulan South and the limestone mine. Approximate location of the subject trees is shown by yellow circle (source: Boral)**

The flora typical to the area consists of grassy open eucalypt woodlands and pasture. Dominant tree species include Blakely's Red Gum (*Eucalyptus blakelyi)* white stringybark (*Eucalyptus globoidea*), yellow stringybark (*E. muelleriana*), woollybutt (*E.longifolia*), coast grey box (*E. bosistoana*) and silvertop ash (*E* (*E. sieberi*) (Niche 2018, Appendix 3). In general, eucalypt species of gum, box and stringy bark are known to have been used for scarring across the region (Long 2005).

3.3 Results

The site inspection results for the five subject trees and their interpretation is presented in Table 3.1. The various conditions of the subject trees observed compared with the criterion above, suggest that they are unlikely to be culturally modified. The five tree locations are shown in Figure 1.

Overall, based on the land use history of the landscape, it is considered unlikely that trees ageing to a period when cultural scarring practises were known to occur have survived. While not definitive, the 1972 aerial photograph shows few established trees at this time in the area where the subject trees are found – and suggesting that considerable parts of the current ecological community are less than 50 years old. Further, the current ecological community contains both smaller (younger) and larger (older) trees, with the latter hypothesised to be those identified in the 1972 aerial photograph. With one exception (Tree 1), none of the remaining subject trees are large in size, and as such there is some likelihood that they are recent regrowth. While the specific aging of a tree can be hard to determine since eucalypts do not grow annually (but rather by environmental conditions), all are living examples and none appear to be of extreme age (ie pre-20th century) based on superficial appearance alone. Even the largest examples inspected were an ~20 m tall whereby typical mature examples of white or yellow stringybark eucalypt at an advanced age can grow to 30–40 m in height. The surrounding vegetation of the subject trees provide further insight into the nature of tree scarring in this area. It is important to note that the majority of visible scar types in NSW today relate to more recent natural and incidental impacts that have left partially healed wounds on both old and young trees in forest and woodland environment. As shown by the examples in Table 3.2, there are numerous more obvious examples of natural and incidental scars on adjacent trees ranging in age from juvenile to mature. These scars are likely to have been from similar causes to those on the subject trees but more clearly present as irregular shapes with exposed dry faces extending to the ground. It is likely that the scars on subject trees 1 and 2 once experienced similar scarring but are the outcome of a longer period of regrowth. Conversely the scars in Table 3.2 are younger and have not had the time to experience overgrowth to the level that results in more ambiguous ovate scar forms similar to cultural modification. Overall the scars present on the subject trees and surrounding vegetation indicates a landscape where natural and incidental scarring is common and further supports the interpretation that the subject trees are unlikely to exhibit cultural modifications.



Source: EMM (2019); DFSI (2017); DPI (2013); GA (2011)

0 250 500 m

GDA 1994 MGA Zone 56

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KEY

- Boral Resources boundary
- Peppertree Quarry consent boundary
- Peppertree Modification 5 disturbance footprint
- Rail line
- Main road
- Local road

Peppertree Modification 5

- Proposed pit design
- Limestone Mine SSD project boundary

AHIMS site type

- Artefact scatter
- Isolated find
- Not a scar tree
- Subsurface artefact deposit

Archaeological sensitivity

- Moderate
- Subject tree
- Contour (10 m)
- Waterbody

Strahler stream order

- 1st order
- 2nd order
- 3rd order
- 4th order

Modification No.5 area

Peppertree Modification 5
Tree scar assessment
Figure 1

EMM
creating opportunities

Table 3.1 Subject trees and their assessment

Tree reference no.	Context	Detail	Assessment
1			**Description** Tree scar on yellow or white stringybox eucalypt with scar originating from the ground as indicated by an original outline of the scar. The original shape of the scar is shown by a discontinuity around the edge of the lower half of the scar, apparently delineating the younger bark of the overgrowth from the older bark of the surrounding trunk. Although present overgrowth shape around the dry face is an ovate shape, the original broader scar outline indicates a triangular shape extending to the base of the tree. There is also the presence of borer holes and galleries across the dry face. This was the tallest tree inspected (~20 m), with a girth of approximately ~3 m diameter. Current scar dimensions are approximately 100 cm x 10 cm. Original scar dimensions as indicated by outline of overgrowth are approximately 150 cm x 60 cm. No tool marks observed. Current scar height above ground is 20 cm; however original scar extended to the base. **Interpretation** The presence of numerous insect borer holes and the scar's original triangular shape extending to the ground is more characteristic of a scar caused by trauma damage or insect activity. There are no cultural markers that would suggest the scar is of cultural origin. Although it was the tallest tree inspected (c.20 m) and is mature, it is unlikely to be over 100 years old which would coincide with traditional practises.

Table 3.1 Subject trees and their assessment

Tree reference no.	Context	Detail	Assessment
2			**Description** This yellow or white stringybox eucalypt presents as a forked tree and did not feature a scar for inspection or assessment. AMC member Wally Bell indicated that the hollow in the fork of the tree may have been used by Aboriginal people to store tools or cultural items. General observations of tree height (~ 20 m) indicates that the tree has not reached maximum size. **Interpretation** It is unlikely that this tree received cultural modification to cause the co-dominant stem that formed from the junction at the base of this tree. Tree forking and co-dominate stems are common and natural occurrences found across the site. Notwithstanding, Aboriginal people may have used hollows formed within tree fork hollows to store tools or cultural materials. None were observed during the inspection.

Table 3.1 Subject trees and their assessment

Tree reference no.	Context	Detail	Assessment
3			**Description** Tree scar on yellow or white stringybox eucalypt. Similar to tree 1, there is the outline of the original scar that extended to the ground. The original shape of the scar is shown by a discontinuity around the edge of the lower half of the scar, apparently delineating the younger bark of the overgrowth from the older bark of the surrounding trunk. Visible dry face is relatively intact. The present scar shape is ovate but is irregular twisting around the trunk of the tree. The original outline of the scar indicates a triangular shape. The tree is a smaller example in the landscape and features a co-dominant stem. Each of the dominant stems are ~1 m diameter and the tree height is less than ~20 m. Current scar dimensions are approximately 200 cm x 20cm. Original scar dimensions as indicated by outline of overgrowth are approximately 150 cm x 60 cm. No tool marks observed. Current scar height above ground is 10 cm; however original scar extended to the base. **Interpretation** The original triangular outline of the scar shape and its extension into the ground indicates that the scar may have been caused by unspecified trauma or faunal damage. There are no cultural markers that would suggest the scar is of cultural origin. Furthermore, the tree is a smaller example in the landscape and is considered more likely to be the product of revegetation after historical clearance.

Table 3.1 Subject trees and their assessment

Tree reference no.	Context	Detail	Assessment
4			**Description** Tree scar on yellow or white stringybox eucalypt. Scar shape is ovate, but extent of bark overgrowth appears to be very minor at approximately 10 cm at either margin, indicating a very narrow original scar shape. The tree is a smaller example in the landscape. The trunk is ~1 m diameter and the tree height is less than ~20 m. Current scar dimensions are approximately 90 cm x 10 cm. Original scar dimensions as indicated by outline of overgrowth are approximately 100 cm x 30 cm. No tool marks observed. Current scar height above ground is 50 cm. **Interpretation** Based on the likely recent age of the tree (revegetated since historical clearing) and recent age of the scar based on minimal scar regrowth, it is considered unlikely that this scar is of cultural origin. Rather, it is more likely the result of a degenerative process, such as caused by sub-bark insect activity, or stress due to damage to the crown or root system, which can manifest in sections of the cambium sleeve drying and dying, thus causing areas of bark to slowly peel away.

Table 3.1 Subject trees and their assessment

Tree reference no.	Context	Detail	Assessment
5			**Description** Tree scar on yellow or white stringybox eucalypt whereby overgrowth margins have almost joined, and scar dry face is no longer visible. Extent of overgrowth and original scar outline is not determinable due to the nature of the bark and the shape of the stem. This was one of the larger trees with a height of ~20 m and girth of ~2 m. Current scar dimensions are approximately 150 cm x 0 cm. Original scar dimensions is not determinable. No tool marks observed. Current scar height above ground is 100 cm. **Interpretation** The joined nature of the scar makes interpretation limited for the tree. There is no direct evidence that the tree has been culturally modified, and therefore any interpretation is based on the local and regional understanding. As outlined above, natural scarring to the species is common, and as such it is considered a more probable mechanism for this scar.

Table 3.2 Examples of natural scars found across the quarry




4 Consultation and recommendations

Based on the outcomes of this assessment it is the opinion of EMM Heritage that the subject trees do not feature adequate evidence to be classified as of Aboriginal cultural origin. Consideration is based largely on the historical evidence that the area has been subject to extensive de-vegetation since the 1840s, and visually many of the trees appear young. While not definitive, in combination with the anomalous shapes and the broader scar-prone context of the ecological community across the quarry, the evidence is lacking for an anthropogenic origin.

The AMC were informed about the outcomes of the EMM assessment. On 28th January 2020, EMM, Boral and the ACM discussed management options for the trees during a monthly site meeting at Peppertree Quarry. The outcomes of discussion were that despite EMM's assessment, the AMC value the trees as culturally significant and warranting appropriate management. Boral advised that avoidance of the trees was not an option due to the constraints of project design and their removal is required. The AMC supported the tree removal under suitable management provisions which Boral agreed to. The management provisions are presented below.

Tree 1 (Mod 5), Tree 3 (Mod 5), Tree 4 (Mod 5) and Tree 5 (Mod 5) will be managed by scar section removal and relocation. This will involve the following process:

- Each tree will have its location archivally recorded, using photography, and aerial photogrammetry if feasible.
- Boral, the AMC and an Arborist will inspect the trees to determine a suitable removal method. This is likely to involve sawing the tree above and below the scar(s) at each tree, allowing suitable buffers from the scar feature(s). Options to remove the trees with the tree crowns intact will be explored if feasible. The process of removal will be photographed. The methodology for the tree removal will generally be in accordance with the method attached to this letter, noting that tree-specific adjustments to the method may need to be employed on the day of tree removal.
- The removed sections of the trees may be treated to preserve the scar to prevent their deterioration. Any treatment option would be undertaken in consultation with the AMC, Boral and a suitably qualified curator. The process of treatment will be photographed.
- The trees will be relocated to the Peppertree Quarry HMA or other agreed site within the Project Consent boundary for long term protection and be appropriately displayed using suitable materials in consultation with the AMC and Boral. The process of relocation and display will be photographed.

Tree 2 (Mod 5) is a forked tree where the AMC member Wally Bell indicated that the hollow in the fork of the tree may have been used by Aboriginal people to store tools or cultural items. Accordingly, prior to removal of the tree, the cavity will be inspected for cultural material. This may involve partially sawing parts of the tree to provide access to the fork cavity. Methods to undertake this task will be determined by Boral, the AMC and an Arborist during a site inspection. Any identified cultural material will be recorded, bagged and labelled and stored securely at the Peppertree Quarry temporary storage facility.

The outcomes of the tree management activity will be documented in a report, including records of the original and new tree locations. The trees will be lodged on AHIMS with appropriate information included about the nature of the trees and their management.

EMM recommends that these proposed management measures are incorporated into the Peppertree Quarry AHMP for approval by the DPIE Secretary.

Yours sincerely,

Ryan Desic
Associate Archaeologist - Heritage Team Leader

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References

EMM Consulting Pty Limited (EMM) 2018a, *Peppertree Quarry Modification 5, Aboriginal Cultural Heritage Assessment*, prepared for Boral Resources (NSW).

2018b, *Marulan South Limestone Mine Continued Operations Project, Historic heritage assessment and statement of heritage impact,* prepared for Boral Cement.

2018c, *New England Solar Farm Aboriginal Cultural Heritage Assessment,* prepared for UPC Renewables Pty Ltd.

2019, *Marulan South Limestone Mine Continued Operations Project, Aboriginal Cultural Heritage Assessment,* prepared for Boral Cement.

Long, A. 2005. *Aboriginal Scarred Trees in New South Wales. A Field Manual*. Department of Conservation and Environment, Hurstville.

Niche Environment and Heritage 2018, *Marulan South Limestone Mine Continued Operations Project, Biodiversity Assessment report,* prepared for Boral Cement.

Scar tree removal method

1. Establish a work zone around the tree of a distance to safely conduct works allowing for plant equipment and safe setbacks from plant equipment and escape routes for all staff. Establish an evacuation location at the work site. Ensure the working area around tree is free of trip hazards such as fallen branches and other extraneous materials. Safely move material away from works zone.

2. Establish a clear and safe path to the tree.

3. Assess the tree for structural integrity. This is a visual inspection of the tree and it's hollow trunk to ensure tree is stable. To be conducted by the team (EMM archaeologist, AMC representatives, arborist and Boral staff).

4. Using an elevated work platform (EWP) supplied and operated by quarry staff the arborist will remove the upper crown of the Scarred Tree using petrol powered chainsaws with a final cut in the trunk to 1 m above the wound, or as agreed with the AMC and archaeologist. The operator of the plant equipment it to be in constant contact with the team ground staff and to remain in visual contact for safety.

5. The branch material removed from the upper crown is to be moved aside from the work area before works on the trunk proceed. The branches may be hollow and could possibly be reused for site regeneration works for wildlife habitat.

6. Once the remaining trunk section is clear of the crown a crane or Franner crane with trained staff from the quarry will support strapping to be attached to the trunk by the Tree Team's climber working from an EWP.

7. Once the strapping is secured and the strain taken by the crane and held in place, the area of roots around the base of the trunk will be excavated by hand or with water knife and vacuum truck to reveal which radial roots can be severed.

8. Once the roots radial roots are exposed they will be assessed to determine any particular loading or twisting of the load as the pressure on the trunk is released by pruning.

9. Once it is determined which roots are to be cut and the direction that the trunk is to be slowly lowered using the remaining roots beneath the tree as a hinge, a bed of tyres (or equivalent) is to be laid out to cushion the load of the trunk as it's placed onto the ground. Depending on the remaining thickness of the trunk, the side of the trunk opposite the wound is anticipated to be the strongest and should be placed downwards on the ground.

10. Once the tree is on the ground the remaining roots protruding from the base of the trunk will need to be cut cleanly and roots remaining attached into the ground also severed. During this time the strapping will remain attached to the crane and strain be taken by the crane for safety as the trunk may move as roots are cut or as further excavation is required to expose roots to be cut.

11. Once completely free of the ground the tree will be reinspected to check for any damage that may have occurred due to changes in loading of its mass from vertical to horizontal.

12. The trunk is to be fixed with loading straps readjusted for placement and loaded onto a bed of tyres on a flat bed truck and secured for transport to a temporary storage area or its final display location (whichever is established at the time of tree removal).

13. The team is to monitor the slow movement of the tree(s) to the new location and provide any remedial advice as required for the safe passage of the tree in coordination with the tree and plant operator.

14. Prior to undertaking these works a suitable temporary storage area will need to be ready to receive the tree(s). This area will be established with a temporary area to lay down the trees.

15. On arrival at the temporary storage area, the Franner crane is to secure the tree(s) with strapping and remove the tree slowly and carefully from the bed of the truck. If required to minimise movement of the crane, the truck is then to be removed, and the tree(s) transported the shortest distance possible by crane and lowered into position. If the tree(s) require temporary laydown prior to final display, they may be lowered onto a gravel bed ground or similar, on suitable rubber supports (such as used car tyres) and covered appropriately at the discretion of the AMC and arborists advice.

16. If the final display location is ready to receive the trees, the trees may be taken to that location and erected immediately.

Appendix 10 Marulan South Limestone Mine Continued Operations Project RAP List

Organisation
Pejar LALC
Mr Peter Falk Consultancy
Buru Ngunawal Aboriginal Corporation
Gundungurra Aboriginal Heritage Association Inc
Ngunawal Heritage Aboriginal Corporation
King Brown Tribal Group
Koomurri Ngunawal Aboriginal Corporation
Corroboree Aboriginal Corporation
Murri Bidgee Mullangari Aboriginal Corporation
Nundagurri
Walbunja Aboriginal Corporation
Gunyuu
Wullung
Badu
Yerramurra
Merrigarn Aboriginal Corporation
Gulgunya Ngunawal Heritage Aboriginal Consultancy
Thunderstone Aboriginal Cultural and Land Management Services
Duncan Falk Consultancy