



Appendix G

Aboriginal cultural heritage assessment



Aboriginal Cultural Heritage Assessment

Dubbo Quarry Continuation Project

Report Number

J180313 RP15

Client

Holcim (Australia) Pty Ltd

Date

3 December 2020

Version

v2 Final

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3 December 2020

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3 December 2020

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Acknowledgement of Country

EMM would like to acknowledge and pay respect to the traditional owners of the land on which the project is proposed. We would like to thank all members of the Aboriginal community who generously gave their time and knowledge regarding the Aboriginal cultural heritage values associated with the project.

Executive Summary

ES1 Overview

Holcim (Australia) Pty Limited (Holcim) are the owners and operators of Dubbo Quarry (the quarry) located on Sheraton Road, Dubbo. The quarry has operated since 1980 under a development consent granted by Dubbo Regional Council (DRC). Accessible basalt resources within the existing quarry boundary are close to exhaustion and planning approval is required to allow the quarry to continue operating. Holcim is, therefore, seeking approval for the Dubbo Quarry Continuation Project (henceforth referred to as ‘the project’) which involves the continued operation of the quarry through the development of two new resource areas to the south and west of the existing quarry boundary.

The project is classified as State significant development (SSD) under Part 4, Division 4.7 of the NSW *Environmental Planning Assessment Act 1979* (EP&A Act). This report will accompany the environmental impact statement (EIS) prepared for the project.

The objectives of the Aboriginal cultural heritage assessment (ACHA) are to:

- identify Aboriginal cultural heritage values relevant to the project area;
- assess the significance of Aboriginal objects, sites and locations identified in the course of the archaeological investigations and through Aboriginal community consultation;
- assess the impact of the project on identified Aboriginal cultural heritage values; and
- propose appropriate management measures for potentially impacted Aboriginal cultural heritage values in response to their assessed significance.

ES2 Assessment methods

This ACHA has been prepared in accordance with the Secretary’s Environmental Assessment Requirements (SEARs) for the project and leading practice guidelines. In summary, the ACHA has involved:

- background research of the project area’s environmental, archaeological, and ethno-historical context;
- Aboriginal consultation in accordance with the *Aboriginal Consultation Requirements for Proponents* (DECCW 2010c);
- an archaeological survey following the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010a); and
- an impact assessment and management recommendations for identified Aboriginal cultural heritage values using the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

ES3 Aboriginal consultation

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010c) were used for the project. Two Aboriginal parties registered their interest in the project and are referred to in this report as registered Aboriginal parties (RAPs). RAPs were invited to provide cultural information about the project area, provided with the draft assessment report and fieldwork methods for review, and kept updated about the project via letters and emails. RAPs also participated in the archaeological survey.

EMM Consulting Pty Limited (EMM) and Holcim have worked closely with RAPs in formulating appropriate management measures for the Aboriginal cultural heritage values identified during the ACHA, which are outlined in Chapter 8 of this report.

ES4 Archaeological investigations

Through background research and landscape analysis, EMM predicted that the project area had the potential to feature a range of Aboriginal sites including stone artefacts, scarred trees, quarries and grinding grooves. Based on a search of the Aboriginal Heritage Information Management System (AHIMS) register, no Aboriginal sites had previously been recorded in the project area.

EMM conducted a targeted archaeological survey over three days with the support of RAP representatives. The survey coverage results indicate that the ground surface visibility conditions during the survey were generally effective to characterise the distribution of archaeological sites across the survey area.

The survey team identified four Aboriginal sites: Dubbo Quarry – Isolated Find 1 (DQ-IF1); Dubbo Quarry – Isolated Find 2 (DQ-IF2); Dubbo Quarry – Open Site 1 (DQ-OS1); and Dubbo Quarry – Open Site 2 (DQ-OS2).

Archaeological and socio-cultural significance values were assessed for the project area (refer to Table ES1). It is noted that RAPs place cultural value on any Aboriginal objects identified within the project area.

Table ES1 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site Type	Scientific	Aesthetic	Historical	Cultural	Overall
DQ-IF1	44-4-0383	Isolated find	Low	Low	Nil	High	Low
DQ-IF2	44-4-0384	Isolated find with PAD	Moderate	Low/Moderate	Nil	High	Moderate
DQ-OS1	36-1-0773	Artefact scatter with PAD	Low	Low	Nil	High	Low
DQ-OS2	36-1-0774	Artefact scatter with PAD	Moderate	Low/Moderate	Nil	High	Moderate

ES5 Impact assessment

An iterative design process has resulted in avoidance of impacts to the majority of Aboriginal sites located within the project area.

Aboriginal site DQ-IF1 is the only known site to be impacted by the project. DQ-IF1 consists of an isolated artefact with no predicted sub-surface deposit. It has been assessed herein as being of low archaeological significance, whilst acknowledging that it is of cultural significance to the Aboriginal community.

ES6 Management measures

An Aboriginal heritage management plan (AHMP) will be developed in consultation with the RAPs and Heritage NSW. The AHMP will detail the management and mitigation of all identified Aboriginal sites along with special procedures and training and reporting protocols. A summary of the management measures are provided in Table ES2.

Table ES2 Site significance, impact, and management summary

Site Name	AHIMS site number	Site type	Significance	Impact type	Project component	Minimum buffer required (m)	Management strategy
DQ-IF1	44-4-0383	Isolated find	Low	Direct	Haul road	N/A	Relocation
DQ-IF2	44-4-0384	Isolated find with PAD	Moderate	None	Nil	20 m	Avoidance
DQ-OS1	36-1-0773	Artefact scatter with PAD	Low	None	Nil	50 m	Avoidance
DQ-OS2	36-1-0774	Artefact scatter with PAD	Moderate	None	Nil	50 m	Avoidance

Table of Contents

Executive Summary	ES.1
Abbreviations	vii
1 Introduction	1
1.1 Overview	1
1.2 The site	1
1.3 Project overview	1
1.4 Report objectives	2
1.5 Secretary’s Environmental Assessment Requirements	2
1.6 Authorship and acknowledgements	3
2 Aboriginal consultation	7
2.1 Statutory context	7
2.2 Stage 1 – Notification of project proposal and registration of interest	7
2.2.1 Agency contact	7
2.2.2 Media advertisement	7
2.2.3 Aboriginal groups invitation to register	8
2.3 Stages 2 and 3 – Presentation of project and method information	8
2.4 Stage 4 – Distribution of draft ACHA for review	8
3 Landscape context	9
3.1 Rationale	9
3.2 Topography and geology	9
3.3 Hydrology	9
3.4 Soils	11
3.5 Flora and fauna	12
3.6 Land use and disturbance	12
4 Aboriginal heritage context	13
4.1 Ethno-historical overview	13
4.2 AHIMS data	13
4.3 Regional archaeological context	16
4.3.1 Aboriginal Cultural Heritage Assessment Brigalow Belt South (Purcell 2000, 2002)	16
4.3.2 Dubbo Local Government Aboriginal Heritage Study (OzArk 2006)	16

4.4	Local archaeological context	17
4.4.1	Aboriginal archaeological due diligence assessment, proposed extension to Dubbo Quarry, Sheraton Road NSW (Umwelt 2018)	17
4.4.2	Aboriginal archaeological survey of industrial candidate area no 1. – Mitchell/Eulomogo, east of Dubbo, Central West Plains, NSW (CWAHS 1998)	17
4.4.3	Aboriginal due diligence archaeological assessment subdivision of Lot 2 DP880413 Sheraton Road, Dubbo NSW Dubbo Regional LGA (OzArk 2017)	19
4.4.4	An Archaeological Survey for the Proposed Keswick Housing Sub-division, Dubbo, NSW (CWAHS 1995)	19
4.4.5	Assessment of Aboriginal sites in the Dubbo City Area (Koettig 1985)	20
4.4.6	Dubbo Local Government Aboriginal Heritage Study (OzArk 2006)	20
4.4.7	Tracker Riley Cycle Way Extension, Dubbo NSW: Aboriginal Heritage Assessment (OzArk 2009)	20
4.5	Predictive model	21
5	Archaeological survey	23
5.1	General	23
5.2	Sampling strategy	23
5.3	Survey methods	24
5.4	Effective survey coverage	24
5.4.1	Pedestrian survey	24
5.4.2	Vehicle inspection	27
5.5	Aboriginal sites identified	38
5.5.1	Dubbo Quarry – Isolated Find 1 (DQ-IF1)	38
5.5.2	Dubbo Quarry – Isolated Find 2 (DQ-IF2)	39
5.5.3	Dubbo Quarry – Open Site 1 (DQ-OS1)	39
5.5.4	Dubbo Quarry – Open Site 2 (DQ-OS2)	41
5.6	Discussion	43
6	Significance assessment	44
6.1	General	44
6.2	Statement of significance	44
7	Impact assessment	47
7.1	Overview	47
7.2	Measures to minimise harm	47
7.3	Intergenerational equity	47
7.4	Cumulative impacts within the region	47

7.5	Potential impacts to unidentified sites	48
7.6	Ground vibration impacts	48
7.7	Summary of impacts	48
8	Recommendations	49
8.1	Management strategy	49
8.2	Proposed management measures	50
8.2.1	Overview	50
8.2.2	Aboriginal heritage management plan	50
8.2.3	Avoidance	50
8.2.4	Relocation	51
8.2.5	Special procedures	51
8.3	Additional assessment	53
8.4	Management summary	54
	References	55
	Glossary	57

Appendices

Appendix A	Aboriginal consultation	A.1
Appendix B	AHIMS data	B.1
Appendix C	Additional archaeological information	C.1

Tables

Table 1.1	SEARs Aboriginal heritage requirements	3
Table 4.2	AHIMS sites in proximity to the project area	15
Table 4.3	Aboriginal sites identified by CWAHS (1998)	18
Table 4.4	Aboriginal sites identified by CWAHS (1995)	19
Table 5.1	Landform classes and their corresponding landform elements	23
Table 5.2	Survey unit descriptions	26
Table 5.3	Effective survey coverage – survey unit summary	27
Table 5.4	Effective survey coverage – landform summary	27
Table 5.5	Aboriginal sites identified	38
Table 6.1	A summary of criteria used to assess the cultural significance (OEH 2011, 8–10)	44
Table 6.2	Significance of Aboriginal objects and/or sites identified	45

Table 8.1	Site management summary	50
Table C.1	Site definitions and recording	C.1

Figures

Figure 1.1	Regional setting of the project area	4
Figure 1.2	Local setting	5
Figure 1.3	Project area and proposed development footprint	6
Figure 3.1	Topography and hydrology of the project area	10
Figure 4.1	AHIMS data and the project area	14
Figure 5.1	Archaeological survey results	25

Plates

Plate 3.1	Distribution diagram of Wongarbone soil landscape illustrating the occurrence and relationship of dominant soil materials (Source: Murphy & Lawrie 1998, p.108)	11
Plate 5.1	Western SU1. Northern bank Eulomogo Creek. View east	28
Plate 5.2	Western SU1. Northern bank Eulomogo Creek. GSV example	28
Plate 5.3	Central SU1. Northern bank Eulomogo Creek. View west	28
Plate 5.4	Central SU1. Northern bank Eulomogo Creek. GSV example	28
Plate 5.5	Eastern SU1. Northern bank Eulomogo Creek. View west	28
Plate 5.6	Eastern SU1. Northern bank Eulomogo Creek. GSV example	28
Plate 5.7	Northern SU2. Graded ditch and fence line. View south-west	29
Plate 5.8	Northern SU2. Imported gravel and concrete. GSV example	29
Plate 5.9	Central SU2. View south-east.	29
Plate 5.10	Central SU2. GSV example	29
Plate 5.11	Southern SU2. Earthworks disturbance. View south	29
Plate 5.12	Eastern SU2. Graded disturbance. View north	29
Plate 5.13	Western SU3. View north-west	30
Plate 5.14	Western SU3. GSV example	30
Plate 5.15	Central SU3. View west	30
Plate 5.16	Central SU3. GSV example	30
Plate 5.17	Eastern SU3. View east	30
Plate 5.18	Eastern SU3. GSV example	30
Plate 5.19	Eastern boundary SU4. View north	31

Plate 5.20	Eastern SU4. GSV example	31
Plate 5.21	Central SU4. Large spoil mounds. View south-east	31
Plate 5.22	Central SU4. GSV example	31
Plate 5.23	Northern boundary SU4. View north-east	31
Plate 5.24	Western SU4. Highly disturbed. View south-west	31
Plate 5.25	Western SU5. Southern bank Eulomogo Creek. Location of DQ-IF2. View north	32
Plate 5.26	Western SU5. Southern bank Eulomogo Creek. GSV example	32
Plate 5.27	Central SU5. Southern bank Eulomogo Creek. View west	32
Plate 5.28	Central SU5. Southern bank Eulomogo Creek. GSV example	32
Plate 5.29	Eastern SU5. Southern bank Eulomogo Creek. Location of DQ-OS2. View north	32
Plate 5.30	Eastern SU5. Southern bank Eulomogo Creek. Location of DQ-OS2. View north	32
Plate 5.31	Eastern SU6. Edge of cultivated flat. View west	33
Plate 5.32	Eastern SU6. GSV example	33
Plate 5.33	Central SU6. View west	33
Plate 5.34	Central SU6. GSV example	33
Plate 5.35	Eastern SU6. View north-west	33
Plate 5.36	Eastern SU6. GSV example	33
Plate 5.37	Eastern SU7. View east	34
Plate 5.38	Eastern SU7. GSV example	34
Plate 5.39	Central SU7. View west	34
Plate 5.40	Central SU7. GSV example	34
Plate 5.41	Western SU7. View west	34
Plate 5.42	Western SU7. GSV example	34
Plate 5.43	Southern SU8. View north	35
Plate 5.44	Southern SU8. GSV example	35
Plate 5.45	Central SU8. View south	35
Plate 5.46	Central SU8. GSV example	35
Plate 5.47	Northern SU8. View north	35
Plate 5.48	Northern SU8. GSV example	35
Plate 5.49	Southern SU9. View south	36
Plate 5.50	Southern SU9. GSV example	36
Plate 5.51	Central SU9. View north	36
Plate 5.52	Central SU9. GSV example	36

Plate 5.53	Northern SU9. View north	36
Plate 5.54	Northern SU9. View north	36
Plate 5.55	Vehicle inspection. Central plateau. View north	37
Plate 5.56	Vehicle inspection. South-western plateau corner. View east	37
Plate 5.57	Vehicle inspection. North-eastern plateau corner. View east	37
Plate 5.58	Vehicle inspection. North-eastern plateau corner. View north	37
Plate 5.59	Vehicle inspection. South-eastern plateau corner. View east	37
Plate 5.60	Vehicle inspection. South-eastern plateau corner. View west	37
Plate 5.61	Location of DQ-IF1 within SU3. View north	38
Plate 5.62	DQ-IF1 sandstone manuport	38
Plate 5.63	DQ-IF1 – detail of ground surface	38
Plate 5.64	DQ-IF1 – detail of ground surface	38
Plate 5.65	Location of DQ-IF2 within SU5. Eulomogo Creek in background. View north-west	39
Plate 5.66	DQ-IF2 grinding dish fragment	39
Plate 5.67	DQ-IF2 – detail	39
Plate 5.68	DQ-IF2 – detail	39
Plate 5.69	Location of DQ-OS1 within SU4. View north-east	40
Plate 5.70	DQ-OS1 ground-edge axe fragment	40
Plate 5.71	DQ-OS1 quartz flaked artefacts	40
Plate 5.72	DQ-OS1 quartzite core	40
Plate 5.73	DQ-OS1 silcrete and basalt flaked artefacts	40
Plate 5.74	DQ-OS1 possible flaked glass artefact	40
Plate 5.75	Location of DQ-OS2 within SU5. Eulomogo Creek in background. View north-east	41
Plate 5.76	Location of DQ-OS2 within SU5. Eulomogo Creek in background. View north	41
Plate 5.77	DQ-OS2 ground-edge axe fragment	41
Plate 5.78	DQ-OS2 ground-edge axe fragment - detail	41
Plate 5.79	DQ-OS2 grinding stone	42
Plate 5.80	DQ-O2 ground-edge axe fragment and flaked artefacts	42
Plate 5.81	DQ-OS2 flaked artefacts	42
Plate 5.82	DQ-OS2 flaked artefacts	42
Plate 5.83	DQ-OS2 grinding dish fragment	42
Plate 5.84	DQ-OS2 grinding dish fragment – detail	42

Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
ACHCRs	Aboriginal Cultural Heritage Consultation Requirements for Proponents
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
BP	Years before present
c.	circa
cm	centimetres
CVA	Cultural Values Assessment
DECCW	Department of Environment Climate Change and Water, now DPC
DPC	Department of Premier and Cabinet
DPIE	Department of Planning, Industry and Environment
DPIE BCD	Department of Planning, Industry and Environment Biodiversity and Conservation Division (formerly OEH)
DRC	Dubbo Regional Council
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Ltd
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ha	hectare
Heritage NSW	Heritage NSW Aboriginal Cultural Heritage Regulation Team of the Department of Premier and Cabinet (formerly DPIE)
LALC	Local Aboriginal Lands Council
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
m ²	square metres
Mm	millimetres
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	Office of Environment and Heritage (now Heritage NSW)
PAD	Potential archaeological deposit
RAP/s	Registered Aboriginal Party/Parties
SEA	Southern Extension Area
SEARs	Secretary's Environmental Assessment Requirements
SHR	State Heritage Register
SSD	State significant development
SU	Survey unit
WEA	Western Extension Area

1 Introduction

1.1 Overview

Holcim (Australia) Pty Limited (Holcim) are the owners and operators of Dubbo Quarry (the quarry) located on Sheraton Road, Dubbo (refer Figure 1.1 and Figure 1.2). The quarry has operated since 1980 under a development consent granted by Dubbo Regional Council (DRC). Accessible basalt resources within the existing quarry boundary are close to exhaustion and planning approval is required to allow the quarry to continue operating. Holcim is, therefore, seeking approval for the Dubbo Quarry Continuation Project (henceforth referred to as 'the project') which involves the continued operation of the quarry through the development of two new resource areas to the south and west of the existing quarry boundary (refer Figure 1.3).

The project is classified as State significant development (SSD) under Part 4, Division 4.1 of the NSW *Environmental Planning Assessment Act 1979* (EP&A Act). This report will accompany the environmental impact statement (EIS) prepared for the project.

1.2 The site

The quarry is located within Dubbo Regional Local Government Area (LGA) approximately 1.9 kilometres (km) west of the city of Dubbo. The quarry is accessed via Sheraton Road which connects to the Mitchell Highway approximately 2 km north-west of the quarry.

The project area relates to the following land as shown on Figure 1.3:

- Lot 222 DP 1247780, owned by Holcim; and
- Part Lot 100 DP 628628, for which Holcim propose to enter into an Access Licence with the landowners.

Development consent for Dubbo Quarry was originally granted by Talbragar Shire Council on 18 March 1980 under SPR79/22 (the existing consent). This consent related to the establishment of a basalt quarry on former Portions 208 and 211, Parish Dubbo (the existing site) and contains eight conditions with no restrictions on production rates or operating hours. Holcim also holds Environment Protection Licence (EPL) No. 2212 for land-based extraction activities between 100,000 and 500,000 tonnes per annum (tpa).

The quarry produces high quality aggregates for use in the construction industry, such as concrete and asphalt production, and for use as road base. Precoated sealing aggregates from crushed basalt are produced at the quarry. The quarry produces many types of road base, both specification and non-specification, such as the premium road base product Heavy Duty DGB20 which is frequently used by local councils and Roads and Maritime Services (RMS) for the construction and upgrade of roads.

1.3 Project overview

The project involves continued operations within the existing site and into two new resource areas as described below (refer Table 1.1):

- the existing approved disturbance boundary within Lot 222 DP 1247780 which is approximately 32.5 hectares (ha) in size and contains approximately 960,000 t of remaining resource;
- the Western Extension Area (WEA) which is west and north-west of the existing quarry boundary, located within Lot 222 DP 1247780 (north and south of Sheraton Road), is approximately 6.5 ha in size and contains approximately 2.24 Million tonnes (Mt) of resource; and

- the Southern Extension Area (SEA) which is south of the existing quarry boundary on the southern side of Eulomogo Creek, located within part Lot 100 DP 628628, is approximately 13.6 ha in size and contains approximately 5.17 Mt of resource.

A new haul road and crossing over Eulomogo Creek would also be constructed as part of the project to connect the existing site with the SEA. The quarry's access road, which connects to Sheraton Road, is to be relocated around the boundary of the WEA.

The existing consent for quarry operations places no restriction on production, with the existing infrastructure having the capacity to produce a maximum of 500,000 tpa. At an average production rate of 350,000 tpa the two proposed extension areas provide sufficient resource for quarry operations to continue for approximately 20-25 years.

1.4 Report objectives

This Aboriginal Cultural Heritage Assessment (ACHA) has been prepared by EMM to assess the potential Aboriginal heritage impacts associated with the project.

The objectives of the ACHA are to:

- identify Aboriginal cultural heritage values relevant to the project area which include:
 - Aboriginal objects and sites;
 - Aboriginal socio-cultural or historic values which might not be related to Aboriginal objects; and
 - areas of archaeological sensitivity;
- assess the significance of Aboriginal objects, sites and locations identified in the course of the archaeological investigations and through Aboriginal community consultation;
- assess the impact of the project on identified Aboriginal cultural heritage values; and
- propose appropriate management measures for potentially impacted Aboriginal cultural heritage values in response to their assessed significance.

This assessment addresses the relevant Secretary's Environmental Assessment Requirement (SEARs) (refer to Section 1.5) and has been prepared in accordance with:

- *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (the Code) (DECCW 2010a);
- *Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW* (DECCW 2010b);
- *Aboriginal Consultation Requirements for Proponents* (DECCW 2010c); and
- *Australian International Council on Monuments and Sites (ICOMOS) Burra Charter* (Australia ICOMOS 1999).

1.5 Secretary's Environmental Assessment Requirements

SEARs for the project were issued on 3 April 2020. SEARs relating to Aboriginal heritage are provided in Table 1.1.

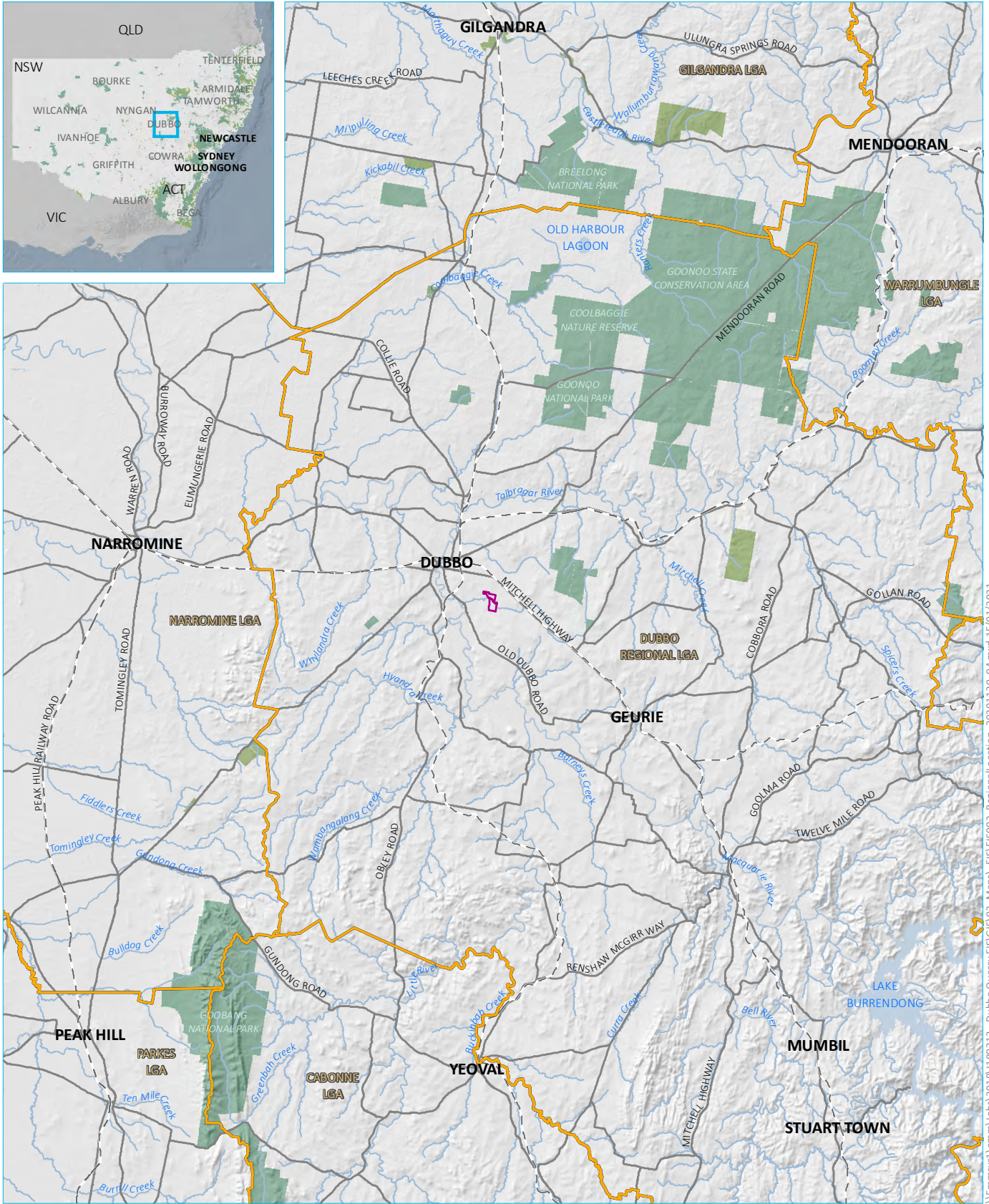
Table 1.1 SEARs Aboriginal heritage requirements

SEARs	Report section
DPIE	
Heritage	This report.
- an assessment of the potential impacts on Aboriginal heritage (cultural and archaeological), including evidence of appropriate consultation with relevant Aboriginal communities/parties and documentation of the views of these stakeholders regarding the likely impact of the development on their cultural heritage; and	Note: This report only includes matters relating to Aboriginal cultural heritage and not historical heritage, which is addressed in respective environmental impact statement (EIS) main documents and not in this document.
- identification of historic heritage in the vicinity of the development and an assessment of the likelihood and significance of impacts on heritage items.	
Heritage NSW	
6. The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the project and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (OEH 2010), and guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011) and consultation with DPIE regional branch officers.	This report.
7. Consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.	Section 2
8. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to DPIE.	Section 7

1.6 Authorship and acknowledgements

This report was written by EMM Senior Archaeologist Morgan Wilcox (Bachelor Archaeology (Hons)) and reviewed by EMM Associate Archaeologist Ryan Desic (Bachelor of Arts (Hons) Prehistoric and Historical Archaeology).

EMM would like to thank the registered Aboriginal parties (RAPs) for their involvement in ongoing consultation, knowledge sharing and fieldwork assistance. Special thanks are extended to Raymond Smith and Paul Carr for their participation in the survey effort.



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



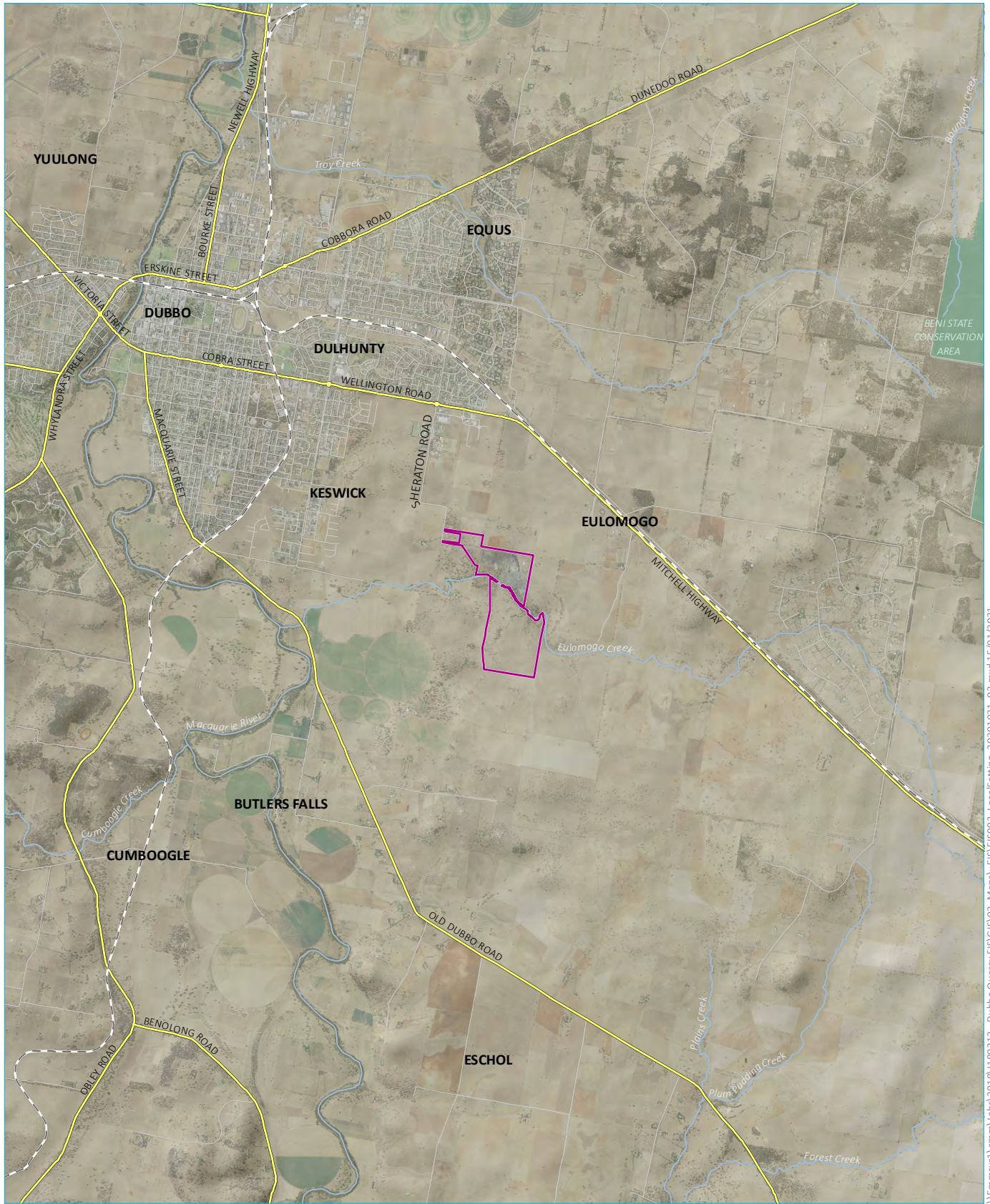
- KEY**
- Project area
 - Rail line
 - Major road
 - Named watercourse
 - Named waterbody
 - Local government area
 - NPWS reserve
 - State forest

Regional setting

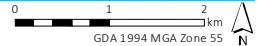
Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.1



\\Emmsvr1\emms\Jobs\2018\1180313 - Dubbo Quarry EIS\GIS\02_Maps\EIS\EIS02_RegionalLocation_20201120_04.mxd 15/01/2021



DFS1 (2017); DFS1 (2020); EMM (2020)



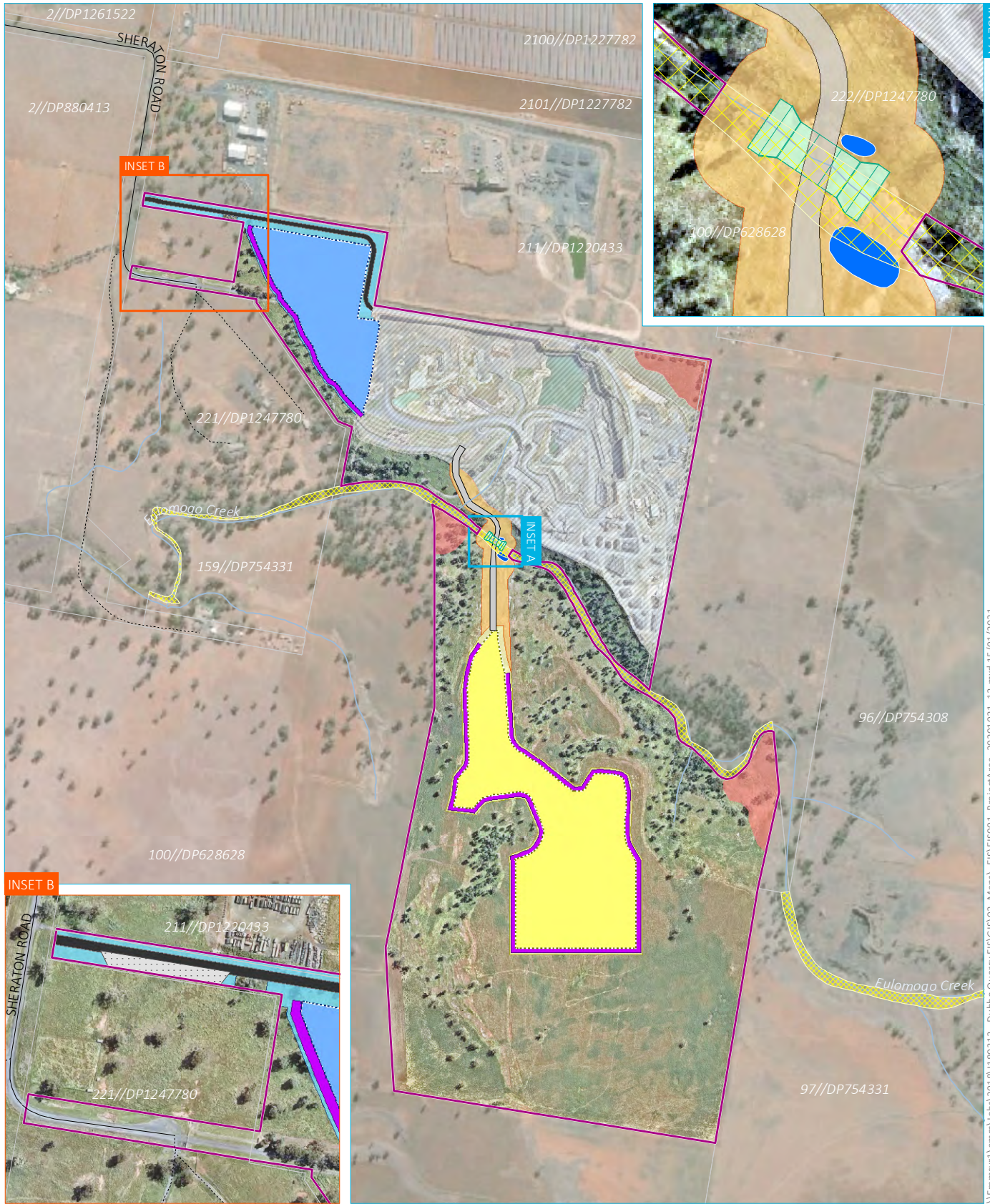
- KEY**
- Project area
 - Rail line
 - Major road
 - Minor road
 - Named watercourse
 - NPWS reserve

Local context

Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.2



\\Emmsvr1\emms\jobs\2018\1180313 - Dubbo Quarry EIS\GIS\02_Maps\EIS\EIS003_LocallSetting_20201021_03.mxd 15/01/2021



Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020)

KEY

- | | | |
|--------------------------------------|----------------------------|--|
| Project area | Proposed access road | Minor road |
| Sediment pond | Truck tarping area | Vehicular track |
| Aboriginal protection zone | Western extension area | Watercourse/drainage line |
| Indicative existing disturbance area | Western disturbance area | Waterbody |
| Proposed haul road | Haul road disturbance area | Cadastral boundary (data does not align with surveyed site boundary) |
| Indicative proposed water crossing | Southern extension area | Crown land |
| Bund wall | Southern disturbance area | |

Project area and proposed development footprint



Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.3



\\Emmsvr1\emms\jobs\2018\180313 - Dubbo Quarry EIS\GIS02_Maps\EIS\GIS001_ProjectArea_20201021_13.mxd 15/01/2021

2 Aboriginal consultation

2.1 Statutory context

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010c) were used for the project. The stages of consultation and their outcomes are provided in the headings below. Each private Aboriginal organisation or individual who requested to be registered for consultation within the timeframes of the requirements is referred to as a registered Aboriginal party (RAP).

A copy of the consultation log and copies of all notifications and responses received are included in Appendix A.

2.2 Stage 1 – Notification of project proposal and registration of interest

2.2.1 Agency contact

A letter requesting advice on which Aboriginal parties to invite for consultation and all known heritage matters to be taken into consideration, was posted to the following agencies on 9 May 2019:

- Heritage NSW Aboriginal Cultural Heritage (ACH) Regulation Team of the Department of Premier and Cabinet (then Department of Planning, Industry and Environment Biodiversity and Conservation Division [DPIE BCD]);
- Dubbo Local Aboriginal Land Council (Dubbo LALC);
- DRC;
- Central West Local Land Services;
- National Native Title Tribunal;
- Native Title Services Corp; and
- Office of the Registrar, Aboriginal Land Rights Act 1983 (Office of the Registrar).

Four responses, included in Appendix A, were received from Heritage NSW, Dubbo LALC, National Native Title Tribunal and Office of the Registrar. A total of 16 organisations and/or individuals were identified.

2.2.2 Media advertisement

A public notice was placed in the local newspaper, the Dubbo Daily Liberal on 27 May 2019. A copy of this notice is in Appendix A. The advertisement invited all Aboriginal persons and organisation who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the project area to register their interest by 10 June 2019.

2.2.3 Aboriginal groups invitation to register

On 27 May 2019 EMM sent letters inviting registrations via post and email to the Aboriginal parties identified by the agency requests.

The Aboriginal parties who registered an interest in being consulted for the project are listed below:

- Dubbo LALC; and
- Dubbo City Council Aboriginal Community Working Party.

2.3 Stages 2 and 3 – Presentation of project and method information

A letter was sent to all RAPs on 11 June 2019 detailing fieldwork methodology, details and requirements as well as a request for cultural information about the project area. Responses were requested by 9 July 2019, however no responses were received.

An archaeological survey of the project area was conducted between 16 July and 18 July 2019 by EMM Senior Archaeologist Morgan Wilcox, accompanied by Raymond Smith (Dubbo LALC) and Paul Carr (Dubbo City Council Aboriginal Community Working Party). The RAPs were offered the opportunity to provide cultural information given that they had the opportunity to inspect the project area and gather context about its location and landscape.

On 19 December 2019, RAPs were sent a project update email advising that the scoping report was being finalised and project SEARs were anticipated the first quarter of 2020.

On 16 July 2020, all RAPs were sent a project update email advising that SEARs had been issued on the 3 April 2020 and the proposed project design was being finalised. RAPs were notified that they would receive the draft ACHA in the near future for their review and comment.

2.4 Stage 4 – Distribution of draft ACHA for review

The draft ACHA was sent to the RAPs on 4 August 2020. The RAPs were invited to provide comment on the report as well as the significance of cultural heritage relevant to the project area. Responses were requested by 2 September 2020. A follow-up email was sent on 7 September 2020 to all RAPs.

No responses or comments on the draft ACHA were received.

3 Landscape context

3.1 Rationale

The environmental context is used to predict the spatial distribution, preservation, and likelihood of archaeological material. Landscape features were an important factor for the choice of camping, transitory and ceremonial areas used in the past by Aboriginal people. Natural resources, including raw stone materials and local flora and fauna, would have provided food, tools and material resources. These resources are linked to the topography, hydrology, geology and soil types in the region. Additionally, natural, and cultural (human-made) site formation processes influence the present potential for archaeological material to occur in the area.

3.2 Topography and geology

The project area lies within the Brigalow Belt South Bioregion and predominantly falls within the Talbragar Basalts ecosystem and Dubbo Basalts landscape unit (Mitchell 2002, p.15) as shown on Figure 3.1. The north-eastern portion of the project area falls within the Pilliga ecosystem and Goonoo Slopes landscape unit (Mitchell 2002, p.13).

The topography of the Dubbo Basalts landscape unit is characterised by slightly elevated plains and low hills on flat lying Tertiary volcanics (basalt and trachyte) with stony hillocks (Mitchell 2002, p.15). General elevation across this landscape ranges from 300–330 m above sea level (asl) with a local relief of 10 m.

The topography of the Goonoo Slopes landscape unit is characterised by extensive undulating to stepped low hills with long slopes on Triassic/Jurassic quartz sandstone, conglomerates, siltstone, shale, and some coal (Mitchell 2002, p.13). General elevation across this landscape ranges from 300–500 m asl, with a local relief of 30 m, and a predominantly westerly aspect with poorly defined drainage networks.

Topography of the project area features subtly undulating slopes and plains ranging in elevation from 280–310 m asl predominantly on a westerly aspect, with local relief in proximity to Eulomogo Creek.

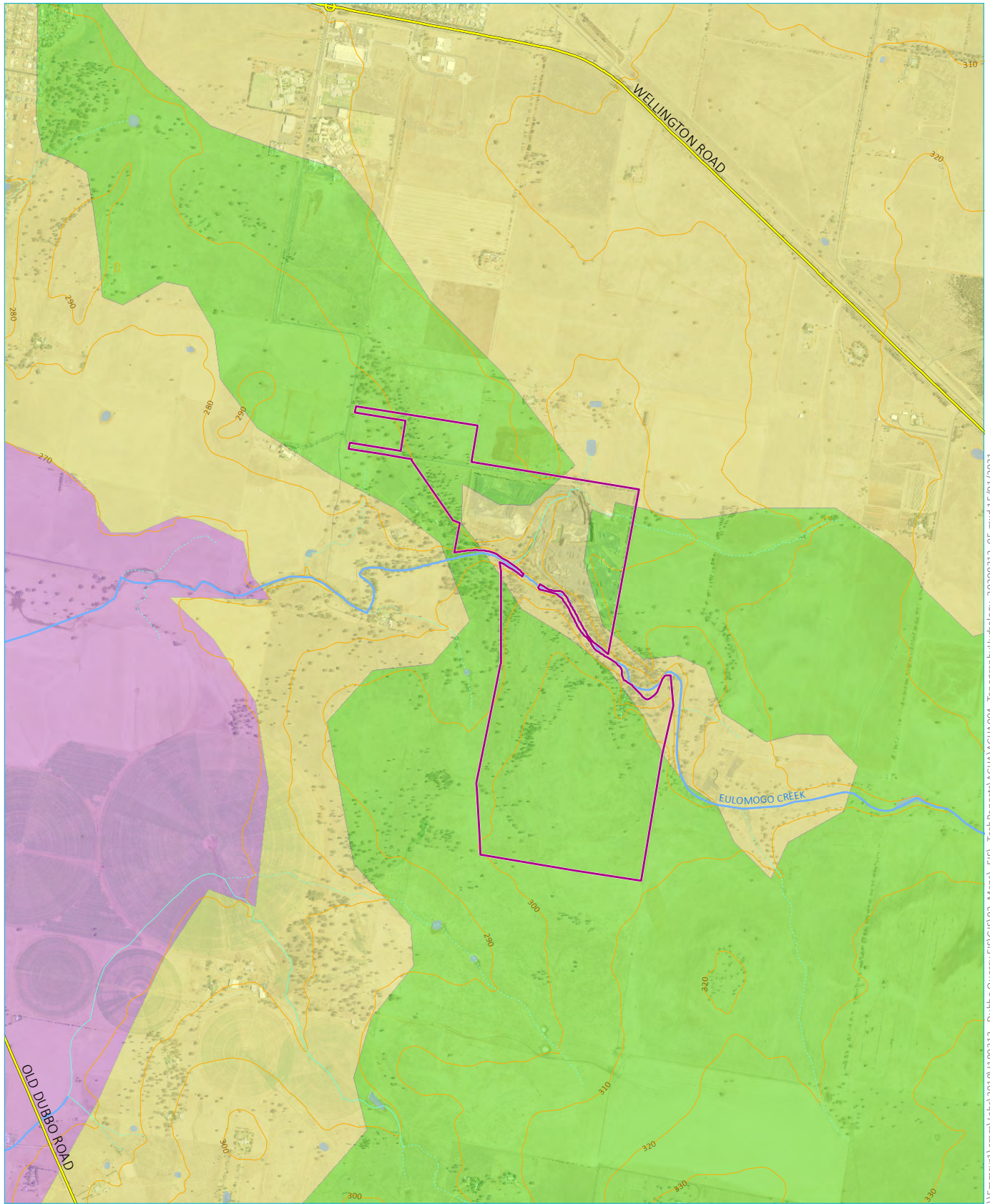
3.3 Hydrology

The project area lies within the Brigalow Belt South Bioregion through which several major rivers flow including the MacIntyre, Gwydir, Namoi, Castlereagh, Goulburn, Talbragar and Macquarie Rivers, their catchments forming an integral part of the Murray-Darling Basin.

The main hydrological features of the project area and its surrounds, as shown on Figure 3.1, comprise:













- Macquarie River (9th order stream in accordance with the Strahler system of stream order) located approximately 2.7 km west of the project area;
- Eulomogo Creek (3rd order) which transects the project area on an east–west alignment; and
- a number of ephemeral drainage lines (1st and 2nd order) within the project area.

The hydrology of the project area provides a semi-permanent water supply, in addition to water collecting in stone outcropping and depressions during rainfall events in the form of linear gilgai (Murphy & Lawrie 1998, p.107).



Source: EMM (2020); DFSI (2020); DFSI (2017); OEH (2019)

0 0.5 1 km
GDA 1994 MGA Zone 55

KEY		
	Project area	 Mitchell landscape
	Major road	 Dubbo Basalts
	Waterbody	 Goonoo Slopes
	Contour (10 m)	 Macquarie Alluvial Plains
	 Strahler stream order	
	 1st order	
	 2nd order	
	 3rd order	

Topography and hydrology of the project area

Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.1



\\Emmsvr1\emmsr\jobs\2018\1180313 - Dubbo Quarry EIS\GIS\02_Maps\EIS_TechReports\ACHA\ACHA004_TopographyHydrology_20200312_05.mxd 15/01/2021

3.4 Soils

The project area falls within the Wongarbone soil landscape which is characterised by friable surface soils with moderate to high susceptibility to erosion (Murphy & Lawrie 1998, p.107). This soil landscape features two co-dominant soil types (refer to Plate 3.1).

1. **Euchrozems:** typically occur on mid to lower slopes and crests. Features hard setting topsoils of dark reddish-brown clay loam to light clay with a fine blocky to polyhedral structure to a depth of 15 cm, with a gradual transition to dark reddish-brown light to medium clay subsoil. Calcium carbonate (ie limestone) bedrock occurs at depth (80–100 cm).
2. **Cracking clays:** typically occur on mid to lower slopes and features cracking clays crack on drying and swell on wetting throughout the profile. Topsoils comprise reddish-brown medium self-mulching clay with a strong fine blocky structure and calcium carbonate nodules to a depth of 8–10 cm, and subsoils comprise reddish-brown heavy clays with strong coarse layered, or lenticular structure alternating with soft calcium carbonate concretions to depths exceeding 100 cm.

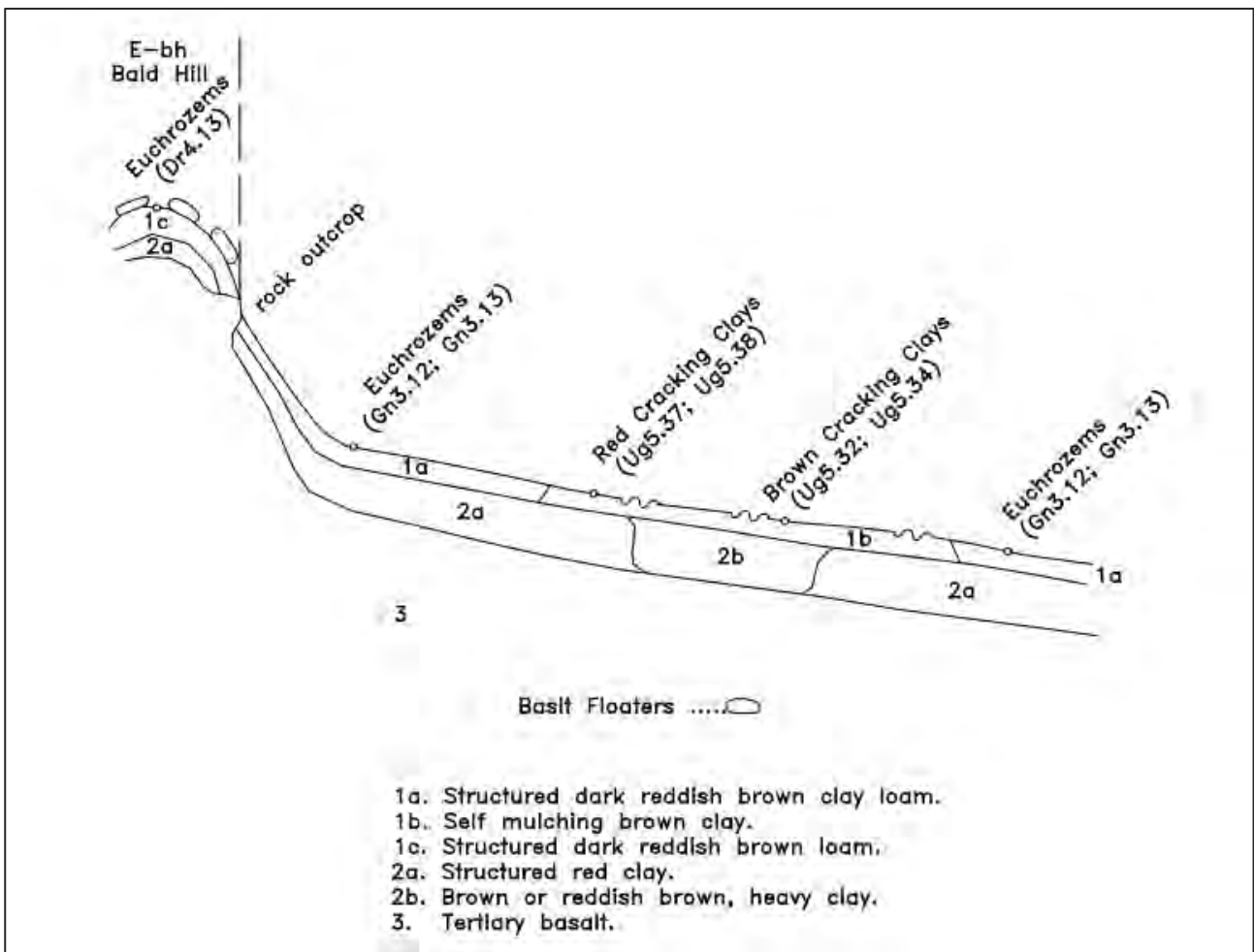


Plate 3.1 Distribution diagram of Wongarbone soil landscape illustrating the occurrence and relationship of dominant soil materials (Source: Murphy & Lawrie 1998, p.108)

3.5 Flora and fauna

The project area has remnants of pre-colonial ecological communities that would have covered the landscape; however, most of it has been cleared leaving only isolated paddock trees or small pockets of trees. Broad scale assessment of vegetation in NSW indicates that the following vegetation communities have the potential to occur within the project area (Mitchell 2002, pp.13, 15; Murphy & Lawrie 1998, p.107):

- **Ridges:** Broad-Leaved Ironbark (*Eucalyptus fibrosa ssp. fibrosa*) and Black Cypress Pine (*Callitris endlicheri*);
- **Slopes:** Broad-Leaved Ironbark, Narrow-Leaved Ironbark (*Eucalyptus crebra*), Red Ironbark (*Eucalyptus sideroxylon*), Fringe Myrtle (*Calytrix tetragona*), Spur-Wing Wattle (*Acacia triptera*), Daphne Heath (*Brachyloma daphnoides*) with patches of Green Mallee (*Eucalyptus viridis*), Dwyer's Mallee Gum (*Eucalyptus dwyeri*) and Broombush (*Melaleuca uncinata*);
- **Plains:** White Box (*Eucalyptus albens*), Yellow Box (*Eucalyptus melliodora*), White Cypress Pine (*Callitris columellaris*) and Rough-Barked Apple (*Angophora floribunda*) with diverse grasses; and
- **Adjacent to waterways:** Grey Box (*Eucalyptus microcarpa*), Red Ironbark, Red Stringybark (*Eucalyptus macrorhyncha*), Fuzzy Box (*Eucalyptus conica*) and Blakely's Red Gum (*Eucalyptus blakelyi*) with Knob Sedge (*Carex inversa*) and Tall Sedge (*Carex appressa*).

Of the trees listed above, box eucalypts are most commonly recorded with Aboriginal scarring and carving in the western plains region, as well as occasional pine and mallee species (DECCW 2005, p. 62).

Pre-colonial biodiversity in the project area would have been greater than today and without the impact of widespread vegetation clearance. Native birds, reptiles, mammals, insects, and aquatic life would have occupied the landscape providing various resources for consumption by Aboriginal people.

3.6 Land use and disturbance

The project area is currently broadly used for pastoralism and cultivation, in addition to the current operations of the quarry. Neighbouring land-use practices include a neighbouring quarry and solar farm to the immediate north, in addition to surrounding low density rural residential housing approximately 1.5 km east of the project area.

The majority of the project area been modified by historical land use practices and past disturbances associated with land clearing, manual and machine rock-picking, cropping, and intensive livestock grazing which has increased susceptibility to sheet and gully erosion. Although widespread clearing has occurred, there are a number of mature trees that have survived for use as shade for livestock. Areas with significant outcropping bedrock have also been historically cleared of vegetation; however, depending on the nature and extent of bedrock, are likely to have been avoided from repeated cropping due to inaccessibility from farming machinery.

Further details of disturbance levels observed in the field are presented in Section 5.4 and Table 5.2.

4 Aboriginal heritage context

4.1 Ethno-historical overview

Information about the socio-cultural structure of Aboriginal society prior to European contact largely comes from ethno-historic accounts made by Europeans. These accounts and observations were made after massive social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language area boundaries.

The project area falls within the Aboriginal language group boundary of the *Wiradjuri*; which can be broken down into two sub-groups, the *Dundullimal* and *Tubba-Gah* for the Dubbo area (Bowdler 1983:22). Norman Tindale (1974) recorded the Wiradjuri country as stretching from the Wongaibon country in the west, and Wailwan country in the north, which he recorded as stretching between Gilgandra, Nyngan, Brewarrina and down to Coonabarabran. Later Horton (1994) recorded Wiradjuri country as extending to the Gilgandra, Nyngan and Bogan River areas. Within the Wiradjuri language group, there is some debate on the extent of the Tubba-Gah and Dundullimal territories. Many argue that the Tubba-Gah country extends from the eastern margin of the Macquarie River, to the Talbragar River in the south and to Eulomogo creek, and the location of the project area, in the north while the Dundullimal occupy the western side of the Macquarie River. However, many Aboriginal communities argue that the Tubba-Gah country also encompasses the western side of the Macquarie River (Grounds 1983; Helton 1995:7-8; Koettig 1985:21-22).

The first historical references of the Wiradjuri language group in this region were recounted by John Oxley (1820), Charles Sturt (1833) and E.J Garnsey (1942). Garnsey who was born in Dubbo, had an interest in Aboriginal cultures and his studies of their everyday life and ceremonial practices are still a valuable source of information on the Wiradjuri people in the Dubbo area. These accounts of Wiradjuri culture provide recorded information and supplements the invaluable oral histories provided by traditional owners (Koettig 1985). Garnsey (1942:6) describes the campsites as bark structures arranged in a semi-circle open towards the east, with a fire in the centre and men's huts located on the northern end, women's huts located in the middle and children on the southern end. The people were semi-nomadic, moving short distances in response to hygiene issues, social reasons and deteriorating weather conditions while long distance travelling was reserved for more significant events such as for ceremonial purposes, warfare, or once local resources were depleted.

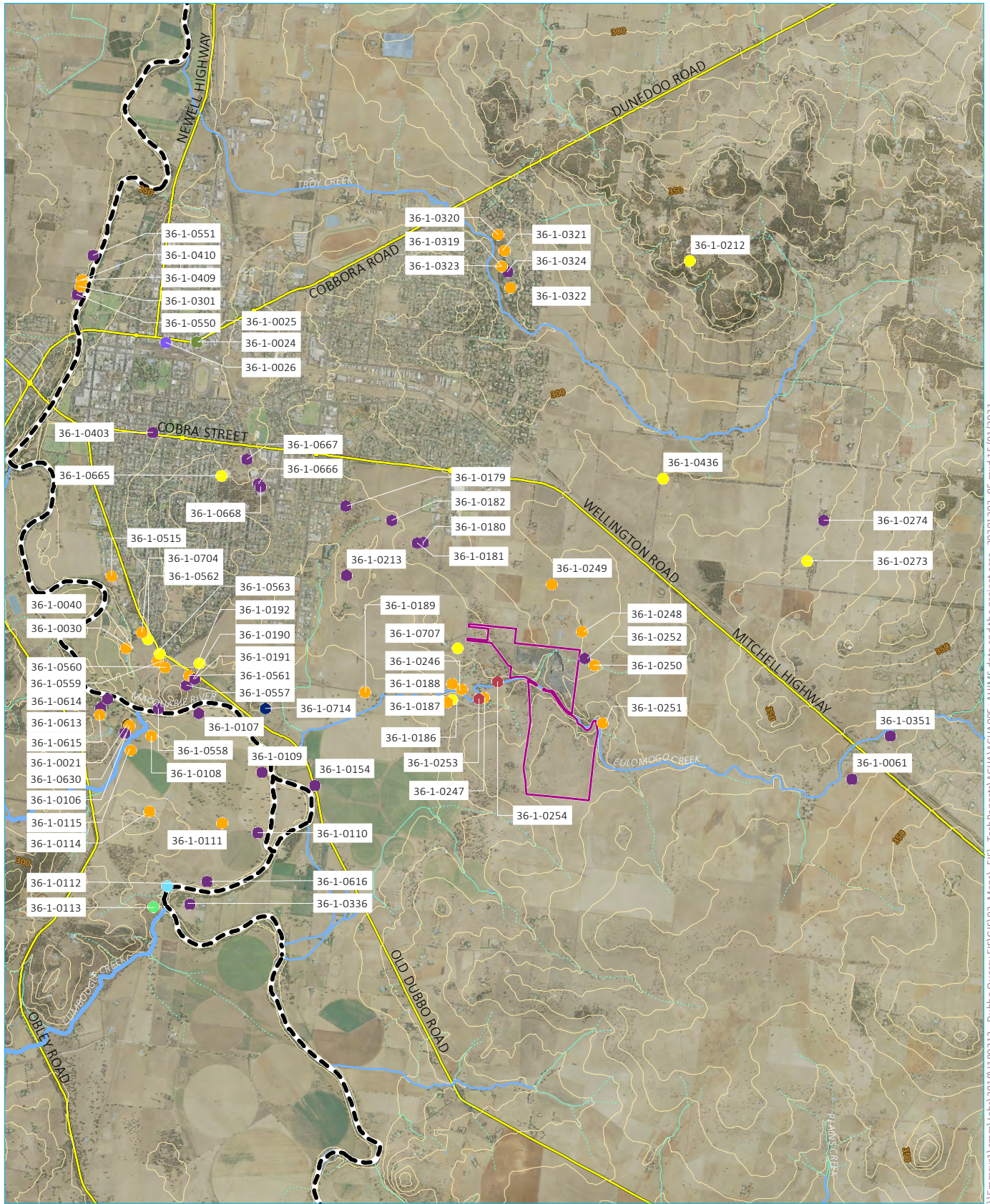
Garnsey (1942) discusses the ceremonial practices involved with the initiation of youth into adulthood and alterations in social status, though this results from oral histories which are difficult to confirm with any certainty. He notes that social structures within the group began to break down in the 1890s after the colonial contact period when only the older men possessed the knowledge of ceremonial practices and still maintained their traditional markings (Garnsey 1942:14).

4.2 AHIMS data

A search of the Aboriginal Heritage Management System (AHIMS) database was completed on 25 February 2019 (ID 401606), and an updated search was completed on 16 July 2020 (ID 521010) (Appendix B).

The search identified 78 sites within a 10 km x 10 km search area centred on the project area (Figure 4.1). The search area was sufficient to define the pattern of previously recorded Aboriginal sites in the landscape as it covered adjacent catchments. It is important to note that a lack of sites identified on the AHIMS database does not necessarily correlate with a low frequency of sites being present, rather it is more often a reflection of the amount of archaeological survey that has been done in the area. This means that Aboriginal objects may be present in the project area despite the apparent lack of AHIMS sites.

A breakdown of AHIMS sites by type is shown on Figure 4.1 and detailed in Table 4.1.



Source: EMM (2020); DFSI (2017); DFSI (2020); OEH (2019)



- | | | | |
|----------------|-----------------|---|--------------------|
| Project area | Strahler stream | AHIMS site | Axe grinding |
| Major | 1st | Artefact | Burials and carved |
| Contour (10 m) | 2nd | Artefact scatter and | Carved |
| | 3rd | Artefact scatter with PAD | Isolated |
| | 4th | Artefact scatter, midden and scarred | Quarry |
| | 9th | Artefact scatter, axe grinding groove and | Scarred |

AHIMS data and the project area

Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 4.1



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Table 4.1 AHIMS extensive search results

Site Type	Number of sites	Representation (%)
Open camp sites	38	48.7
<i>Artefact site (number of artefacts not specified)</i>	24	30.8
<i>Artefact scatter</i>	8	10.3
<i>Isolated find</i>	6	7.7
Culturally modified tree	30	38.5
Grinding groove	2	2.6
Burial with culturally modified tree (carved)	2	2.6
Potential archaeological deposit (PAD)	1	1.3
Quarry site with artefacts	1	1.3
Culturally modified tree (scarred) with midden and artefacts	1	1.3
Midden with artefacts	1	1.3
Aboriginal ceremony & dreaming, hearth, grinding groove, artefacts	1	1.3
Artefact reburial location	1	1.3
Total	78	100

Open camp sites (artefact scatters and isolated finds) represent the dominant site type for this area representing 48.7% of the site assemblage, followed by culturally modified (carved or scarred) trees were also predominant which account for 38.5% of AHIMS registrations.

Three of the AHIMS sites, Macquarie-OS1 (AHIMS 36-1-0704), Keswick-Scarred Tree-5 (AHIMS 36-1-0179), and K-OS-4 (AHIMS 36-1-0189) are listed as destroyed; however, an additional 15 sites have permits for harm listed against their registration.

There are no AHIMS sites recorded within the project area; however; there are 13 of sites within 1 km which are detailed in Table 4.2. Further information on these sites is provided below in Section 4.4.

Table 4.2 AHIMS sites in proximity to the project area

Site ID	Site name	Site type	Distance from project area (m)	Section discussed in current report
36-1-0251	EC-OS-6	Artefact (number not specified)	83	Section 4.4.2
36-1-0254	EC-AG-1	Grinding groove	128	Section 4.4.2
36-1-0247	EC-OS-2	Artefact (number not specified)	265	Section 4.4.2
36-1-0707	Hillview-IF1	Artefact (number not specified)	289	Section 4.4.3
36-1-0253	EC-AG-2	Grinding groove	318	Section 4.4.2
36-1-0246	EC-OS-1	Artefact (number not specified)	540	Section 4.4.2
36-1-0252	EC-ST-1	Modified tree	589	Section 4.4.2
36-1-0250	EC-OS-5	Artefact (number not specified)	607	Section 4.4.2
36-1-0186	K-IF-2	Isolated find	634	Section 4.4.4

Table 4.2 AHIMS sites in proximity to the project area

Site ID	Site name	Site type	Distance from project area (m)	Section discussed in current report
36-1-0187	K-OS-2	Artefact (number not specified)	643	Section 4.4.4
36-1-0188	K-OS-3	Artefact (number not specified)	666	Section 4.4.4
36-1-0249	EC-OS-4	Artefact (number not specified)	710	Section 4.4.2
36-1-0248	EC-OS-3	Artefact (number not specified)	805	Section 4.4.2

4.3 Regional archaeological context

Prior to 1985, no systematic archaeological studies had been undertaken in the Dubbo region. Studies had primarily been completed by interested locals and amateur archaeologists such as Gresser (1941) and Milne (Kaus 2003), and to a lesser extent Garnsey, who recorded a number of sites and collected artefacts.

Over the past 40 years a number of archaeological studies of the Dubbo region have been conducted which provide baseline data for placing Aboriginal sites within a regional landscape context, including Pearson (1981) and Balme (1986). Systematic archaeological studies of the region have been completed by Purcell (2000, 2002) and OzArk (2006) which assessed the Brigalow Belt South (BBS) bioregion and the Dubbo LGA, respectively.

4.3.1 Aboriginal Cultural Heritage Assessment Brigalow Belt South (Purcell 2000, 2002)

Between 2000 and 2002, Purcell completed an Aboriginal cultural heritage assessment of the Pilliga and Goonoo State Forests with the aim of increasing understanding of the cultural links between Aboriginal people and the BBS bioregion. Landforms sampled within the state forests included floodplains, soil mantled slopes, terraces, rocky ground, and alluvium.

During the Stage 1 assessment (Purcell 2000), 47 Aboriginal sites were recorded through consultation, oral history, and archival investigations, and 106 Aboriginal sites were identified as a result of archaeological survey. Purcell (2000, p.31) found that sites were most frequently associated with alluvium landforms, demonstrating that 91.5% of sites were located within 200–300 m of water.

Stage 2 of the assessment focused on targeted archaeological survey of landforms identified as potentially sensitive during Stage 1. A total of 849 Aboriginal sites were recorded as a result of the survey, including site types such as artefact scatters, scarred trees, isolated finds, rock engravings, shelters with art, ochre quarries, stone arrangements, and stone quarries. The results of Stage 2 reinforced Stage 1 findings, with the distribution of Aboriginal sites heavily influenced by the variety of water features that occur on floodplain and alluvium landforms including river frontage locations, creek tributaries and chain of ponds.

4.3.2 Dubbo Local Government Aboriginal Heritage Study (OzArk 2006)

In 2006, OzArk assessed Aboriginal heritage resources within the Dubbo LGA to assist Dubbo City Council with future development planning. The study aimed to consolidate previous assessments, establish a baseline for further study, and to survey areas zoned for future development.

Approximately 1,120 ha within five study areas were surveyed surrounding the city of Dubbo. As a result of investigations 26 new Aboriginal sites were recorded, and eight of 12 previously recorded sites were relocated. Proportions of new sites by types were similar to those recorded by previous studies, however fewer scarred trees were identified than expected likely due to intensive agricultural practices and associated land clearance around the city of Dubbo as opposed to the broader region. No new grinding groove sites were identified, which was anticipated due to the low representation (3.6%) in the archaeological record to date. Scarred tree distribution adhered to predictive modelling, exclusively following waterways and fence lines, the latter representative of land clearing practices more than Aboriginal site patterning. Isolated finds and open artefact sites were largely limited to watercourse edges and elevated terraces within 500 m of the Macquarie River and other permanent to semi-permanent waterways.

Findings of the OzArk LGA study findings of specific relevance to the project area are discussed further in Section 4.4.6.

4.4 Local archaeological context

The following is a summary of previous investigations undertaken in the locality, addressing sites identified by the AHIMS extensive search, which are discussed in order of proximity to the project area.

4.4.1 Aboriginal archaeological due diligence assessment, proposed extension to Dubbo Quarry, Sheraton Road NSW (Umwelt 2018)

As part of the current project to continue operations at Dubbo Quarry, Holcim engaged Umwelt in 2018 to complete an Aboriginal heritage due diligence assessment of Lot 22 DP793541 which lies within the current project area.

A site inspection identified the main landform as a broad crest with gently inclined slope to the west (Umwelt 2018, p.5). Ground surface visibility was noted to be 75% constrained by exotic grasses and weeds apart from stock and vehicle tracks. Where the ground surface was visible it was assessed to comprise of remnant A² horizon soils of a red/brown, coarse sandy loam. Umwelt (2018, p.5) noted that the ground surface had been highly disturbed due to clearance of native vegetation and pastoral use, leading to significant erosion. They identified the level of erosion within their subject area as particularly important, particularly when considered in conjunction with the extremely shallow topsoils present in the subject area. They concluded that these characteristics together indicate a low archaeological potential as there is less chance that intact deposits will remain in skeletal topsoil.

No Aboriginal sites were identified as a result of the inspection. Mature eucalypts within the project area were examined for cultural scarring and no artefacts or evidence of flaking or fracturing on the basalt outcropping or pebbles was identified.

Umwelt (2018, p.8) recommended that the proposed works proceed without further archaeological investigation.

4.4.2 Aboriginal archaeological survey of industrial candidate area no 1. – Mitchell/Eulomogo, east of Dubbo, Central West Plains, NSW (CWAHS 1998)

In 1998, Central West Archaeological and Heritage Services Pty Ltd (CWAHS 1998) was commissioned by Dubbo City Council to complete an archaeological assessment of 300 ha of privately-owned land identified as a potential area for a future industrial estate as part of an Urban Development Strategy. CWAHS' study area incorporated the northern portion of the current project area (Lot 22 DP793541).

A total of nine Aboriginal sites were recorded as a result of the assessment, including six open camp sites, two axe grinding groove sites and one scarred tree (CWAHS 1998, p.1). All nine sites are situated within 83 m to 805 m from the current project area (as shown in Figure 4.1) and discussed in order of proximity in Table 4.3.

The findings of the CWAHS assessment conformed with the distributional models of the report which predicted sites would occur along the banks of perennial and ephemeral creek lines, with large open camp sites anticipated to occur within 1 km of Eulomogo Creek. The variability of larger open camp sites such as EC-OS-3 on hillslopes exceeding 1 km from water sources is inferred to indicate that large amounts of basal outcropping would have trapped and pooled sufficient water during periods of rain for use (CHAHS 1998, p.32).

CWAHS (1998, p.33) note the extent of disturbance resulting from changing and current land use has had significant implications for the preservation of Aboriginal sites and the loss of archaeological integrity within the study area most notably as a result of clearance and the continued destruction of known sites as a result of cultivation.

Table 4.3 Aboriginal sites identified by CWAHS (1998)

AHIMS ID	Site Name	Location	Description	Significance
36-1-0251	EC-OS-6	Located on eastern bank of Eulomogo Creek.	Relatively limited extent and low stone artefact density.	Low to moderate scientific significance due to high levels of disturbance countered by areas of PAD which may contain intact deposit.
36-1-0251	EC-AG-1	Located on a bench approximately 25 m north of Eulomogo Creek.	Consisting of a group of at least four poorly defined and highly eroded axe grinding grooves on a soft sandstone outcrop.	Low to moderate scientific significance due to their poor condition but countered by the relative scarcity of the site type locally.
36-1-0247	EC-OS-2	Located in ploughed paddock on alluvial flat paddock and southern bank of Eulomogo Creek.	Stone artefact scatter approximately 200 m x 50 m.	Low scientific significance due to high levels of disturbance.
36-1-0253	EC-AG-2	Located on a low sandstone bench on the southern immediate edge of Eulomogo Creek.	Consists of at least three identifiable axe grinding grooves.	Low to moderate scientific significance due to their poor condition but countered by the relative scarcity of the site type locally.
36-1-0246	EC-OS-1	Located in ploughed paddock on northern bank and adjacent terraces of Eulomogo Creek.	Artefact scatter approximately 170 m x 140 m.	Low to moderate scientific significance due to high levels of disturbance countered by density and range of artefact types.
36-1-0252	EC-ST-1	Located on the crest of a low hill.	Probable Aboriginal scarred grey box with four scars within 50 m of EC-OS-5.	Low scientific significance due to ability to provide further information but moderate educational significance due to representativeness of site type.
36-1-0250	EC-OS-5	Located within a ploughed paddock on the northern and southern flat banks of an ephemeral creek line which drains into Eulomogo Creek.	Extensive, low artefact density stone artefact scatter approximately 350 m x 40 m.	Low scientific significance due to high levels of disturbance.
36-1-0249	EC-OS-4	Located on a low hillslope within a ploughed paddock.	Relatively small area stone artefact scatter approximately 25 m x 25 m.	Low scientific significance due to high levels of disturbance.
36-1-0248	EC-OS-3	Located on a low hillslope and plains within a ploughed paddock 500 m east of Keswick South Homestead.	Extensive stone artefact scatter approximately 400 m x 350 m.	Low to moderate scientific significance due to high levels of disturbance countered by density and range of artefact types.

4.4.3 Aboriginal due diligence archaeological assessment subdivision of Lot 2 DP880413 Sheraton Road, Dubbo NSW Dubbo Regional LGA (OzArk 2017)

In 2017, OzArk Environmental and Heritage Management Pty Ltd (OzArk) was engaged by MAAS Group Properties to undertake an Aboriginal heritage due diligence assessment of Lot 2 DP880413, located on Sheraton Road to the immediate east of the current project area.

Three sites previously recorded by Central West Archaeological and Heritage Services Pty Ltd (CWAHS), as discussed below in Section 4.4.4, were identified within the study area in addition to one new site, Hillview-IF1 (AHIMS 36-1-0707) located approximately 290 m outside of the current project area.

Hillview-IF1 is an isolated mudstone multidirectional core located on a gentle mid-slope landform in a cleared, grazed and possibly ploughed paddock, beside a paddock fence, below a large bench that contains the property residence and sheds (OzArk 2017: 22). The potential for subsurface archaeological deposits was assessed as being low-moderate due to distance from water, the gentle sloping landform, and levels of ground disturbance.

An area of potential archaeological sensitivity encompassing a 30 m buffer from Eulomogo Creek was also identified by the assessment, delineated on the basis of landform potential and the presence of previously recorded Aboriginal objects, sites and PAD (OzArk 2017: 31).

4.4.4 An Archaeological Survey for the Proposed Keswick Housing Sub-division, Dubbo, NSW (CWAHS 1995)

In 1995, CWAHS was commissioned by Hoynes Wheeler and Thorne Development Consultants to complete an archaeological assessment of 415 ha of rural land where a medium density housing development was proposed. The study area is located to the immediate east of the current project area.

A total of 12 Aboriginal sites were recorded as a result of the assessment, including six culturally modified trees, four open camp sites, and two isolated finds. Three of the sites are located within approximately 600 m of the current project area (as shown in Figure 4.1) and discussed in order of proximity in Table 4.4.

CWAHS (1995: 46) attributes the notable absence of larger artefact types such as stone axes or grind stones from the landscape which would once have been present in association with grinding groove sites and millstones, to artefact collectors of the early 1900s. For example, Gresser (1941) refers to large collections of artefacts removed from sites in the locality now known to be kept in the Australian Museum.

Table 4.4 Aboriginal sites identified by CWAHS (1995)

AHIMS ID	Site Name	Location	Description	Significance
36-1-0186	K-IF-2	Located 70 m north of K-OS-2 on the elevated flat 50 m south of Eulomogo Creek.	A single sandstone slab with evidence of lower millstone use supported by an apparent but barely visible area of silica gloss on one surface.	Significance not assigned.
36-1-0187	K-OS-2	Located on an exposed cleared vehicle track at the foot of a gentle slope where slopes join elevated floodplain.	Artefact scatter approximately 10 m x 2 m in a heavily disturbed area. 6 quartz, quartzite, and river pebble artefacts observed including flakes, one possible scraper, and a core.	Low to moderate scientific significance due to the high level of disturbance and low number of artefacts countered by the potential for intact subsurface deposit.

Table 4.4 Aboriginal sites identified by CWAHS (1995)

AHIMS ID	Site Name	Location	Description	Significance
36-1-0188	K-OS-3	Located on slightly elevated, gently sloping area between the confluence of Eulomogo Creek and an unnamed ephemeral drainage line.	An extensive crescent shaped artefact scatter approximately 87 m x 88 m. 37 quartz, quartzite and chert artefacts observed including flakes, cores, millstone fragments and an unmodified river pebble.	Moderate to high scientific significance due to high potential to yield further information.

4.4.5 Assessment of Aboriginal sites in the Dubbo City Area (Koettig 1985)

In 1985, Margrit Koettig was engaged by Cameron McNamara, on behalf of Dubbo City Council, to complete an archaeological assessment of Dubbo city and its limits as part of a Local Environmental Planning study. The assessment was undertaken in consultation with the local and regional Aboriginal Land Council who also participated on fieldwork.

A total of 72 Aboriginal sites were located recorded as a result of the study including 60 open campsites (five with associated scarred trees and three with associated hearth features), 11 scarred trees and one carved tree (Koettig 1985: 71). Ten of the 72 sites, M13 to M22 (AHIMS 36-1-0106 to 36-1-0115), are located within 3.5 km of the current project area, including three scarred River Gums trees and seven open camp sites.

A wide variety of raw lithic materials were identified by the study including quartz, silcrete, quartzite, indurated mudstone, chert and others (Koettig 1985: 117). Artefact assemblages were dominated by flakes, flaked pieces and cores, however backed blades, hammerstones, hatchets, and a grindstone were also recorded (Koettig 1985: 124-125). Artefact densities were noted to markedly decrease in correlation to increased distance from the Macquarie or Talbragar Rivers (Koettig 1985: 127).

4.4.6 Dubbo Local Government Aboriginal Heritage Study (OzArk 2006)

In 2006, OzArk completed a multidisciplinary Dubbo LGA Aboriginal cultural heritage study on behalf of Dubbo City Council. This project overlaid all AHIMS registered sites within the local government area on a mapped geomorphological GIS layer of landforms.

This study recorded a total of 26 Aboriginal sites. Nine of the 26 sites are located from 3.5 km to 7 km from the current project area. These sites include four scarred trees (DLGA-ST-01, 02, 06 and 07), two isolated finds (DLGA-IF-01 and 02) and three open camp sites (DLGA-OS-01 to 03). All nine sites are located along the immediate margins of the Macquarie river which conforms with the findings of the study which noted that the banks of the Macquarie River exhibited elevated archaeological sensitivity.

4.4.7 Tracker Riley Cycle Way Extension, Dubbo NSW: Aboriginal Heritage Assessment (OzArk 2009)

In 2009, OzArk completed an Aboriginal heritage assessment on behalf of Dubbo City Council for proposed extensions to the Tracker Riley Cycle Way located approximately 5km from the current project area. In addition to four previously recorded Aboriginal sites, which included two scarred trees and one isolated find, OzArk identified two additional scarred trees, Dundullimal Reserve ST1 (AHIMS 36-1-0613) and Dundullimal Reserve ST2 (AHIMS 36-1-0614), and one open camp site with PAD, Dundullimal Reserve Open Site with PAD (AHIMS 36-1-0615).

4.5 Predictive model

A predictive model of Aboriginal site location has been devised based on the data presented in the preceding sections. In summary, the model has been formed by an analysis of:

- landscape features in the project area and surrounds;
- pre-colonial period ecological conditions;
- advice from Aboriginal knowledge holders including RAPs;
- ethno-historical information about Aboriginal life and material culture; and
- the type and distribution of Aboriginal sites described in previous reports and AHIMS data.

The model enabled predictions to be made about the location of Aboriginal sites within the project area and this information guided the archaeological survey effort performed as part of this ACHA. The results from the predictive model are summarised below.

The project area contains a number of landscape features, which are often associated with Aboriginal objects and archaeological sensitivity as a result of Aboriginal people's use of those features in their everyday lives and for traditional cultural activities. Proximity to Eulomogo Creek and other ephemeral waterways and the subsequent availability of animal and plant resources in addition to natural materials suitable for artefact manufacture indicate that the project area would have been a locale highly likely to have attracted Aboriginal occupation. It must be noted that landscapes possessing archaeological sensitivity identified through desktop studies may not deliver on that potential as a result of natural processes (ie flooding events or erosion) or as a result of anthropogenic disturbances such as farming activities including tree clearing and cultivation.

The following areas within the project area have been identified from desktop level as areas of potential archaeological sensitivity, acknowledging that archaeological material has a higher likelihood of occurring within these areas in contrast to the surrounding landscape:

- within 30 m of ephemeral waterways;
- within 200 m of Eulomogo Creek;
- level areas associated with hill crests; and
- areas of stone outcropping.

Predictions for the types of Aboriginal sites likely to be identified within the project area are as follows:

- **Open stone artefact sites** (scatters and isolated finds) are the most likely site types to occur in the project area due to the prevalence of this site type in the locality and the proximity of the project area to Eulomogo Creek;
- **Areas of potential archaeological deposit (PAD)** have the potential to occur within the project area given its proximity to Eulomogo Creek. The project area exhibits varying levels of disturbance and it is possible that less disturbed areas may retain archaeological deposit;
- **Grinding grooves** are known to occur in the local area and have the potential to occur where stone outcropping is present within the project area in proximity to Eulomogo Creek;

- **Modified trees** (scarred or carved) may occur if mature trees of a sufficient age to bear the marks of traditional Aboriginal scarring or carving are present. The project area has been subject to a high level of historical land clearing practices; however, a number of isolated mature trees remain present across the project area which have the potential to display evidence of cultural modification;
- **Quarry sites** have the potential to occur as the geology within the project area does exhibit outcropping; however, investigations in the area have thus far failed to identify any clear signs of quarrying activity; and
- **Ceremonial grounds, mythological sites, and burials** can occur anywhere in the landscape, but their identification is very rare. Generally, they would be visually identifiable by mounds of earth or stone markers arranged in a conspicuous layout. These are unlikely to occur or survive in the project area because of the high levels of ground disturbance.

5 Archaeological survey

5.1 General

EMM conducted an archaeological field survey of the survey area with the assistance of RAP site officers between 16 July and 18 July 2019. The survey was completed over a total of three days.

The primary aims of the survey were to:

- identify Aboriginal archaeological sites and/or Aboriginal places with the assistance of Aboriginal knowledge holders;
- characterise the landscape to aid predictions of archaeological potential;
- identify sites or areas that would require further investigation if planned for development as part of the project;
- identify sites or areas to be avoided by development, where possible; and
- identify areas with minor or negligible Aboriginal cultural heritage values that are most suitable for development.

5.2 Sampling strategy

At the time of survey, the proposed development footprint was not known and as such the project area was assessed as a whole for potential development. The survey strategy was developed on the basis of the predictive model for Aboriginal site location (refer Section 4.5). The overarching aims of the survey strategy were to focus on the landforms most likely to feature Aboriginal sites (areas of high archaeological sensitivity such as creek lines) while also gathering a representative sample of landforms less likely to feature Aboriginal sites to confirm predictions of low archaeological sensitivity. The SEA development footprint was not surveyed in detail due to high levels of disturbance and the general low archaeological sensitivity of the landform.

The survey area was categorised into classes of landforms for sampling during the survey. The extent of sampling within each landform class was proportionate to its level of archaeological sensitivity as presented in the predictive model. Prior to the survey, the project area was divided into broad landform classes, guided by the definitions presented in the *Australian Soil and Land Survey Field Book* (National Committee on Soil and Terrain 2009). This approach allowed for a broad landscape division to assist survey planning and was flexible enough to allow specific landform elements to be defined during the field survey. Landforms and their corresponding elements are described in Table 5.1. The landform classes guided the boundaries of the survey transects which were further categorised into more specific landform elements.

Table 5.1 Landform classes and their corresponding landform elements

Landform class	Landform element
Hill slope	Hill slope was divided into two categories: <ul style="list-style-type: none">• Hill slope 1 – very gentle to gently inclined slopes (representing areas suitable for Aboriginal camping activities); and• Hill slope 2 – slopes of moderate inclination and above (representing steeper terrain not typically suitable for open camp sites).
Flat	This includes flat terrain including undulating plains, flood plains and terraces.
Watercourse	This includes stream channels and a 50 m corridor of land adjacent to watercourses.

5.3 Survey methods

The archaeological survey and data collection methods followed Section 2.2 of the Code (DECCW 2010a). The survey involved pedestrian field transects within defined landform units. The survey team comprised three people per day. Each survey participant was spaced approximately 5 m apart. This method was considered to be suitable for a landscape characterised by modified paddocks, whereby suitable ground exposures were easy to identify and targeted at this spacing. The assessment calculations assume that each participant could only observe approximately 5 m of the ground surface in front of them (ie three field members covered 15 m of ground).

The survey team targeted ground exposures along transects such as outcropping bedrock, ploughed fields, vehicle and animal tracks, scalds and sheetwash erosion and stream banks, all of which provided good ground surface visibility for identifying Aboriginal objects. The survey team paid particular attention to outcropping stone material that dominated parts of the survey area.

The effectiveness of the survey is determined through recording and analysing survey coverage data. It is evaluated for its effectiveness in identifying the distribution of Aboriginal objects across the landscape, taking into account the potential for archaeological deposits. The percentage of the ground surface exposed in each landform and the visible ground surface within exposures (as ground exposures are often obscured by vegetation, gravels, etc) influences the survey results. For example, an archaeologically sensitive landform surface that is highly exposed by erosion is likely to reveal Aboriginal objects, whereas a similar landform that is thickly grassed will obscure surface artefacts if they are present. Overall, calculation of effective survey coverage is used to estimate not only how much area was physically surveyed, but also how favourable the survey conditions were for the identification of sites.

Site recording was completed in accordance with the Code (DECCW 2010a). Site locations and their details were recorded with digital tablets using site recording forms created by EMM on the Survey123 application for ArcGIS (Esri© software). The digital tablets had a location accuracy of up to ± 3 m which is similar to hand-held non-differential GPS units. The Survey123 forms allowed for a site's location, details, and representative photographs to be linked together, which avoided potential post-fieldwork issues around data integrity.

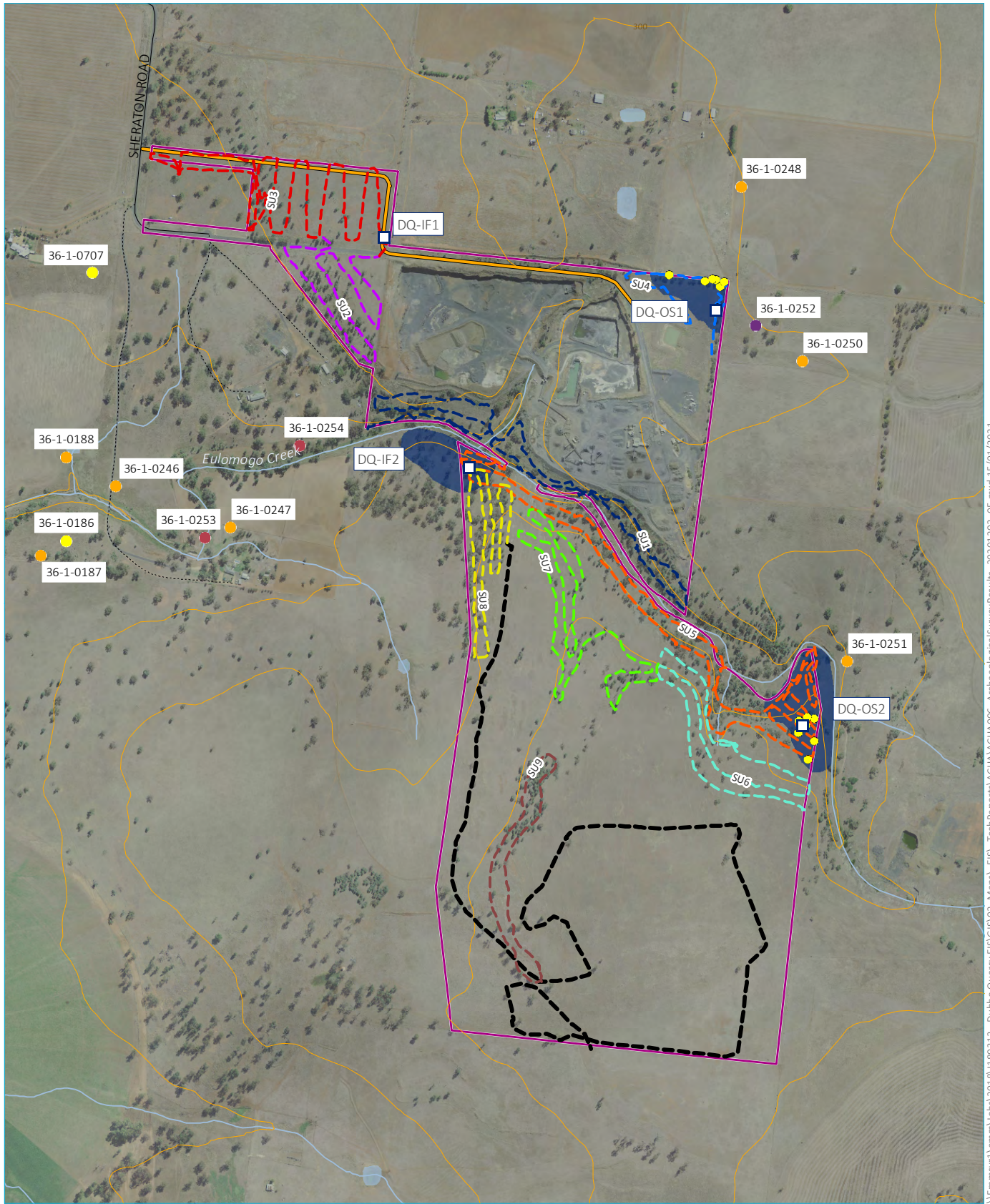
All artefact locations were marked with high visibility stake flags and/or flagging tape. Site locations and details were checked and finalised using ArcGIS software Collector and ArcMap post-fieldwork. Hand-held non-differential GPS units were also used to mark individual artefact locations when recording sites with multiple artefacts. These locations were linked to the Survey123 site locations and assisted in defining site boundaries. Survey transects were recorded on a separate Survey123 form created by EMM. The Survey123 form allowed for survey transects starting points, details, and representative photographs to be recorded. The course of survey transects were recorded as tracks on hand-held non-differential GPS units which were linked to the Survey123 forms. Further information regarding Aboriginal site definitions and recording methods are provided in Appendix C.

5.4 Effective survey coverage

5.4.1 Pedestrian survey

The project area was divided into nine survey units which were assessed via pedestrian survey transects (refer to Figure 5.1). A description of each survey unit is provided in overview photographs of each survey unit showing landforms, ground surface visibility conditions and disturbance levels are shown in Plate 5.1 to Plate 5.54.

Survey transect coverage as shown on Figure 5.1 represents the survey effort of one individual and as such does not accurately represent the full area covered by the three person survey team, which sometimes involved people separating beyond 10 m spacing to inspect key landscape features such as rock outcrops and trees along the general transect alignment.



Source: EMM (2020); DFSI (2017); DFSI (2020); OEH (2019)

KEY

- Project area
- Proposed access road
- Contour (10 m)
- Minor road
- Vehicular track
- Watercourse/drainage line
- Waterbody

- Aboriginal site
- Aboriginal site
- Artefact
- Vehicle inspection

- AHIMS site type**
- Artefact scatter
 - Axe grinding groove
 - Isolated find
 - Scarred tree

- Survey transect**
- SU1
 - SU2
 - SU3
 - SU4
 - SU5
 - SU6
 - SU7
 - SU8
 - SU9

Archaeological survey results

Dubbo Quarry Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 6.1



\\Emmsvr1\emms\loba\2018\U180313 - Dubbo Quarry EIS\GIS\02_Maps\EIS_TechReports\ACHA\ACHA006_Archaeological Survey Results_2020\203_05.mxd 15/01/2021

Table 5.2 Survey unit descriptions

Survey unit	Description	Aboriginal sites
SU1	Northern bank of Eulomogo Creek. High levels of disturbance associated with operation of the quarry, including but not limited to grading, earthworks, and construction (ie roads and utilities), were observed in the western and central portions of SU1. The eastern portion of SU1 is dominated by steep slopes receding to the creek line with a large amount of basalt outcropping with limited to no topsoil.	Nil
SU2	Hill slope northerly adjacent to SU1. High levels of disturbance were observed across SU2 including extensive vegetation clearance, wide graded surfaces along the eastern boundary and deep graded cuttings along the north-western boundary. Soil profiles were shallow and stoney dominated by basalt material.	Nil
SU3	Undulating plain in north-west of project area receding slightly to the west. The western portion of SU3 has been fenced and horse-keeping facilities constructed including fencing, irrigation, and shelters. The central portion contains remnant mature vegetation. All trees were inspected, but no evidence of cultural scarring was identified. Shallow stoney profile with large amounts of basalt surface outcropping and gravel. The eastern portion of the project area demonstrated high levels of disturbance associated with vegetation clearance, cultivation, and livestock. One isolated artefact, DQ-IF1, was identified in the south-eastern corner of SU3.	DQ-IF1
SU4	Flat plain in north-eastern corner of the project area. Demonstrates extensive disturbance associated with cultivation and dam construction as well as quarry land-use including stockpiling of material. Open artefact scatter, DQ-OS1, is identified as extending in low density across SU4.	DQ-OS1
SU5	Southern bank of Eulomogo Creek. The eastern portion of SU5 is dominated by steep slopes receding to the creek line with large basalt boulders and outcropping. A U-bend in the creek line at the eastern extent has created a large terrace approximately 180 m by 110 m. The area has been cleared of vegetation, with limited mature trees remaining, and has been subject to cultivation and livestock. Open artefact scatter, DQ-OS2, was identified at this location. Central portion of SU5 is dominated by slight to moderate slopes receding to the creek line with a large amount of basalt outcropping with limited to no topsoil, and towards the east large areas of exposed bedrock. The western portion of SU5 is a large terrace approximately 200 m by 90 m. Beyond vegetation clearance and livestock impacts, the area did not show obvious signs of disturbance. In contrast to the neighbouring paddock, it does not appear to have been cultivated (at least in recent times). Isolated find, DQ-IF2, was identified in associated with this western terrace.	DQ-IF2 DQ-OS2
SU6	Flat plain of upper plateau which extends to the break of slope receding to Eulomogo Creek. Demonstrates high levels of disturbance including cultivation and stone raking. The land up to the break of slope has been largely cleared with occasional remnant Cyprus Pine.	Nil
SU7	Isolated pockets of uncultivated land on the flat plain of the upper plateau which extends to the break of slope receding to Eulomogo Creek. Remnant vegetation predominantly Cyprus Pine with occasional eucalyptus. Shallow stoney soil profiles with areas of exposed basalt bedrock.	Nil
SU8	Moderately steep hillslope of open woodland of Cyprus Pine and eucalyptus which recedes to the west from the edge of exposed bedrock on the central plateau. Shallow stoney soil profiles with areas of exposed basalt bedrock.	
SU9	Isolated pockets of uncultivated land on the eastern margin of the upper plateau. Flat plain with stoney profile soils with an abundance of basalt material and areas of exposed bedrock. Occasional stands of young Cyprus Pine, and isolated mature eucalypts.	Nil

Survey coverage data is summarised in Table 5.3 and landform coverage data in Table 5.4.

GPS track log data indicates that each survey participant walked approximately 17.52 km, representing a total survey area of 262,800 m². Visibility across the project area was generally high, averaging 30%, whilst instances of exposure, typically due to disturbances, averaged 18%. When visibility and exposure is considered, the average survey coverage effectiveness is 15,699 m² or 5.97%. Effective survey coverage conditions were adequate to characterise the archaeology of the area.

Table 5.3 Effective survey coverage – survey unit summary

Survey unit	Landform	Transect length (m)	Transect width (m)	Transect Area (sq. m)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)
1	Watercourse	2,440	15	36,600	20	15	1,098	3
2	Hill slope 1	1,250	15	18,750	35	40	2,625	14
3	Flat	2,680	15	40,200	40	25	4,020	10
4	Flat	920	15	13,800	15	10	207	1.5
5	Watercourse	3,570	15	53,550	40	10	2,142	4
6	Flat	1,730	15	25,950	25	20	1,298	5
7	Flat	2,130	15	31,950	40	25	3,195	10
8	Hill slope 2	1,580	15	23,700	20	10	474	2
9	Flat	1,220	15	18,300	35	10	641	3.5

Table 5.4 Effective survey coverage – landform summary

Landform	Landform area (sq. m)	Effective survey coverage (m ²)	Effective survey coverage (%)	Number of Aboriginal sites	Number of artefacts or features
Watercourse	90,150	3,240	3.6	2	≥25
Hill slope	18,750	2,625	14	0	0
Flat	153,900	9,835	6.4	2	≥10

5.4.2 Vehicle inspection

The southern portion of the project area is characterised by a heavily cultivated plateau which features scattered paddock trees (see Plate 5.55). Due to high levels of disturbance the area was not subject to pedestrian survey, rather mature trees across the plateau were inspected via vehicle for any signs of cultural scarring.

No scars were observed; however, as shown in Plate 5.56 to Plate 5.60, large amounts of rock has been cleared from the plateau and mounded around paddock trees obscuring the tree trunk prohibiting proper inspection.



Plate 5.1 Western SU1. Northern bank Eulomogo Creek. View east



Plate 5.2 Western SU1. Northern bank Eulomogo Creek. GSV example



Plate 5.3 Central SU1. Northern bank Eulomogo Creek. View west



Plate 5.4 Central SU1. Northern bank Eulomogo Creek. GSV example



Plate 5.5 Eastern SU1. Northern bank Eulomogo Creek. View west



Plate 5.6 Eastern SU1. Northern bank Eulomogo Creek. GSV example



Plate 5.7 Northern SU2. Graded ditch and fence line. View south-west



Plate 5.8 Northern SU2. Imported gravel and concrete. GSV example



Plate 5.9 Central SU2. View south-east.



Plate 5.10 Central SU2. GSV example



Plate 5.11 Southern SU2. Earthworks disturbance. View south



Plate 5.12 Eastern SU2. Graded disturbance. View north



Plate 5.13 Western SU3. View north-west



Plate 5.14 Western SU3. GSV example



Plate 5.15 Central SU3. View west



Plate 5.16 Central SU3. GSV example



Plate 5.17 Eastern SU3. View east



Plate 5.18 Eastern SU3. GSV example



Plate 5.19 Eastern boundary SU4. View north



Plate 5.20 Eastern SU4. GSV example



Plate 5.21 Central SU4. Large spoil mounds. View south-east



Plate 5.22 Central SU4. GSV example



Plate 5.23 Northern boundary SU4. View north-east



Plate 5.24 Western SU4. Highly disturbed. View south-west



Plate 5.25 Western SU5. Southern bank Eulomogo Creek. Location of DQ-IF2. View north



Plate 5.26 Western SU5. Southern bank Eulomogo Creek. GSV example



Plate 5.27 Central SU5. Southern bank Eulomogo Creek. View west



Plate 5.28 Central SU5. Southern bank Eulomogo Creek. GSV example



Plate 5.29 Eastern SU5. Southern bank Eulomogo Creek. Location of DQ-OS2. View north



Plate 5.30 Eastern SU5. Southern bank Eulomogo Creek. Location of DQ-OS2. View north



Plate 5.31 Eastern SU6. Edge of cultivated flat. View west



Plate 5.32 Eastern SU6. GSV example



Plate 5.33 Central SU6. View west



Plate 5.34 Central SU6. GSV example



Plate 5.35 Eastern SU6. View north-west



Plate 5.36 Eastern SU6. GSV example



Plate 5.37 Eastern SU7. View east



Plate 5.38 Eastern SU7. GSV example



Plate 5.39 Central SU7. View west



Plate 5.40 Central SU7. GSV example



Plate 5.41 Western SU7. View west



Plate 5.42 Western SU7. GSV example



Plate 5.43 Southern SU8. View north



Plate 5.44 Southern SU8. GSV example



Plate 5.45 Central SU8. View south



Plate 5.46 Central SU8. GSV example



Plate 5.47 Northern SU8. View north



Plate 5.48 Northern SU8. GSV example



Plate 5.49 Southern SU9. View south



Plate 5.50 Southern SU9. GSV example



Plate 5.51 Central SU9. View north



Plate 5.52 Central SU9. GSV example



Plate 5.53 Northern SU9. View north



Plate 5.54 Northern SU9. View north



Plate 5.55 Vehicle inspection. Central plateau. View north



Plate 5.56 Vehicle inspection. South-western plateau corner. View east



Plate 5.57 Vehicle inspection. North-eastern plateau corner. View east



Plate 5.58 Vehicle inspection. North-eastern plateau corner. View north



Plate 5.59 Vehicle inspection. South-eastern plateau corner. View east



Plate 5.60 Vehicle inspection. South-eastern plateau corner. View west

5.5 Aboriginal sites identified

A total of four Aboriginal sites were identified within the project area (refer to Table 5.5).

Table 5.5 Aboriginal sites identified

Site name	Site type	Location (GDA 94 Zone 55)	Landform
DQ-IF1	Isolated find	655715E 6427521N	Flat (undulating plain)
DQ-IF2	Isolated find with PAD	655881E 6426981N	Watercourse (terrace)
DQ-OS1	Artefact scatter with PAD	656469E 6427311N	Flat (undulating plain)
DQ-OS2	Artefact scatter with PAD	656615E 6426343N	Watercourse (terrace)

5.5.1 Dubbo Quarry – Isolated Find 1 (DQ-IF1)

Dubbo Quarry – Isolated Find 1 (DQ-IF1) is an isolated sandstone manuport with ground surface. The artefact was identified in a disturbed context near the base of a Cyprus Pine near the south-eastern entry gate to SU3. No other artefacts or material suitable for artefact manufacture was identified in the vicinity. Due to the likely displaced nature of the artefact and shallow stoney soil profiles, no associated sub-surface deposit is anticipated.



Plate 5.61 Location of DQ-IF1 within SU3. View north



Plate 5.62 DQ-IF1 sandstone manuport



Plate 5.63 DQ-IF1 – detail of ground surface



Plate 5.64 DQ-IF1 – detail of ground surface

5.5.2 Dubbo Quarry – Isolated Find 2 (DQ-IF2)

Dubbo Quarry – Isolated Find 2 (DQ-IF2) is an isolated sandstone grinding dish fragment approximately 16 cm long, 12 cm wide and 3 cm thick. The artefact was identified on a defined terrace landform approximately 200 m by 90 m adjacent to Eulomogo Creek within SU5. No other artefacts or material suitable for artefact manufacture was identified in the vicinity. The terrace has been defined as a potential archaeological deposit (PAD) due to anticipated deeper soil profiles and the likelihood of additional cultural material occurring sub-surface.



Plate 5.65 Location of DQ-IF2 within SU5. Eulomogo Creek in background. View north-west



Plate 5.66 DQ-IF2 grinding dish fragment



Plate 5.67 DQ-IF2 – detail



Plate 5.68 DQ-IF2 – detail

5.5.3 Dubbo Quarry – Open Site 1 (DQ-OS1)

Dubbo Quarry – Open Site 1 (DQ-OS1) is an artefact scatter (≥ 10 artefacts) identified on flat plain in north-eastern corner of the project area within SU4 associated with an unnamed ephemeral waterway. The area demonstrates high levels of disturbance associated with agricultural land use (primarily cultivation) and quarry land-use. Artefact types included ground-edge axe fragments, cores, hammerstones, flakes, blades and debitage. Materials included sandstone, basalt, quartz, quartzite and silcrete. One possible flaked glass artefact was also identified.

The area has been defined as a potential archaeological deposit (PAD) due to anticipated deeper soil profiles and the potential for additional cultural material to occur sub-surface, including intact deposit below the plough zone.

It is likely that these artefacts form part of a continuous background artefact scatter associated with “EC-OS-5” (AHIMS 36-1-0250, refer to Section 4.3).



Plate 5.69 Location of DQ-OS1 within SU4. View north-east



Plate 5.70 DQ-OS1 ground-edge axe fragment



Plate 5.71 DQ-OS1 quartz flaked artefacts



Plate 5.72 DQ-OS1 quartzite core



Plate 5.73 DQ-OS1 silcrete and basalt flaked artefacts



Plate 5.74 DQ-OS1 possible flaked glass artefact

5.5.4 Dubbo Quarry – Open Site 2 (DQ-OS2)

Dubbo Quarry – Open Site 2 (DQ-OS2) is an artefact scatter (≥ 25 artefacts) identified on a large terrace within SU5 approximately 200 m by 90 m located at a U-bend in Eulomogo Creek. The area demonstrates moderate to high levels of disturbance primarily associated with vegetation clearance and cultivation. A diverse variety of artefact types were identified including ground-edge axe fragments, sandstone grinding dish fragment, grinding stone, hammerstones, flakes, blades and debitage. Materials included sandstone, basalt, quartz and silcrete.

The terrace has been defined as a PAD due to anticipated deeper soil profiles and the potential for additional cultural material to occur sub-surface, including intact deposit below the plough zone.

It is likely that these artefacts form part of a continuous background artefact scatter associated with “EC-OS-6” (AHIMS 36-1-0251, refer to Section 4.3).



Plate 5.75 Location of DQ-OS2 within SU5. Eulomogo Creek in background. View north-east



Plate 5.76 Location of DQ-OS2 within SU5. Eulomogo Creek in background. View north



Plate 5.77 DQ-OS2 ground-edge axe fragment



Plate 5.78 DQ-OS2 ground-edge axe fragment - detail



Plate 5.79 DQ-OS2 grinding stone



Plate 5.80 DQ-O2 ground-edge axe fragment and flaked artefacts



Plate 5.81 DQ-OS2 flaked artefacts



Plate 5.82 DQ-OS2 flaked artefacts



Plate 5.83 DQ-OS2 grinding dish fragment



Plate 5.84 DQ-OS2 grinding dish fragment – detail

5.6 Discussion

The archaeological investigation has provided an informative and representative example of the widespread occupation of Aboriginal people in the survey area. Assessment findings largely conformed to the predictive model, with all Aboriginal sites, with the exception of DQ-IF1 which is likely displaced within a disturbed context, identified within 30 m of ephemeral waterways or within 200 m of Eulomogo Creek. The frequent distribution of open sites on landforms associated with watercourses demonstrates that the project area was part of a landscape utilised by Aboriginal people for its natural resources.

As anticipated, open stone artefact sites (scatters and isolated finds) were the dominant site type. The absence of more obtrusive artefact types such as stone axes at DQ-IF2 is potentially a result of curation of the archaeological record following collections undertaken in the early 1900s by individuals such as Gresser (1941) who refers to large collections of artefacts removed from sites in the locality now known kept in the Australian Museum. Similar conclusions were drawn by Central West Archaeological and Heritage Services through their investigations of the local area (refer to Section 4.3). Furthermore, widespread historical disturbance (eg clearing, cultivation and rock-picking) will have affected their current representation in the landscape.

Soil profiles across the project area were typically shallow and stoney with frequent outcropping of basalt bedrock. Landforms associated with DQ-IF2, DQ-OS1 and DQ-OS2 demonstrated a potential for greater depth of deposit accumulated as a result of fluvial processes, and as such these areas have been characterised as having the potential to contain sub-surface cultural deposits. The development footprint has limited surface and subsurface archaeological potential due to shallow and stoney soil profiles with limited depth of deposit, in addition to predictive archaeological modelling and assessment findings which establish that areas over 200 m from Eulomogo Creek are unlikely to feature Aboriginal objects and where present are sporadically deposited or displaced in disturbed contexts.

Areas of outcropping basalt along Eulomogo Creek were thoroughly inspected for evidence of grinding grooves; however, none were identified. Two grinding groove sites EC-AG-1 (AHIMS 36-1-0251) and EC-AG-2 (AHIMS 36-1-0253) (refer to Section 4.4.2) have been identified associated with Eulomogo Creek within approximately 300 m proximity to the project area. However, each of these sites were identified on sandstone outcropping, and no sandstone outcropping was identified within the project area. The presence of ground-edge axes at open artefact sites within the project area suggests movement of peoples along Eulomogo Creek to exploit the various resources available within the corridor.

Modified trees in the local region have predominantly been identified along the banks of the Macquarie River (9th order). This is likely a product of mature native vegetation being retained within a riparian corridor along the Macquarie River, and more intensified vegetation clearance across surrounding agricultural properties including the project area. Similarly, no ceremonial sites, Aboriginal stone arrangements, rock art or burials were identified. The identification of such sites are rare generally, primarily because they represent rarer activities, but also because widespread historical disturbance is likely to have destroyed or highly disturbed their archaeological indicators in the landscape.

The AHIMS data, along with background research and the findings of the assessment show that the project area is only a small portion of a much broader and dynamic cultural landscape. Finds within the project area are representative of a continuous archaeological character, and that many more sites are likely to be found in similar landscape contexts throughout pastoral properties in the locality.

6 Significance assessment

6.1 General

All Aboriginal objects in NSW are protected under the *National Parks and Wildlife Act 1974*. It is recognised that the destruction of sites may be necessary to allow other activities or developments to occur. In order for the consent authority to make informed decisions on such matters, an important element of cultural resource management is determining the significance of cultural heritage places and objects to understand what may be lost; and how best it can be mitigated. However, it is highlighted that something can be of little or no significance and still be protected under the Act.

Cultural significance is outlined in Article 1.2 of the *Burra Charter* - the best practise document for managing cultural heritage – as ‘aesthetic, historic, scientific, social, or spiritual value for past, present, or future generations’ (Australia ICOMOS 2013). These values are reiterated in the NSW guidelines, which determines cultural significance of a place can be assessed by identifying the values that are present across the subject area and assessing what is important and why (OEH 2011). In assessing the scientific significance of sites, aspects such as rarity and representativeness and the integrity must be considered. Generally speaking, a site or object that is rare will have a heightened significance, although a site that is suitable of conservation as ‘representative’ of its type will also be significant. Conversely an extremely rare site may no longer be significant if its integrity has been sufficiently compromised.

The criteria adopted for this report are defined in Table 6.1.

Table 6.1 A summary of criteria used to assess the cultural significance (OEH 2011, 8–10)

Criterion	Definition
Social value —Does the place have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?	Social (or cultural) value refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them. Social or cultural value can only be identified through consultation with Aboriginal people.
Historic value —Is the place important to the cultural or natural history of the local area and/or region and/or state?	Historic value refers to the association of a place with a historically important person, event, phase or activity. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have ‘shared’ historic values with other (non-Aboriginal) communities.
Scientific (archaeological) value —Does the place have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area, region or state?	Scientific (archaeological) value refers to the importance of a landscape, area, place or object because of its rarity, representativeness, and the extent to which it may contribute to further understanding and information. Information about scientific values is gathered through archaeological investigation undertaken in this report.
Aesthetic value —Is the place important in demonstrating aesthetic characteristics in the local, regional, and/or State environment?	Aesthetic value refers to the sensory, scenic, architectural, and creative aspects of the place. It is often linked with social value, and can consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use. This value is only relevant to archaeological sites only on rare occasions, such as rock shelters that contain art, or culturally modified trees in prominent positions, etc.

6.2 Statement of significance

Table 6.2 provides a summary of the significance values for each Aboriginal object and/or site identified.

Table 6.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site Type	Scientific	Aesthetic	Historical	Cultural	Overall
DQ-IF1	44-4-0383	Isolated find	Low – DQ-IF1 consists of an isolated artefact within a heavily disturbed context. Shallow stoney soil profiles in combination with existing disturbances limit the site’s scientific potential.	Low – DQ-IF1 is an isolated artefact located within a heavily disturbed context. The object is not associated with any defined landform or feature to give it aesthetic value.	Nil – there are no known written or oral historical references to the site.	High - provides tangible evidence of the use of the area by Aboriginal people. It is noted RAPs place cultural value on any Aboriginal objects identified within the project area.	Low – whilst its existence symbolises Aboriginal presence in the landscape, it can tell us little more than what is already known and established in archaeology. Notwithstanding the limited scientific potential, it is of cultural significance to the Aboriginal community.
DQ-IF2	44-4-0384	Isolated find with PAD	Moderate – DQ-IF2 consists of an isolated grinding dish fragment which is a rare artefact type for the region. Whilst only one surface object was identified, disturbance of the area appears limited and scientific value of the site is increased by the potential for intact sub-surface cultural deposit.	Low/Moderate – DQ-IF2 is associated with a defined terrace landform. The area has aesthetic value for its sensory and scenic association to Eulomogo Creek, however observable Aboriginal objects are limited to one surface artefact.	Nil – there are no known written or oral historical references to the site.	High - provides tangible evidence of the use of the area by Aboriginal people. It is noted RAPs place cultural value on any Aboriginal objects identified within the project area.	Moderate – the level of disturbance, artefact type, and sub-surface potential have all contributed to this site being categorised as having overall moderate significance.

Table 6.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site Type	Scientific	Aesthetic	Historical	Cultural	Overall
DQ-OS1	36-1-0773	Artefact scatter with PAD	Low – DQ-OS1 contained a diverse range of artefact types but was located in an area exhibiting extensive disturbance which has reduced its archaeological integrity and hence its scientific value. However, it is acknowledged that there may be potential for in-tact sub-surface deposit below the plough zone.	Low – DQ-OS1 has limited aesthetic value due to its heavily disturbed context and lack of clear association with a landform feature.	Nil – there are no known written or oral historical references to the site.	High - provides tangible evidence of the use of the area by Aboriginal people. It is noted RAPs place cultural value on any Aboriginal objects identified within the project area.	Low – the level of disturbance, material and surface potential have all contributed to this site being categorised as having overall low significance. The site holds little value beyond its physical contents which has been significantly compromised.
DQ-OS2	36-1-0774	Artefact scatter with PAD	Moderate – DQ-OS2 presented a diverse range of artefact types but was located in an area disturbed by cultivation. This has reduced its archaeological integrity and hence its scientific value. However, it is acknowledged that there may be potential for in-tact sub-surface deposit below the plough zone.	Low/Moderate - DQ-OS2 is associated with a defined terrace landform. The area has aesthetic value for its sensory and scenic association to Eulomogo Creek and a large number of surface artefacts. However, the aesthetic qualities of the area have been impacted by disturbances including vegetation clearance and cultivation.	Nil – there are no known written or oral historical references to the site.	High - provides tangible evidence of the use of the area by Aboriginal people. It is noted RAPs place cultural value on any Aboriginal objects identified within the project area.	Moderate – the level of disturbance, material and surface potential have all contributed to this site being categorised as having overall moderate significance.

7 Impact assessment

7.1 Overview

The project will result in impacts to Aboriginal objects within the proposed development footprints as shown on Figure 1.3. Ground disturbance activities have the potential to impact known and unknown Aboriginal objects in the project area.

A summary of the potential archaeological impact of the project on known Aboriginal sites within the project area is provided in Table 7.1.

Table 7.1 Impact summary

Site Name	AHIMS site number	Significance	Impact type	Impact assessment	Consequence of impact
DQ-IF1	44-4-0383	Low	Direct	Total loss	Total loss of value
DQ-IF2	44-4-0384	Moderate	None	No impact	No loss of value
DQ-OS1	36-1-0773	Low	None	No impact	No loss of value
DQ-OS2	36-1-0774	Moderate	None	No impact	No loss of value

7.2 Measures to minimise harm

An iterative design process has resulted in avoidance of impacts to the majority of Aboriginal sites located within the project area. As noted in Section 5.2, at the time of survey, the proposed development footprint was not known and as such the project area was assessed as a whole for potential development. The development footprint has been refined with the objective of developing an efficient project that avoids and minimises environmental impacts wherever feasible. Avoidance of Aboriginal cultural heritage values has been a key aspect of this refinement process wherever possible.

7.3 Intergenerational equity

Aboriginal heritage management is based on the principle of *intergenerational equity* which has the intention to ensure present generations consider future generations when making management decisions on environmental issues. This principle is possibly the most relevant part of the notion of *ecologically sustainable development* (ESD) when considering Aboriginal heritage management.

This principle can be achieved by a regional program of protection for representative cultural landscapes and sites. The project will result in minor loss to the local archaeological resource. The only impacted Aboriginal site DQ-IF1 will be subject to total loss. The site comprises an isolated artefact within a disturbed context and as a result the cultural landscape will not be meaningfully affected by its removal.

7.4 Cumulative impacts within the region

Unavoidable harm to Aboriginal objects is acknowledged as a result of the project. The project will impact one Aboriginal site, DQ-IF1, assessed as a site of low archaeological significance. The design of the current project avoids impact to all remaining identified Aboriginal sites. The project will have a negligible loss of the Aboriginal archaeological record in the area.

7.5 Potential impacts to unidentified sites

Artefacts may occur very sporadically (probably as isolated artefacts or small artefact scatters) within or outside of the survey transect paths, but within the development footprint, in an unpredictable pattern representative of background scatter. The limitation of almost every archaeological survey is that ground surface visibility affects the identification of all artefacts within any given survey area. The key aim is to have characterised the archaeological nature of the proposed area of impact for a project (ie the development footprint) so that appropriate avoidance and mitigation measures can be employed on a broader scale. Unknown artefacts may occur in moderately to highly-disturbed areas predicted to be of low archaeological significance.

EMM notes that although the development footprint covers a broad area, the majority has been subject to extensive disturbance resulting from agricultural land use and quarrying activities.

The project is unlikely to impact additional significant or obtrusive site types such as grinding groove sites or extensive artefact scatters because the survey specifically targeted landform features predicted to contain such types.

EMM acknowledges that it is possible that not all scar trees have been identified within the development footprint and therefore potential impacts to unknown scar trees are not currently determined. This is addressed further in Section 8.2.5iia.

7.6 Ground vibration impacts

This assessment has considered the risk of impact to Aboriginal sites within and surrounding the project area as a result of ground vibration emission levels from extraction blasting.

Aboriginal site types within and surrounding the project area are predominantly unobtrusive, such as artefact scatters and isolated finds, and areas of PAD, which are typically not at risk of harm from ground vibration.

Obtrusive Aboriginal sites, such as rock shelters, are most susceptible to vibrational impacts due to the potential for rock fall or collapse. It is noted that two grinding groove sites, EC-AG-1 (36-1-0254) and EC-AG-2 (36-1-0253) are located on sandstone outcropping along Eulomogo Creek outside of the project area (refer to Section 4.2 and 4.4.2). Unlike underground mining and subsidence impacts which can fracture of bedrock expanses where grinding grooves occur, the potential for ground vibration from blasting to harm grinding groove sites is low if outside risk parameters. EC-AG-1 and EC-AG-2 are located 310 m and 530 m from the existing pit. At its closest point, the WEA is 320 m from EC-AG-1 and 570 m from EC-AG-2, whilst the SEA is 600 m from EC-AG-1 and 680 m from EC-AG-2.

The *Noise and Vibration Impact Assessment* (NVIA; EMM 2020) completed for the project found that ground vibration emissions from the WEA or SEA will be the same or lower than current levels from existing operations, with no impacts from blasting anticipated if maximum instantaneous charge (MIC) limits are followed. Anticipated ground vibration emissions are not considered to pose a risk of impacting the sandstone outcropping on which the grinding grooves occur.

This assessment considers vibrations from the project to have low potential to cause harm to Aboriginal sites within or surrounding the project area.

7.7 Summary of impacts

An iterative design process has resulted in avoidance of impacts to the majority of Aboriginal sites located within the project area.

Aboriginal site DQ-IF1 is the only known site to be impacted by the project. DQ-IF1 consists of an isolated artefact with no associated sub-surface deposit. It has been assessed herein as being of low archaeological significance, whilst acknowledging that it is of cultural significance to the Aboriginal community.

8 Recommendations

8.1 Management strategy

This section describes the management measures for identified Aboriginal cultural heritage values in the study area. The management measures proposed in this chapter respond to:

- the impacts identified in the preceding chapter;
- the assessed significance of the Aboriginal sites;
- the views of the Aboriginal community as represented by the RAPs;
- the need to address intergenerational equity in the values of Aboriginal heritage;
- the need to protect sites not impacted by the project but under the care of WaterNSW; and
- the need to mitigate the loss and disturbance of impacted Aboriginal sites and Aboriginal objects.

While Aboriginal sites cannot be replaced once lost, the salvage of Aboriginal objects impacted by the project will provide a tangible monument to those sites. Furthermore, with care in curation, those salvaged materials can be better studied to help understand other Aboriginal sites present in the landscape.

Intergenerational equity is a core element in the notion of ecologically sustainable development (ESD), which commonly guides regulators in their review of Aboriginal cultural heritage management. This may be achieved by a program of avoidance and protection for the most significant sites (both scientifically and culturally) and salvage of sites with lesser scientific value but still of cultural importance to the Aboriginal community. Both of these measures allow retention of cultural materials for the enjoyment and education of future generations.

The management measures proposed in response to the impacts and Aboriginal site significance levels comprise the following:

- active protection and avoidance of Aboriginal sites close to and within the development footprint boundary in accordance with the management measures and recommendations presented as part of this report;
- passive avoidance of Aboriginal sites within the project area not impacted by current development plans;
- salvage collection of Aboriginal sites within disturbance areas of the development footprint; and
- procedures that specify actions to be taken in the event of discovery of human skeletal remains or previously unidentified Aboriginal sites.

8.2 Proposed management measures

8.2.1 Overview

The management measures to be applied to each identified site is provided in Table 8.1. A detailed summary of each site, its type, significance rating, impacts and proposed management measures is provided in Table 8.2.

Table 8.1 Site management summary

Management measure/site type	Count
Avoidance	3
DQ-IF2, DQ-OS1 and DQ-OS2	
Relocation	1
DQ-IF1	
Total	4

8.2.2 Aboriginal heritage management plan

An Aboriginal Heritage Management Plan (AHMP) will be developed in consultation with DPIE, the RAPs and Heritage NSW. It will provide details of:

- all Aboriginal sites identified during the archaeological investigation for the project;
- management measures and their progress towards completion;
- measures to ensure ongoing consultation and involvement of project RAPs;
- protocols for newly identified sites;
- protocols for educating staff and contractors of their obligations relating to Aboriginal cultural heritage values through a site induction process;
- protocols for suspected human skeletal materials;
- protocols for the ongoing care of salvaged Aboriginal objects; and
- provisions for review and updates of the AHMP.

The AHMP will be prepared after project approval, and in addition to the points above, will address all relevant conditions of approval. The AHMP will provide the details of the management measures outlined in the sections below.

8.2.3 Avoidance

Avoidance of Aboriginal sites is a preferred management option as it ensures that Aboriginal sites, and their landscape information, will be preserved for future generations.

A total of 3 out of 4 Aboriginal sites will be avoided by the project. Generally, sites designated for avoidance within the development footprint or within 20 m of the development footprint will be protected by a semi-permanent or permanent boundary fence around the visible extent of the sites and/or the PAD areas to avoid inadvertent impacts. A buffer of at least 20 m will be applied to the demarcated boundaries of these sites.

If there are sites designated in this report for collection that are later determined not to be impacted, but are within 20 m of the development footprint, such sites will be avoided and managed in a method consistent with this section of the report.

Sites of moderate to high significance warrant a greater visual buffer so that they can be appreciated in context within the natural landscape. A buffer of at least 50 m from the PAD boundary that extends beyond the physical site contents will be applied to the sites DQ-IF2 and DQ-OS2.

8.2.4 Relocation

The isolated artefact from Aboriginal site, DQ-IF1, will be relocated prior to proposed project impacts.

The relocation will be undertaken by a qualified archaeologist and RAP representatives and will adhere to the following method:

1. Site coordinates will be entered into mobile GPS devices to re-locate and confirm the location.
2. The general vicinity will be inspected, and any artefact(s) flagged on the ground and a photo taken. Each artefact will be marked as a waypoint in the GPS.
3. The artefact will then be collected and moved to a location outside of the development footprint but remaining within the project area.
4. The relocated position will be marked as a waypoint in the GPS and a photo taken. An Aboriginal Site Impact Recording Form (ASIRF) will be completed.
5. A salvage report will detail the results of the fieldwork, the artefacts recovered at each site and GIS figures showing the artefact locations.

8.2.5 Special procedures

i Aboriginal ancestral remains

It is important that all quarry personnel be briefed on the possibility and the appropriate protocols to follow if human remains are found, as well as, what to do if other Aboriginal cultural material is encountered.

In the event that known or suspected human remains are encountered, the following procedure will be followed as soon as the suspected remains are discovered:

- all work in the immediate vicinity will cease and the find will be reported to the work supervisor who will advise the site supervisor or other nominated senior staff member;
- the site supervisor or other nominated senior staff member will promptly notify the NSW Police and the State coroner (as required for all human remains discoveries);
- the site supervisor or other nominated senior staff member will contact Heritage NSW for advice on identification and management of Aboriginal skeletal material; and

- if it is determined that the skeletal material is of Aboriginal ancestry, the RAPs will be contacted and consultative arrangements will be made to discuss ongoing care or reinterment of the remains.

ii Discovery of new Aboriginal sites

a Procedure

In the event of discovery of new Aboriginal sites within the development footprint, the following procedure will be followed:

- the immediate vicinity (an approximate 20 m buffer from the visible extent of the site) will be secured to protect the find and the find will be reported to the work supervisor who will immediately advise the environmental manager or other nominated senior staff member;
- an archaeologist and select RAPs must be contacted by the site supervisor or other nominated senior staff member at the earliest possible opportunity to validate the find and determine the significance of the objects(s); and
- any new sites must be registered in the AHIMS database.

b Management of new Aboriginal sites

Newly identified sites that are not at risk of impact (ie over 20 m from the approved development footprint) will be avoided through passive protection. Sites that are within 20 m of the approved development footprint (ie DQ-OS1) will be managed through active protection measures including fencing and signage as outlined in Section 8.2.3.

In the event that newly identified sites will be impacted by the project and cannot be avoided, they will be managed in a manner commensurate with their assessed significance, consistent with the management measures provided for similar sites in this chapter, meaning:

- stone artefact sites of low or moderate significance may be collected prior to ground disturbance or be subject to unmitigated impacts, based on the outcomes of consultation with the RAPs;
- decisions about stone artefact sites of high significance will require further consultation with the RAPs and Heritage NSW to determine an appropriate conservation or salvage methodology; and
- although other Aboriginal site types are unlikely to occur in the development footprint (eg burials or stone arrangements), the following steps will be followed if they are identified:
 - a suitably qualified archaeologist will be contacted to verify and assess the evidence;
 - if the find is not an Aboriginal object then the works can continue without further investigation; and
 - if the find is verified as being an Aboriginal object, the RAPs and Heritage NSW will be contacted to discuss appropriate management measures proportionate to the significance of the find.

8.3 Additional assessment

As noted in Section 5.4.2, targeted inspection of mature paddock trees within the upper plateau paddock was completed; however, large quantities of rock mounded around some trees prohibited comprehensive inspection for cultural scarring. As such, there remains some potential for this site type to occur within the development footprint.

Further assessment is required to assess any mature trees which falls within the SEA development footprint which are currently obscured by rock to confirm whether or not cultural scarring is present, and if so to assess project impacts and propose suitable management measures. This is important as Aboriginal scarred trees are rare, have high value to the Aboriginal community and therefore warrant conservation or appropriate management.

This additional assessment was unable to be completed during the preparation of this report due to timing of submission of the EIS. As such, the following process will be completed:

- all mature trees within the SEA development footprint which are currently obscured by rock will have that rock removed to facilitate inspection for evidence of scarring;
- should any scarring be observed, the tree would be assessed by a suitably qualified archaeologist to determine if scarring is of cultural origin;
- any new Aboriginal scarred or carved trees identified will be recorded and assessed with reference to the findings of this report; and
- the priority will be to avoid any newly identified scarred or carved trees. If the project cannot avoid any newly identified sites and/or there is ambiguity between natural scars and scars of Aboriginal origin, then the below procedure will be followed to determine the most appropriate management strategy:
 - if assessment from a suitably qualified expert in scar tree assessment (arborist or other) determines that scarring is not of Aboriginal origin, then such trees will be removed as part of the project without further constraints on the project; and
 - if assessment from a suitably qualified expert in scar tree assessment determines that the scarring is of Aboriginal origin, Holcim will first seek to avoid such trees. If any trees cannot be avoided because of the high level of constraint they would pose on the project, then Holcim will consult with RAPs to determine the suitability of scar tree removal, relocation, and preservation. EMM notes that avoidance and protection of scar trees is the most appropriate measure and that approval for the removal of scarred trees is subject to support by RAPs, Heritage NSW and DPIE. The details of any scar tree removal and relocation measures will be detailed in the AHMP.

This task will be completed during either public exhibition or the preparation of the RTS report. The results of the assessment, proposed management measures, and evidence of RAP and Heritage NSW consultation will be provided prior to or as part of the RTS report to ensure DPIE can consider any new information prior to project approval.

8.4 Management summary

Table 8.2 provides a summary of all Aboriginal sites, significance ratings, impact types and management recommendations presented as part of this report.

Table 8.2 Site significance, impact, and management summary

Site Name	AHIMS site number	Site type	Significance	Impact type	Project component	Minimum buffer required (m)	Management strategy
DQ-IF1	44-4-0383	Isolated find	Low	Direct	Haul road	N/A	Relocation
DQ-IF2	44-4-0384	Isolated find with PAD	Moderate	None	Nil	20 m	Avoidance
DQ-OS1	36-1-0773	Artefact scatter with PAD	Low	None	Nil	50 m	Avoidance
DQ-OS2	36-1-0774	Artefact scatter with PAD	Moderate	None	Nil	50 m	Avoidance

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Glossary

Many of these definitions have been taken from the *Code of Practice for archaeological investigation of Aboriginal objects in NSW* (DECCW 2010).

Aboriginal object: A physical manifestation of past Aboriginal activity. The legal term is defined in the *National Parks and Wildlife Act 1974* section 5 as: any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Typical examples include stone artefacts, grinding grooves, Aboriginal rock shelters which by definition include physical evidence of occupation, midden shell, hearths, stone arrangements and other landscape features which derive from past Aboriginal activity.

Archaeological survey: A method of data collection for Aboriginal heritage assessment. It involved a survey team walking over the land in a systematic way, recording information. Activities are not invasive or destructive.

Aboriginal culturally modified tree: A tree of sufficient age to have been mature at the time of traditional Aboriginal hunter-gatherer life and therefore generally of more than 220 years ago with evidence of bark or cambium wood removal for the purpose of implement manufacture, footholds, bark sheet removal for shelter, or extraction of animals or other food. Care must be taken to distinguish Aboriginal scars from the much more common natural causes of branch tear, insect attack, animal impact, lightning strike and dieback. Culturally modified tree recognition guidelines exist to distinguish these features. Naturally scarred trees are often misidentified as Aboriginal culturally modified trees.

Aboriginal site: The location where a person in the present day can observe one or more Aboriginal objects. The boundaries of a site are limited to the extent of the observed evidence. In the context of this report a 'site' does not include the assumed extent of unobserved Aboriginal objects (such as archaeological deposit). Different archaeologists can have varying definitions of a 'site' and may use the term to reflect the assumed extent of past Aboriginal activity beyond visible Aboriginal objects. Such use of the term risks defining all of Australia as a single 'site'.

Aboriginal stone artefact: A stone object with morphological features derived from past Aboriginal activity such as intentional fracture, abrasion or impact. Artefacts are distinguished by morphology and context. Typically flaked stone artefacts are distinguished from naturally broken stone by recognition of clear marginal fracture initiation (typically herzian/conchoidal or wedging initiation) on highly siliceous stone types which can often be exotic to the area. Care must be taken to distinguish modern broken stone in machine impacted contexts and therefore context must be carefully considered as well as morphology.

Aggradation: a term used in geology for the increase in land elevation, typically in a river system, due to the deposition of sediment.

AHIMS: Aboriginal Heritage Information Management System — a computer software system employed by the Office of Environment and Heritage to manage many aspects of Aboriginal site recording and permitting. AHIMS includes an Aboriginal sites database which can be accessed via an internet portal.

Archaeological deposit: Aboriginal objects occurring in one or more soil strata. The most common form of archaeological deposit relates to the presence of a single conflated layer of Aboriginal stone artefacts worked into the topsoil through **bioturbation**.

Backed artefact: A thin flake or blade-flake that has been shaped by secondary flaking (**retouch**) along one lateral margin. The retouched margin is typically steep and bipolar to form a blunt 'back' in the manner of a modern scalpel blade. Distinctive symmetrical and asymmetrical forms are typically found called geometric **microliths** and Bondi points respectively. A thick symmetrical form, called an Elouera, is typically the size of a mandarin segment.

Bioturbation: is the reworking of soils and sediments by animals or plants. Its effects include changing texture of sediments (diagenetic), bioirrigation and displacement of microorganisms and non-living particles.

Bipolar flaking: Where the stone to be worked is rested on an anvil or other stone before being hit by the hammerstone. This results in the presence of negative flake scars on both ends of the core.

Bondi point: See backed artefact definition.

Brown podosols: Topsoils have loamy textures. A2 horizons are common. There is a clear boundary onto the B horizon. They have a sandy clay to heavy clay texture (typically occur on upper and mid-slopes).

Chocolate Soils: Soils that are typically formed in a basaltic parent material where slope or bedrock strata influence drainage. Surface horizons comprise loam, clay loam or silty clay loam. There is a gradual boundary to a brown or brownish black B horizon. There is no A2 horizons.

Conchoidal: A term used in relation to fracture surfaces on Aboriginal stone artefacts - bulb-like in the manner of a bulbous protrusion on a bivalve shell.

Elouera: See backed artefact definition.

Erillure scar: The small flake scar on the dorsal side of a flake next to the platform. It is the result of rebounding force during percussion flaking.

Exposure: estimates the area with a likelihood of revealing buried artefacts or deposits, not just an observation of the amount of bare ground.

Geometric microlith: See backed artefact definition.

Grinding grooves: Grinding grooves typically derive from the sharpening of stone hatchet heads on sandstone rock. Grooves appear as elliptical depressions of around 25 cm length with smooth bases. Although mostly occurring in association with water to wash the abraded stone dust away from the groove, such sites have been recorded away from water. Narrow grooves or broad abraded areas may occur less commonly and may be derived from spear sharpening or other grinding activities.

Haematite: a pigment featured in ochre used for tinting with a permanent colour.

Holocene: A period of time generally 10,000 years, which marks the end of the last ice age, to the present.

Igneous: relating to or involving volcanic or plutonic processes.

Indurated mudstone/tuff (IMT): the fine textured, very hard, yellowish, orange, reddish-brown or grey rocks from which stone artefacts are made.

Isotropic: Having a physical property that has the same value when measured in different directions. In relation to stone used for stone tools a fracture path is not hindered by layer boundaries or other favoured plane of cleavage.

Microolith: Very small fragments of flakes retouched into geometric shapes and usually present on tools like barbed spears, arrows and sickles.

Midden: A collection of shells and associated economic remains resulting from Aboriginal food gathering and processing activity. Middens comprise shellfish remains of consistent size in a rich dark earth matrix commonly associated with stone artefacts, fish bone and animal bone although shells are commonly the most obtrusive element.

Keeping place: A room or facility with the express and exclusive purpose of storing Aboriginal cultural heritage materials with accompanying documentation in a secure and accessible manner which protects their cultural heritage values.

Krasnozems: Mainly loams, clay loams and silty clay loams with a clear or gradual boundary to a dark reddish brown B horizon. Clays are typically light to medium and occasionally heavy.

Lithosols: Soils that have little or no profile development. They occur on steep slopes and are usually shallow and are left mainly as uncleared native bushland.

Open stone artefact site/stone artefact site: An unenclosed area where Aboriginal stone artefacts occur – typically exposed from a topsoil archaeological deposit by erosion. Typically the term is used to refer to two or more artefacts although this is an arbitrary distinction. A general ‘rule of thumb’ boundary definition employed by archaeologists is that artefacts or features more than 50 m apart are regarded as separate sites, however there is no theoretical imperative dictating such a rule. (The 50 m separation rule is used for the most part in EMM’s work).

Pirri point: A leaf-shaped stone implement with unifacial retouch extending from the lateral margins to a central keel running the length of the dorsal surface.

Pleistocene: A period of time 2.6 million years ago to 10,000 years ago. Reference to ‘Pleistocene sites’ generally means reference to sites older than 10,000 years.

Podosols: Soils with accumulations of organic matter, iron and aluminium. They are usually sand textured to depth. Yellow and red podosols are generally acid neutral. Yellow podosols have coarse to medium textured A horizons.

Point cluster: A group of GPS points used to identify the locations of individual artefacts in the field.

Potential Archaeological Deposit (PAD): An area where there is an inferred presence of Aboriginal objects in the soil based on the environmental context which is typically associated with discovery of Aboriginal objects in analogous areas. This is not strictly a ‘site’ type, although AHIMS records it as such for the purpose of associating Aboriginal heritage Impact Permits with geographical areas.

Red podosols: Podosols with a pronounced texture contrast and clear to abrupt boundaries between A and B horizons. A2 is often massive and gravelly.

Retouch: The modification of the edges of a flake or tool by the removal of a series of small flakes.

Siliceous Sands: Sands that are usually found on coarse-grained sandstones and in sandstone colluvium. They are often sandstone outcrops present in the landscape. The topsoil has a loamy sand to light sandy clay.

Scarp: a steep slope characterised by outcropping bedrock. In this report, scarp refers to a combination of landform elements including scarp foot slopes, scarps, and cliff lines where outcropping sandstone is present in the landscape 10% and above.

Spur: the lateral crests of land that descend from the summit of hills or ridges. Spurs typically extend, with decreasing elevation, closer to streams and valley floors than the main crest of a hill.

Taphonomic: the events and processes, such as burial in sediment, leading to the degradation, decomposition or preservation of objects.

Thumbnail scraper: A thumbnail sized thin flake with steep unidirectional retouch or use-wear around a convex working edge.

Transect: A sample unit which is walking line or corridor across the study area.

Upsidence: phenomena that occurs when mining approaches and undermines river valleys. It can result in cracking and buckling of river beds and rock bars and localised loss of water flow.

Visibility: The amount of bare ground on exposures which might reveal artefacts or other archaeological materials.

Yellow earths: predominantly sandy-textured soils with earthy porous fabric, weak profile differentiation and gradual or diffuse boundaries except for the darker A1 horizon.

Yellow podosols: Podosols which typically occur on the upper slopes of steep landscapes and on the mid to lower slopes of others. The A2 soil horizon is present in most profiles and the boundary change to the B horizon is generally clear. The B horizon is typically sandy clay to heavy clay.

Appendix A

Aboriginal consultation

Aboriginal Consultation Requirements for Proponents (DECCW 2010)*

ABORIGINAL CONSULTATION RECORD

Project Name: Dubbo Quarry EIS				Project #: J180313					
DECCW 2010*	ORGANISATION	CONTACT TYPE	TRACKING #	SUBJECT	SENT DATE	RESPONSE DUE	RESPONSE DATE	COMMENT/S	
4.1	Stage 1: Notification of project proposal and registration of interest								
4.1.2	Agency Requests								
4.1.2 (a)	OH	Email		Identification of Aboriginal parties	9/May/19	23/May/19	16/May/19	Provided list of Dubbo LGA stakeholders.	
4.1.2 (b)	Dubbo Local Aboriginal Land Council	Email		Identification of Aboriginal parties	9/May/19	23/May/19	10/May/19	Registered to be consulted. Did not identify any other individuals or organisations.	
4.1.2 (c)	The Office of the Registrar, Aboriginal Land Rights Act 1983	Email		Identification of Aboriginal parties	9/May/19	23/May/19	27/05/2019	No Registered Aboriginal Owners in the project area.	
4.1.2 (d)	National Native Title Tribunal	Email		Identification of Aboriginal parties	9/May/19	23/May/19	14/May/19	No native title claims. Freehold tenure.	
4.1.2 (e)	Native Title Services NTSCORP	Email		Identification of Aboriginal parties	9/May/19	23/May/19	Nil	No response received.	
4.1.2 (f)	Dubbo Regional Council	Email		Identification of Aboriginal parties	9/May/19	23/May/19	Nil	No response received.	
4.1.2 (g)	Central West Local Land Services	Email		Identification of Aboriginal parties	9/May/19	23/May/19	Nil	No response received.	
4.1.3	Newspaper Notice - Request for registrations								
4.1.3	Dubbo Daily Liberal	Newspaper		Identification of Aboriginal parties	27/May/19	10/Jun/19	N/A		
4.1.3	Aboriginal Group Notifications - Request for registrations								
4.1.3	Dubbo Local Aboriginal Lands Council	Email and Express Post	60444252940097	Request for registrations	27/May/19	10/Jun/19	29/May/19	Registered.	
4.1.3	Binjang Wellington Wiradjuri Heritage Survey	Express Post	60444252939091	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 28-05-19.	
4.1.3	Brian Draper	Express Post	60444252938094	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 28-05-19.	
4.1.3	Central West Catchment Management Authority Aboriginal Reference Group	Email and Express Post	60444252937097	Request for registrations	27/May/19	10/Jun/19	Nil	Awaiting collection from Wellington Post Office since 28 May.	
4.1.3	Dubbo City Council Aboriginal Community Working Party	Email and Express Post	60444252936090	Request for registrations	27/May/19	10/Jun/19	28/May/19	Registered	
4.1.3	Katrina Mckinnon	Express Post	60444252941094	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 29-05-19.	
4.1.3	Mooka	Express Post	60444252942091	Request for registrations	27/May/19	10/Jun/19	Nil	Returned to sender - item not collected from Cowra Post Office.	
4.1.3	Natasha Rodgers	Express Post	60444252943098	Request for registrations	27/May/19	10/Jun/19	Nil	Letter redirected from West Wodonga VIC to Upper Kedron QLD. Confirmed delivered with AusPost 5-06-19.	
4.1.3	Paul Brydon	Express Post	60444252944095	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 29-05-19.	
4.1.3	Peter Peckham	Express Post	60446858410097	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 29-05-19.	
4.1.3	Trevor Robinson	Express Post	60446858409091	Request for registrations	27/May/19	10/Jun/19	Nil	Returned to sender - incorrect address.	
4.1.3	Wamarr Cultural Consultants	Express Post	60446858408094	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 28-05-19.	
4.1.3	Wellington Valley Wiradjuri Aboriginal Corporation	Express Post	60446858407097	Request for registrations	27/May/19	10/Jun/19	Nil	Returned to sender - receiver not known at address.	
4.1.3	Wiradjuri Council of Elders	Express Post	60446858406090	Request for registrations	27/May/19	10/Jun/19	Nil	Returned to sender - failed delivery from Parkes Post Office.	
4.1.3	Wiradjuri Interim Working Party	Express Post	60446858405093	Request for registrations	27/May/19	10/Jun/19	Nil	Returned to sender - incorrect address.	
4.1.3	Wirimbah Direct Descendants	Express Post	60446858404096	Request for registrations	27/May/19	10/Jun/19	Nil	Letter confirmed delivered via AusPost on 28-05-19.	
4.1.6	Notification of registered parties								
4.1.6	OH	Email	-	Submit record of registrations	11/Jun/19	N/A	N/A	Within 28 days from the closing date for registering an interest.	
4.1.6	Dubbo Local Aboriginal Land Council	Email	-	Submit record of registrations	11/Jun/19	N/A	N/A	Within 28 days from the closing date for registering an interest.	
4.2/4.3	Stage 2 – Presentation of information about the proposed project and Stage 3 – Gathering information about cultural significance								
4.2.1 / 4.3.2	Dubbo City Council Aboriginal Community Working Party	Email	-	Project information, methodology and cultural	11/Jun/19	9/Jul/19	Nil	No response received.	
4.2.1 / 4.3.2	Dubbo Local Aboriginal Lands Council	Email	-	Project information, methodology and cultural	11/Jun/19	9/Jul/19	Nil	No response received.	
4.2.1 / 4.3.2	Dubbo City Council Aboriginal Community Working Party	Email	-	Reminder for responses to Stage 2 letter	28/Jun/19	26/Jul/19	Nil	No response received.	
4.2.1 / 4.3.2	Dubbo Local Aboriginal Lands Council	Email	-	Reminder for responses to Stage 2 letter	28/Jun/19	26/Jul/19	Nil	No response received.	
Project Update									
-	Dubbo City Council Aboriginal Community Working Party	Email	-	Project update	18/Dec/19	N/A	N/A	Update on project status.	
-	Dubbo Local Aboriginal Lands Council	Email	-	Project update	18/Dec/19	N/A	N/A	Update on project status.	
Project Update									
-	Dubbo City Council Aboriginal Community Working Party	Email	-	Project update	16/Jul/20	N/A	N/A	Update on project status.	
-	Dubbo Local Aboriginal Lands Council	Email	-	Project update	16/Jul/20	N/A	N/A	Update on project status.	
4.4	Stage 4 – Review of draft cultural heritage assessment report								
4.4.1	Dubbo City Council Aboriginal Community Working Party	Email	-	ACHA Review	4/Aug/20	2/Sep/20	Nil	No response received.	
4.4.1	Dubbo Local Aboriginal Lands Council	Email	-	ACHA Review	4/Aug/20	2/Sep/20	Nil	No response received.	
4.4.1	Dubbo City Council Aboriginal Community Working Party	Email	-	Reminder for responses to ACHA review	7/Sep/20		Nil	No response received.	
4.4.1	Dubbo Local Aboriginal Lands Council	Email	-	Reminder for responses to ACHA review	7/Sep/20		Nil	No response received.	

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:21 PM
To: 'admin.centralwest@lls.nsw.gov.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_Central West Local Land Services.pdf

To whom it may concern,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:


Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

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9 May 2019

Central West Local Land Services
PO Box 6082
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

In accordance with the DECCW (now OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, EMM requests information about relevant Aboriginal persons and Aboriginal organisations who you consider may have cultural knowledge and should be invited to register for consultation.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:

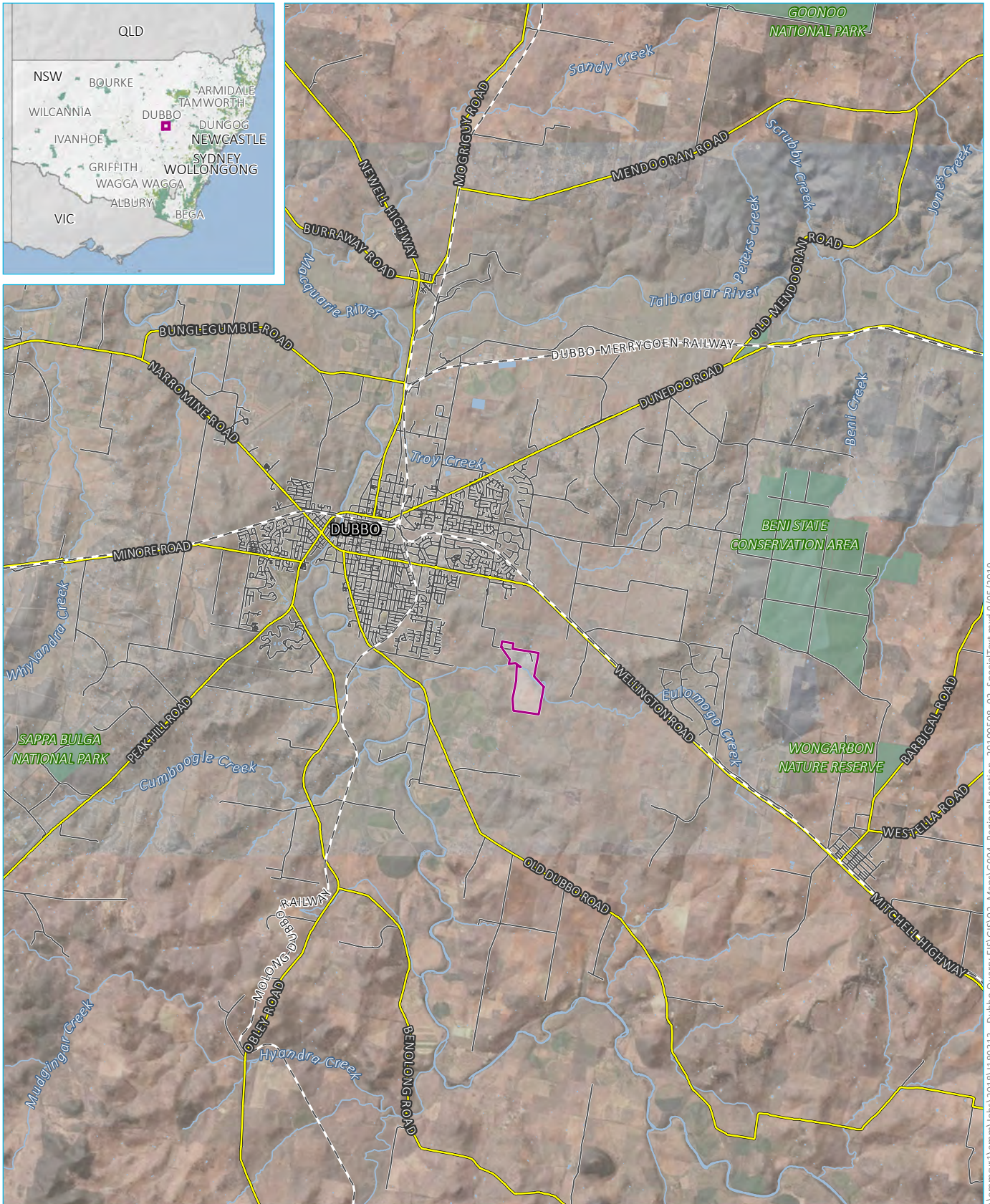
Dubbo Quarry Continuation Project
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Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Please advise me at your earliest convenience if additional time is required to provide this information. You can contact me on (02) 4901 4824 or my email as provided below.

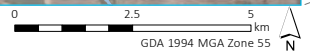
Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



KEY

- Project Area
- Waterbody
- NPWS reserve
- State forest
- Rail line
- Main road
- Local road
- Watercourse/drainage line

Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:16 PM
To: 'raiwyn@dialc.com.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_Dubbo LALC.pdf

To whom it may concern,

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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9 May 2019

Dubbo Local Aboriginal Land Council
Cnr Darling and Wingewarra Street
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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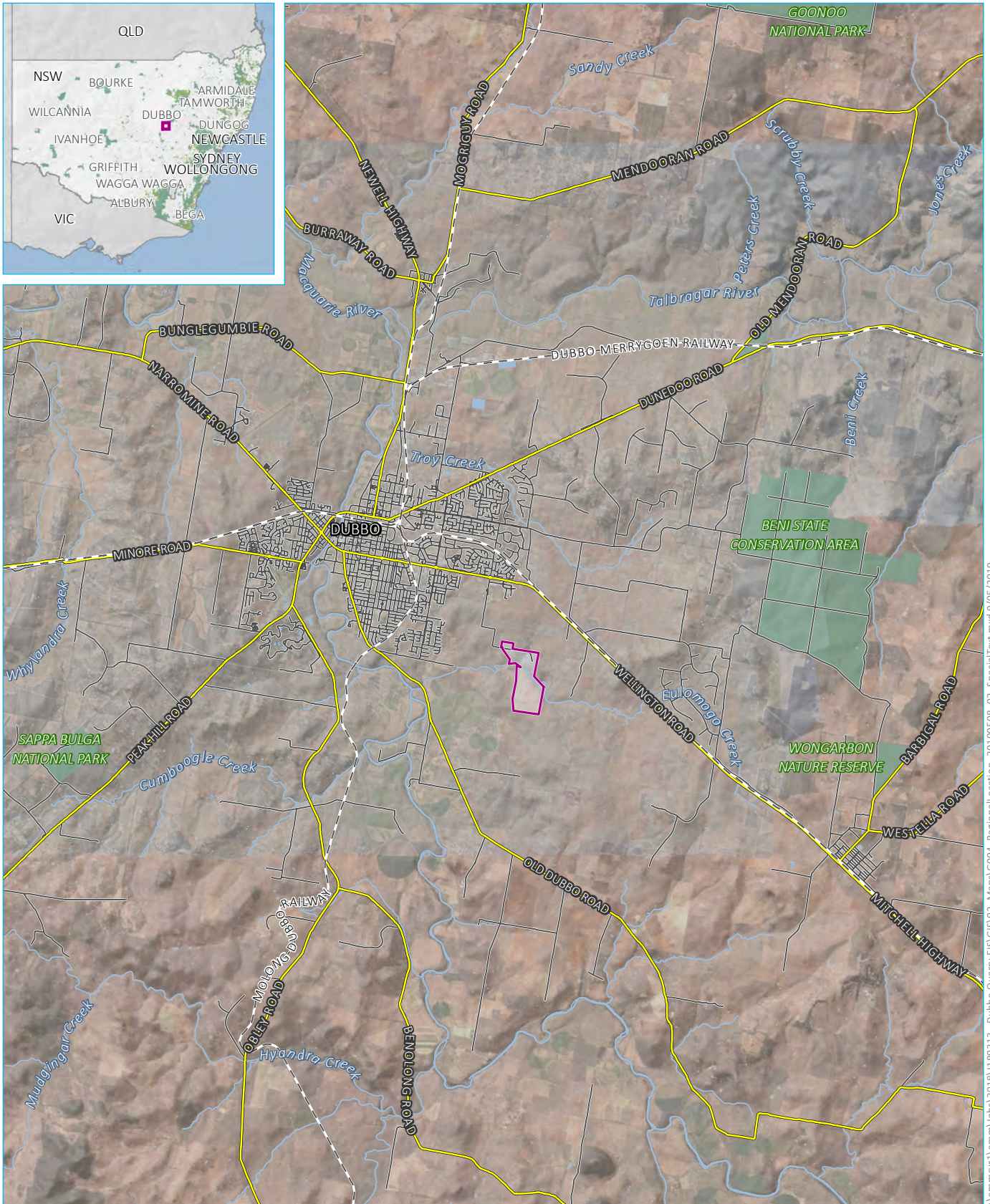
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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Please advise me at your earliest convenience if additional time is required to provide this information. You can contact me on (02) 4901 4824 or my email as provided below.

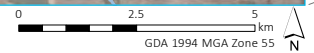
Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



KEY

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- NPWS reserve
- State forest
- Rail line
- Main road
- Local road
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Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:20 PM
To: 'council@dubbo.nsw.gov.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_Dubbo Regional Council.pdf

Attn: Council Heritage Officer,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

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Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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9 May 2019

Heritage Advisor
Dubbo Regional Council
PO Box 81
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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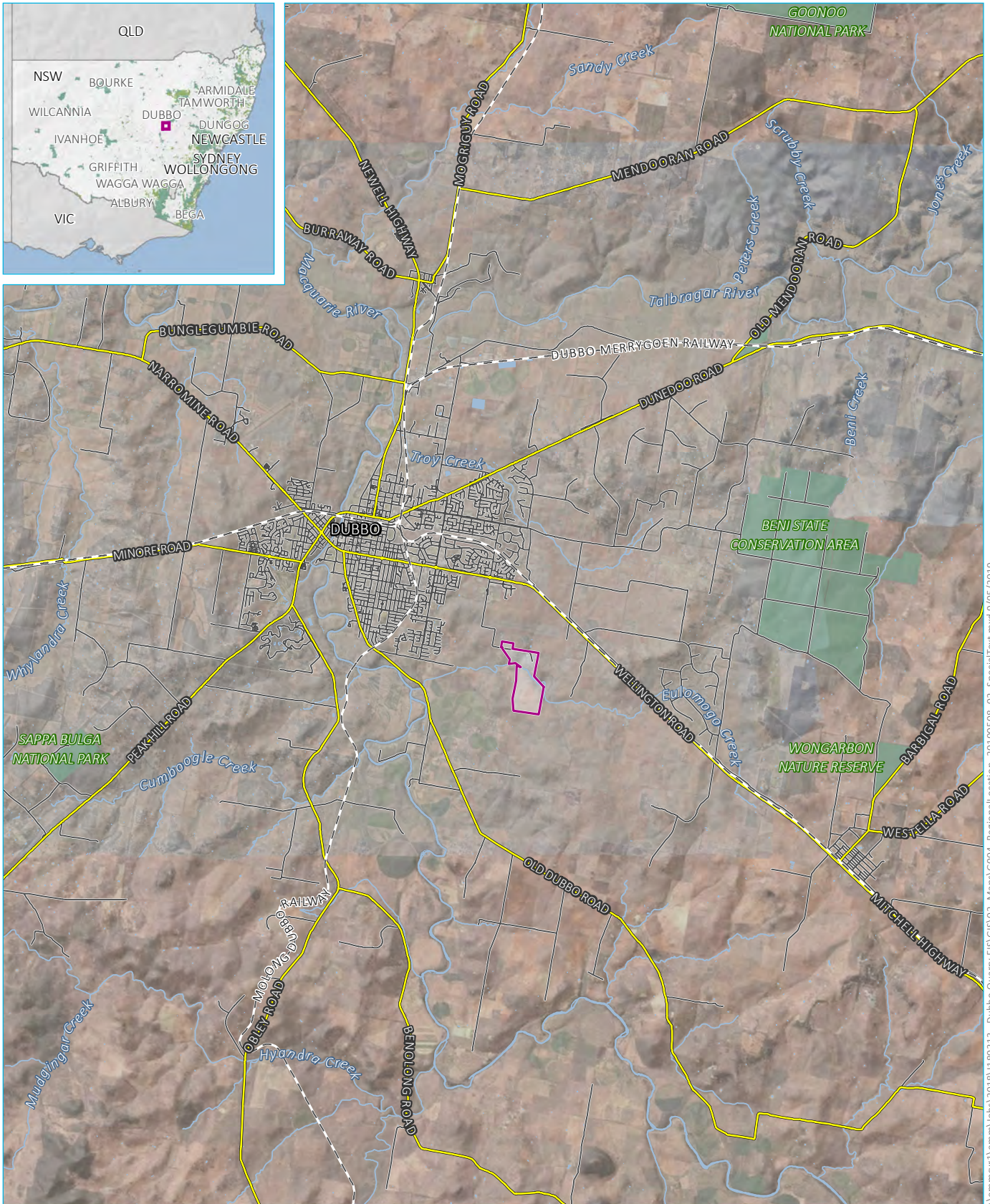
Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
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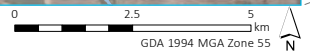
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Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



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Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:18 PM
To: 'nswenquiries@nntt.gov.au'; 'Geospatial Search Requests'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_National Native Title Tribunal.pdf; Search Form_Request for Search of Tribunal Registers.docx

To whom it may concern,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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9 May 2019

National Native Title Tribunal
GPO Box 9973
Sydney NSW 2001

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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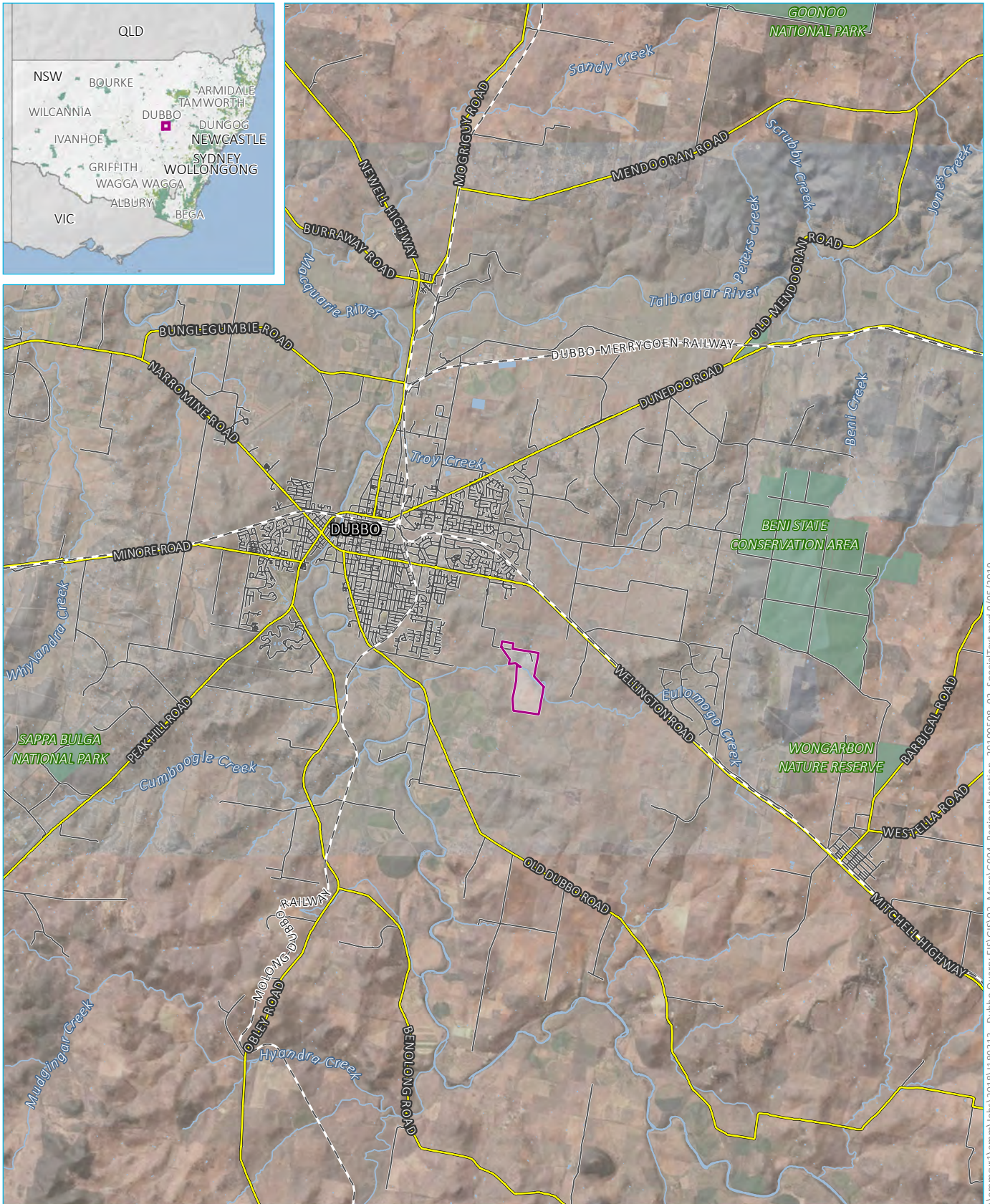
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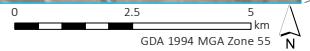
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Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:20 PM
To: 'information@ntscorp.com.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_NTSCORP.pdf

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
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Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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9 May 2019

Native Title Services Corporation
PO Box 2105
Strawberry Hills NSW 2001

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:

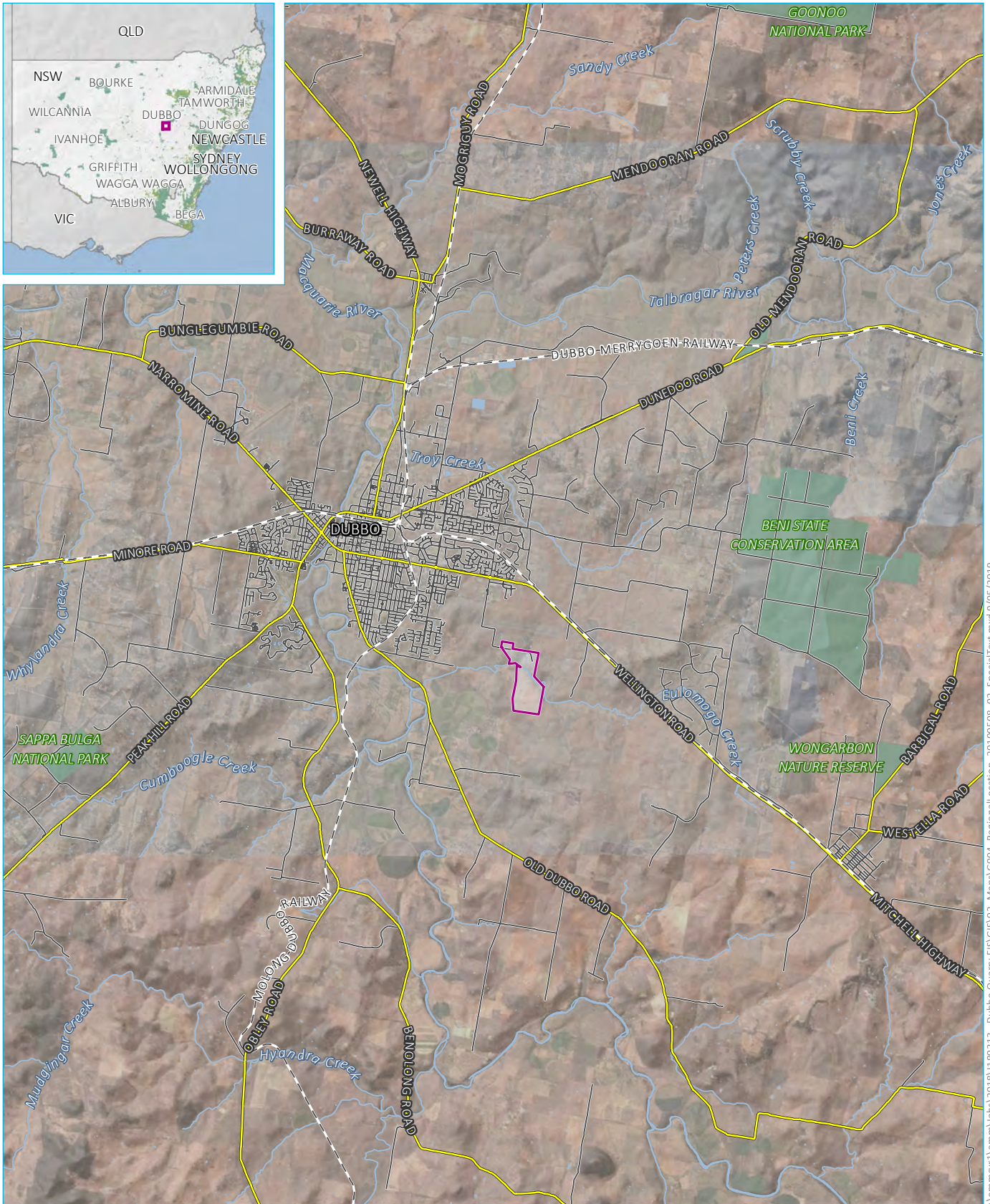
Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Please advise me at your earliest convenience if additional time is required to provide this information. You can contact me on (02) 4901 4824 or my email as provided below.

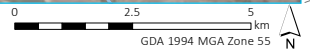
Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



KEY

- Project Area
- Waterbody
- NPWS reserve
- State forest
- Rail line
- Main road
- Local road
- Watercourse/drainage line

Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:15 PM
To: 'rog.nw@environment.nsw.gov.au'
Cc: 'Samantha.Wynn@environment.nsw.gov.au'; 'Phil.Purcell@environment.nsw.gov.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_OEH.pdf

To whom it may concern,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:


Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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M 0400 264 916
D 02 4907 4824
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9 May 2019

Office of Environment and Heritage
PO Box 2111
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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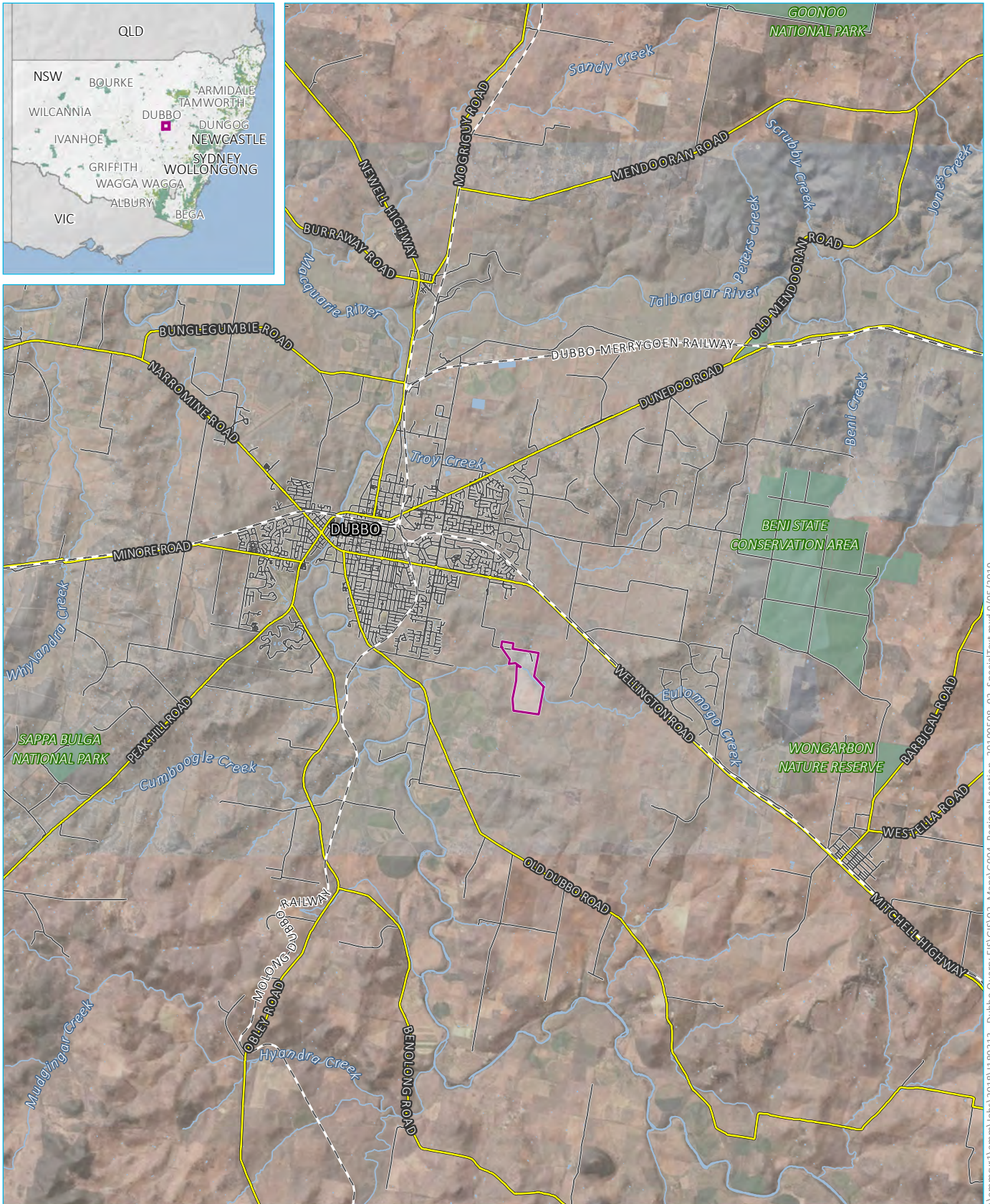
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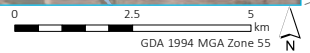
Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



KEY

- Project Area
- Waterbody
- NPWS reserve
- State forest
- Rail line
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- Local road
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Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 9 May 2019 5:17 PM
To: 'adminofficer@oralra.nsw.gov.au'
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_Office of the Registrar.pdf

To whom it may concern,

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Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
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9 May 2019

The Office of the Registrar
Aboriginal Land Rights Act 1983
PO Box 5068
Parramatta NSW 2124

Re: Dubbo Quarry Continuation Project - Agency Request

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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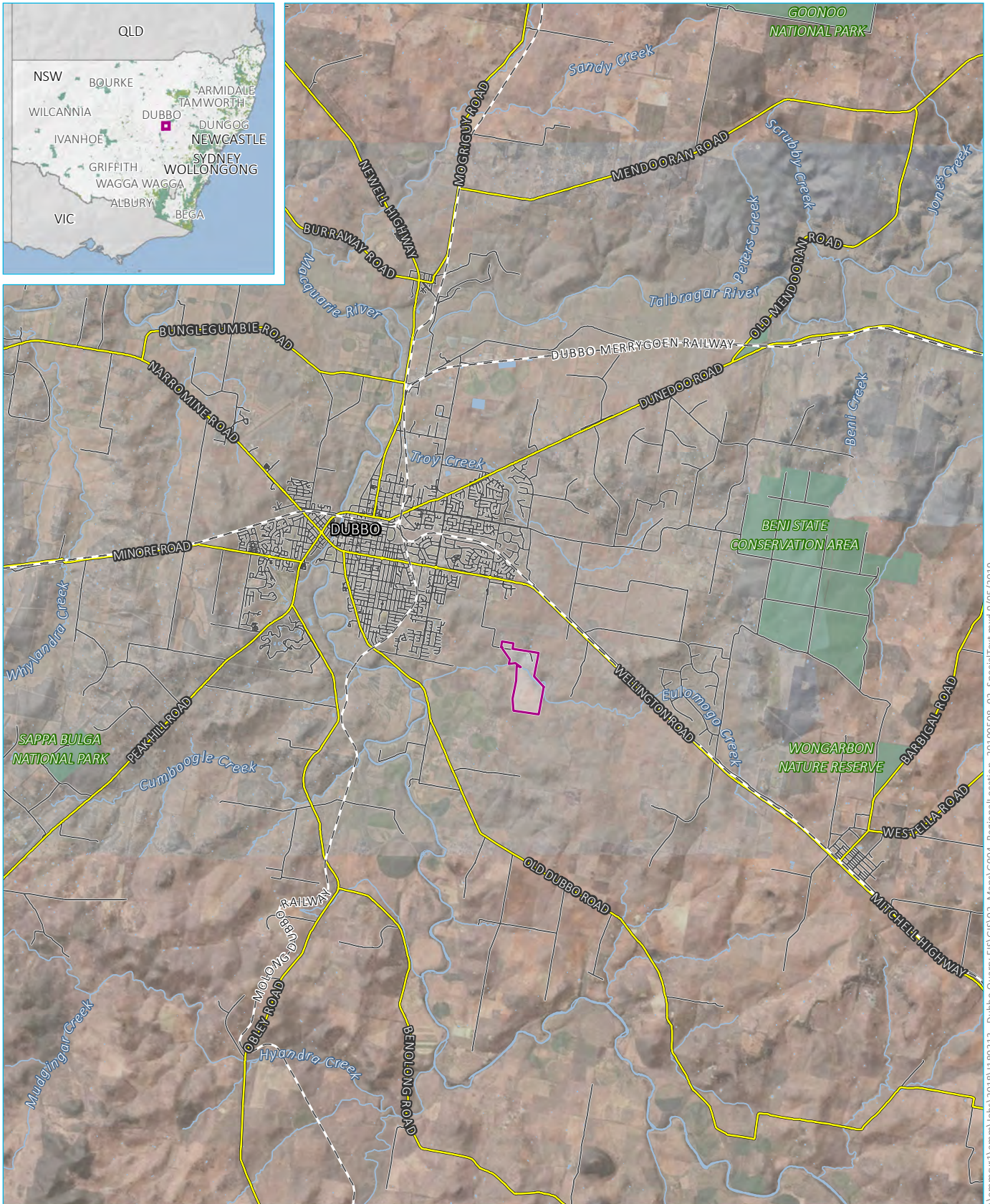
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Please advise me at your earliest convenience if additional time is required to provide this information. You can contact me on (02) 4901 4824 or my email as provided below.

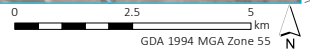
Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au



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



KEY

- Project Area
- Waterbody
- NPWS reserve
- State forest
- Rail line
- Main road
- Local road
- Watercourse/drainage line

Project area location

Dubbo Quarry Continuation Project

Morgan Wilcox

From: Suellyn Rees <suellyn@dlalc.com.au>
Sent: 10 May, 2019 9:45 AM
To: Morgan Wilcox
Subject: FW: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: J180313_DubboQuarryContinuationProject_AgencyRequest_V1.0_Dubbo LALC.pdf

Hi Morgan,

Please include Dubbo Local Aboriginal Land Council as we have staff who are appropriately qualified to conduct these assessments (also a Traditional Owner) and are currently having 2 other young community members certified to conduct assessments as well.

Kind regards

Suellyn Rees

CEO

Mobile: 0427 121 912



Dubbo Local Aboriginal Lands Council|Cnr Darling & Wingewarra Sts|POBox1565|Dubbo,NSW 2830|Ph 02 6884 5276

"Dubbo LALC would like to acknowledge the traditional custodians of this land and pay respects to the Elders both past and present"

From: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Sent: Thursday, 9 May 2019 5:16 PM
To: Raiwyn Towney <raiwyn@dlalc.com.au>
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

To whom it may concern,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist

Morgan Wilcox

From: Morgan Wilcox
Sent: 10 May, 2019 11:07 AM
To: 'Suellyn Rees'
Subject: RE: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request


Thank you Suellyn,

I will note your registration as a stakeholder for the project. Can you please advise of any other Aboriginal organisations or Aboriginal persons you are aware of who hold knowledge relevant to the study area who should be contacted and invited to register for this project?

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



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M 0400 264 916
D 02 4907 4824
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From: Suellyn Rees <suellyn@dalc.com.au>
Sent: 10 May, 2019 9:45 AM
To: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Subject: FW: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

Hi Morgan,

Please include Dubbo Local Aboriginal Land Council as we have staff who are appropriately qualified to conduct these assessments (also a Traditional Owner) and are currently having 2 other young community members certified to conduct assessments as well.

Kind regards
Suellyn Rees
CEO
Mobile: 0427 121 912



Dubbo Local Aboriginal Lands Council|Cnr Darling & Wingewarra Sts|POBox1565|Dubbo,NSW 2830|Ph 02 6884 5276

"Dubbo LALC would like to acknowledge the traditional custodians of this land and pay respects to the Elders both past and present"

Morgan Wilcox

From: Grace Toomey <Grace.Toomey@dubbo.nsw.gov.au>
Sent: 13 May, 2019 9:59 AM
To: Morgan Wilcox
Subject: RE: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

Hi Morgan

I will table the attached letter at our Dubbo Aboriginal Community Working Party meeting tomorrow and get back to you on the relevant contact person for this project

Cheers

Grace Toomey

Aboriginal Liaison Officer
Dubbo Regional Council
P 02 6801 4406 **F** 02 6801 4259
M 0408 689 688
E Grace.Toomey@dubbo.nsw.gov.au



<http://dubbo.nsw.gov.au>

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From: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Sent: Thursday, 9 May 2019 5:20 PM
To: DRC Mailbox <council@dubbo.nsw.gov.au>
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

Attn: Council Heritage Officer,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:

Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300

Morgan Wilcox

From: Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>
Sent: 14 May, 2019 3:52 PM
To: Morgan Wilcox
Subject: RE: SR5800 - J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request - SR5800

UNCLASSIFIED

Native title search – NSW Parcels – Lot 100 on DP628628 and Lot 222 DP1247780
Your ref: J180313 - Our ref: SR5800

Change of e-mail address for Geospatial Searches

To ensure your search requests are received and processed in a timely manner, please forward to GeospatialSearch@NNTT.gov.au with a **completed search request form**. The form is available from the Tribunal's website at this address: <http://www.nntt.gov.au/News-and-Publications/Pages/Forms.aspx>

Dear Morgan Wilcox,

Thank you for your search request received on 09 May 2019 in relation to the above area.

Please note: Records held by the National Native Title Tribunal as at 09 May 2019 indicate that the identified parcels appear to be freehold, and freehold tenure extinguishes native title.

The National Native Title Tribunal does not hold data sets for freehold tenure; consequently, we **cannot** conduct searches over freehold. For confirmation of freehold data, please contact the NSW Land and Property Information office or seek independent legal advice.

For further information, please visit our [website](#).

Cultural Heritage Searches in NSW

The National Native Title Tribunal (the Tribunal) has undertaken steps to remove itself from the formal list of sources for information about indigenous groups in development areas. The existence or otherwise of native title is quite separate to any matters relating to Aboriginal cultural heritage. Information on native title claims, native title determinations and Indigenous Land Use Agreements is available on the Tribunal's website.

Interested parties are invited to use Native Title Vision (NTV) the Tribunal's online mapping system to discover native title matters in their area of interest. Access to NTV is available at

<http://www.nntt.gov.au/assistance/Geospatial/Pages/NTV.aspx>

Training and self-help documents are available on the NTV web page under "Training and help documents". For additional assistance or general advice on NTV please contact GeospatialSearch@NNTT.gov.au

Additional information can be extracted from the Registers available at

<http://www.nntt.gov.au/searchRegApps/Pages/default.aspx>

If you have any further queries, please do not hesitate to contact us on the free call number 1800 640 501.

Regards,

Geospatial Searches

National Native Title Tribunal | Perth

Email: GeospatialSearch@nntt.gov.au | www.nntt.gov.au

Morgan Wilcox

From: Morgan Wilcox
Sent: 15 May, 2019 1:29 PM
To: 'Grace Toomey'
Subject: RE: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

Thank you Grace,


Did you have a list of Aboriginal knowledge holders with whom we can speak with about the project?

I note that, as per the consultation requirements, a public advertisement will also be placed in the Daily Liberal calling for Aboriginal stakeholder registration for the project within a fortnight.

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



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M 0400 264 916
D 02 4907 4824
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From: Grace Toomey <Grace.Toomey@dubbo.nsw.gov.au>
Sent: 13 May, 2019 9:59 AM
To: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Subject: RE: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

Hi Morgan

I will table the attached letter at our Dubbo Aboriginal Community Working Party meeting tomorrow and get back to you on the relevant contact person for this project

Cheers

Grace Toomey
Aboriginal Liaison Officer
Dubbo Regional Council
P 02 6801 4406 **F** 02 6801 4259
M 0408 689 688
E Grace.Toomey@dubbo.nsw.gov.au

Morgan Wilcox

From: Helen Knight <Helen.Knight@environment.nsw.gov.au>
Sent: 16 May, 2019 12:36 PM
To: Morgan Wilcox
Subject: RAPs List for the Dubbo Quarry Continuation Project
Attachments: OEH Response - RAP Stakeholder requests - Dubbo Quarry Continuation Project.pdf

Hi Morgan,
Find attached OEH's response with the RAPs List for the Dubbo Quarry Continuation Project
If you receive any return to sender letters, would you be able to advise us so we can amend our lists for future reference
Regards, Helen



Helen Knight

Conservation Planning & GIS Data
Information Officer
North West Planning Team
Conservation and Regional
Delivery

48–52 Wingewarra Street, Dubbo 2830
PO Box 211, Dubbo 2830
T 02 6883 5327 F 02 6884 8675
W: www.environment.nsw.gov.au

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DOC19/390564

Morgan Wilcox
Senior Archaeologist
EMM Consulting Pty Ltd
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Dear Morgan

WRITTEN NOTIFICATION AS REQUIRED UNDER OFFICE OF ENVIRONMENT AND HERITAGE (OEH) ABORIGINAL CULTURAL HERITAGE REQUIREMENT FOR PROPONENTS 2010 – Dubbo Quarry Continuation Project Proposal

I refer to your letter dated 9 May 2019 to the Office of Environment and Heritage (OEH) regarding the above matter.

A list of known Aboriginal parties that OEH considers is likely to have an interest in this development is attached as Attachment 1 (overleaf). Please note this list is not necessarily an exhaustive list of all interested Aboriginal parties and receipt of this list does not remove the requirement of a proponent/consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties, in accordance with the requirements of Section 80C of the National Parks and Wildlife Regulation 2009.

Should you require further information regarding issues that are the responsibility of the OEH please contact Helen Knight, Conservation Planning Officer on (02) 6883 5327

Yours sincerely

SAMANTHA WYNN
Senior Team Leader Planning - North West
Conservation and Regional Delivery

16 May 2019

Contact officer: HELEN KNIGHT
02 6883 5327

ATTACHMENT 1

Table 1: List of aboriginal stakeholder groups within the Dubbo Local Government Area - that may have an interest in the project; provided as per the “OEH aboriginal cultural heritage requirement for proponents 2010”.

Organisation/Affiliation	Name/Title	Address
Binjang Wellington Wiradjuri heritage Survey	Jamie Grey	260 Myall St, Dubbo NSW 2830
Brian Draper		7 Sovereign St, Dubbo NSW 2830
Central West Catchment Management Authority	Aboriginal Reference Group	PO Box 227, Wellington NSW 2820
Dubbo Aboriginal Community Working Party	Grace Toomey	C/- Dubbo Council, PO Box 81, Dubbo NSW 2380
Dubbo Aboriginal Community Working Party	Paul Carr	C/- Dubbo Council, PO Box 81, Dubbo NSW 2380
DUBBO LALC	Chairperson	PO Box 1565, Dubbo NSW 2830
Katrina Mckinnon		33 Hinton Drive, Gunnedah NSW 2380
Mooka	Neville Williams	PO Box 70, Cowra NSW 2794
Natasha Rodgers		7 Toy Court, Wodonga VIC 3690
Paul Brydon		166 Minore Street, Narromine NSW 2821
Peter Peckham		27 Jennings Street, Geurie, NSW 2831
Trevor Robinson		PO Box 73, Peak Hill NSW 2869
Wamarr Cultural Consultants	Craig Riley	17 Marsh Street, Wellington NSW 2820
Wellington LALC	Chairperson	163 Simpson Street, Wellington NSW 2820
Wellington Valley Wiradjuri Aboriginal Corporation	Chairperson	PO Box 2290, Orange NSW 2800
Wiradjuri Council of Elders	Robert Clegg	28 Hodges Street, Parkes NSW 2870
Wiradjuri Interim Working Party		PO Box 73, Peak Hill NSW 2869
Wirrimbah Direct Descendants	Coral Peckham	PO Box 2070, Dubbo NSW 2830

Morgan Wilcox

From: Elizabeth LOANE <ELIZABETH.LOANE@det.nsw.edu.au>
Sent: 27 May, 2019 10:44 AM
To: Morgan Wilcox
Subject: FW: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request
Attachments: EMM - Dubbo - Dubbo.pdf

Dear Morgan,

We refer to the attached.

Kind regards,
Liz

Elizabeth Loane
Project Officer, Aboriginal Owners
Office of The Registrar ALRA 1983
Phone: 02 8633 1693
Email: elizabeth.loane@det.nsw.edu.au
PO Box 5068 Parramatta NSW 2124
Website: www.oralra.nsw.gov.au

From: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Sent: Thursday, 9 May 2019 5:17 PM
To: Admin officer, AANSW <~COR0826Adminofficer@aboriginalaffairs.nsw.gov.au>
Subject: J180131 - Dubbo Quarry Continuation Project - Consultation - Agency Request

To whom it may concern,

Please see attached agency request seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road, Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please provide a list of relevant organisations or persons by **24 May 2019** to the details below:

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist

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M 0400 264 916
D 02 4907 4824



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privileged information or confidential information or both. If you
are not the intended recipient please delete it and notify the sender.

27 May 2019

By email: mwilcox@emmconsulting.com.au

Morgan Wilcox
Senior Archaeologist
EMM Consulting
PO Box 506
NEWCASTLE NSW 2300

Dear Morgan,

Request - Search for Registered Aboriginal Owners

We refer to your letter dated 9 May 2019 (Letter) regarding an Aboriginal Cultural Heritage Assessment for the proposed development at Dubbo NSW as indicated in the map attached to the Letter.

Under Section 170 of the *Aboriginal Land Rights Act 1983* the Office of the Registrar is required to maintain the Register of Aboriginal Owners (RAO). A search of the RAO has shown that there are not currently any Registered Aboriginal Owners in the project area.

We suggest you contact Dubbo Local Aboriginal Land Council on 02 6884 5276 as they may be able to assist you in identifying Aboriginal stakeholders who wish to participate.

Yours sincerely

A handwritten signature in black ink that reads "Elaine".

Elizabeth Loane
Project Officer, Aboriginal Owners
Office of the Registrar, ALRA

Notice of Aboriginal Consultation

Project Name:

Dubbo Quarry Continuation Project

Location: Sheraton Road Dubbo NSW

Holcim (Australia) Pty Ltd is seeking approval for continued operations at Dubbo Quarry, currently operating on Sheraton Road, Dubbo, within the Dubbo Regional Council local government area. The project will primarily involve extension of the existing extraction area into partial Lot 222 DP1247780 and establishment of a new extraction area on partial Lot 100 DP628628.

Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and Aboriginal places in the area of the proposed project are invited to register an interest in a process of community consultation with the proponent.

The purpose of community consultation with Aboriginal people is to assist the proposed applicant in: 1) assessing the Aboriginal heritage values of the area, 2) preparing an Environmental Impact Statement under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979, and 3) to assist regulators in the assessment of Aboriginal heritage reports prepared for this project.

Registrations of interest must be submitted in writing on or before close of business Monday 10 June 2019. Registrations should include the name of a contact person, address and other relevant contact details, preferably including an email address. The names of registered Aboriginal parties will be passed on to the relevant Local Aboriginal Land Council and the Office of Environment and Heritage unless a request to the contrary is made.

Send registrations of interest to:

Dubbo Quarry Continuation Project

c/o EMM Consulting Pty Ltd

Attn: Morgan Wilcox

PO Box 506

Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

Registration of interest does not guarantee paid involvement.

Proponent contact: Luke Edminson
luke.edminson@afargeholcim.com

RM6560372

27/05/2019 - PUBLIC NOTICES

27 May 2019

Brian Draper
7 Sovereign St
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Brian,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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This information must be received by close of business on **10 June 2019**:

Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

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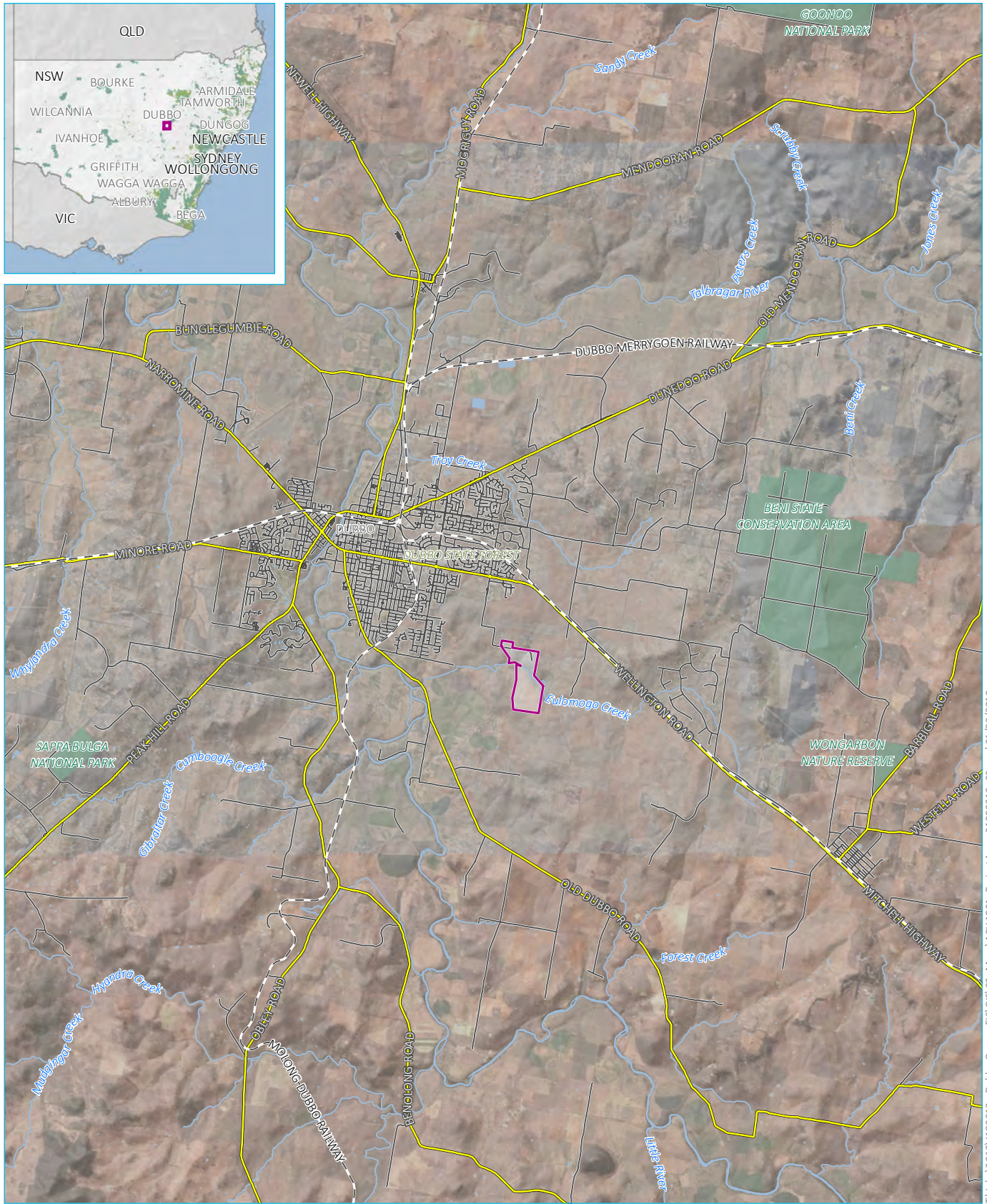
Yours sincerely

A handwritten signature in black ink, appearing to read 'M Wilcox', with a stylized flourish at the end.

Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

- KEY**
- Project Area
 - Waterbody
 - NPWS reserve
 - State forest
 - Rail line
 - Main road
 - Local road
 - Watercourse/drainage line

Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Chairperson
Wellington Valley Wiradjuri Aboriginal Corporation
PO Box 2290
Orange NSW 2800

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Sir/Madam,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

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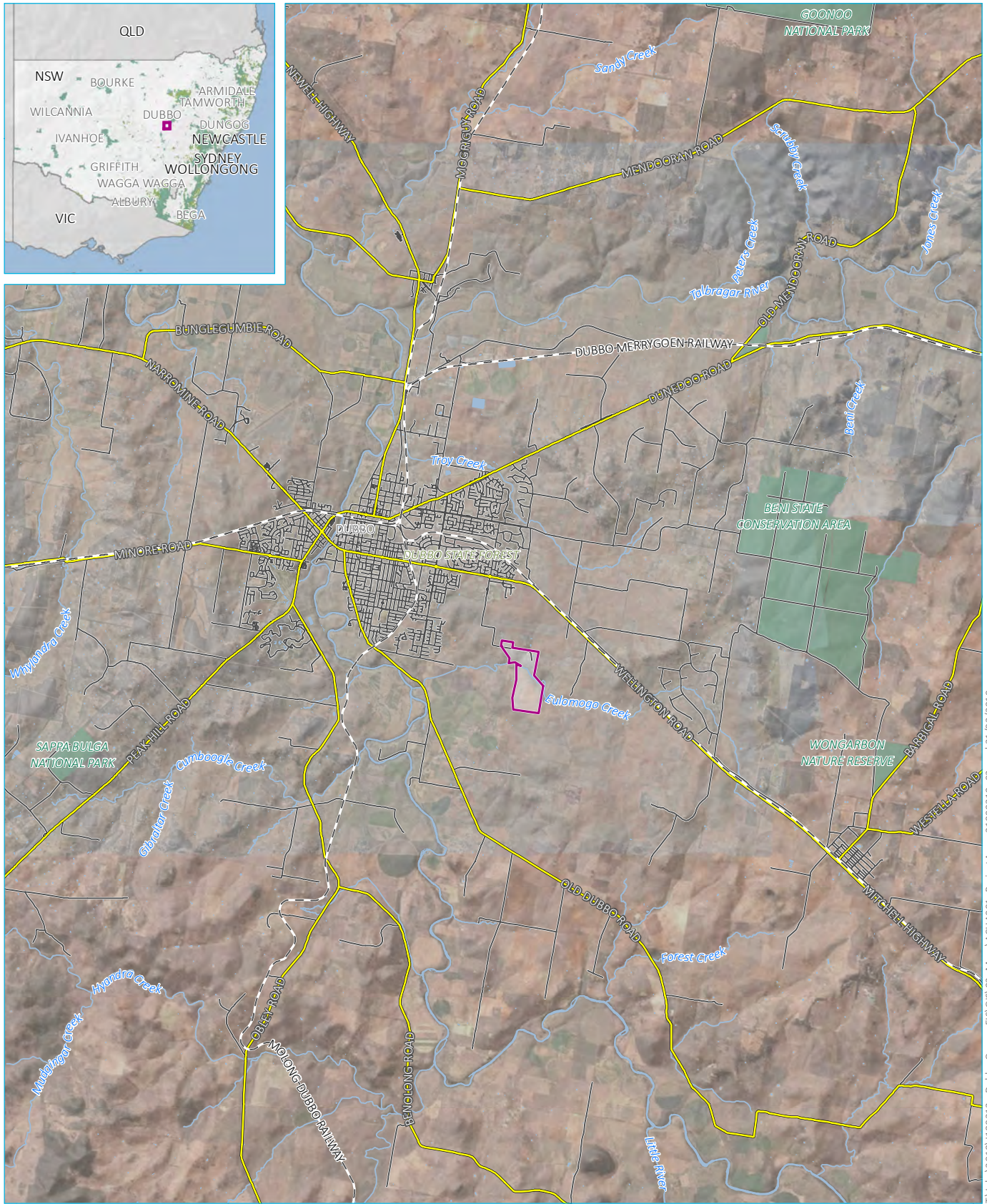
Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Coral Peckham
Wirrimbah Direct Descendants
PO Box 2070
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Coral,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

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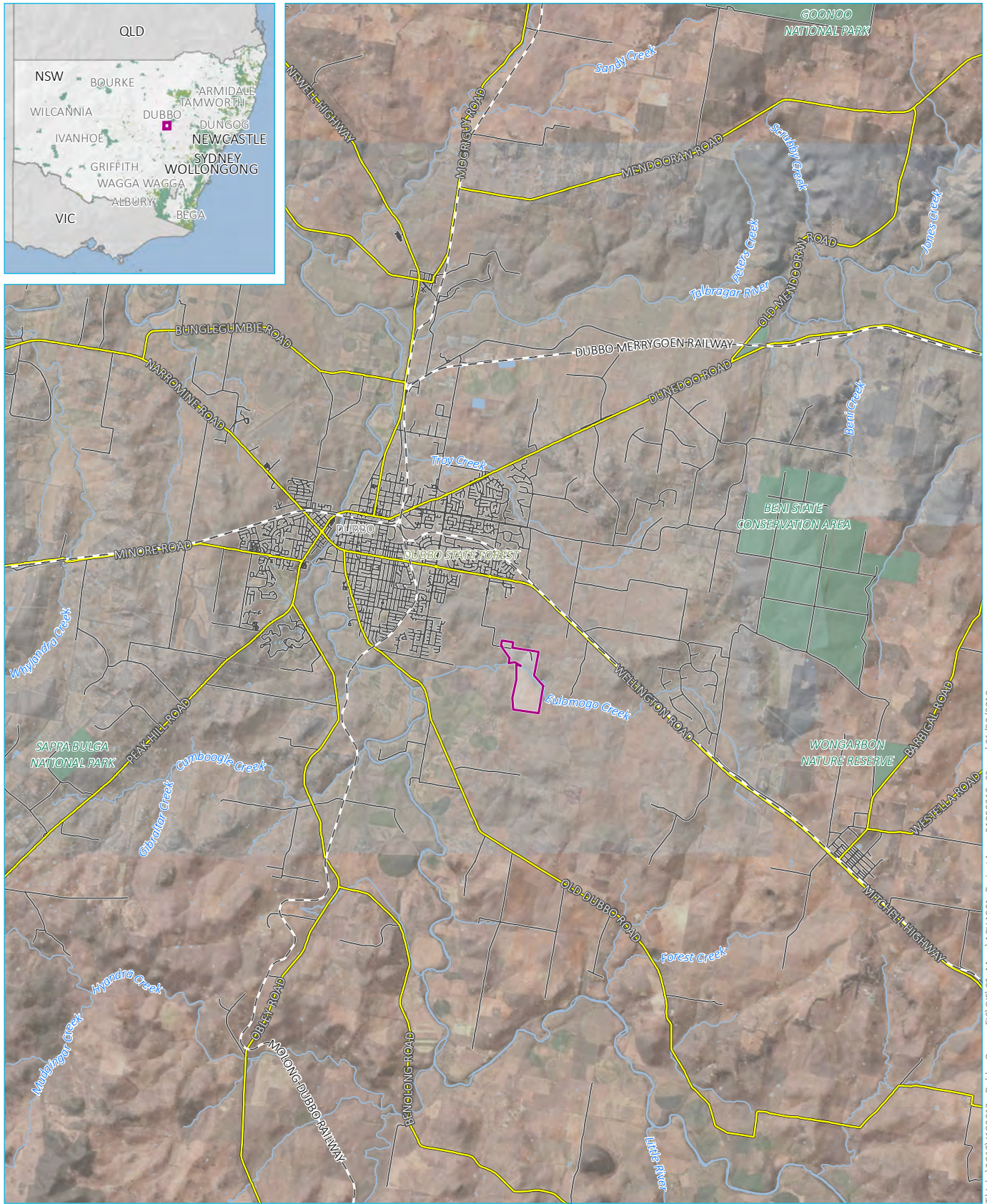
Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Craig Riley
Wamarr Cultural Consultants
17 Marsh St
Wellington NSW 2820

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Craig,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

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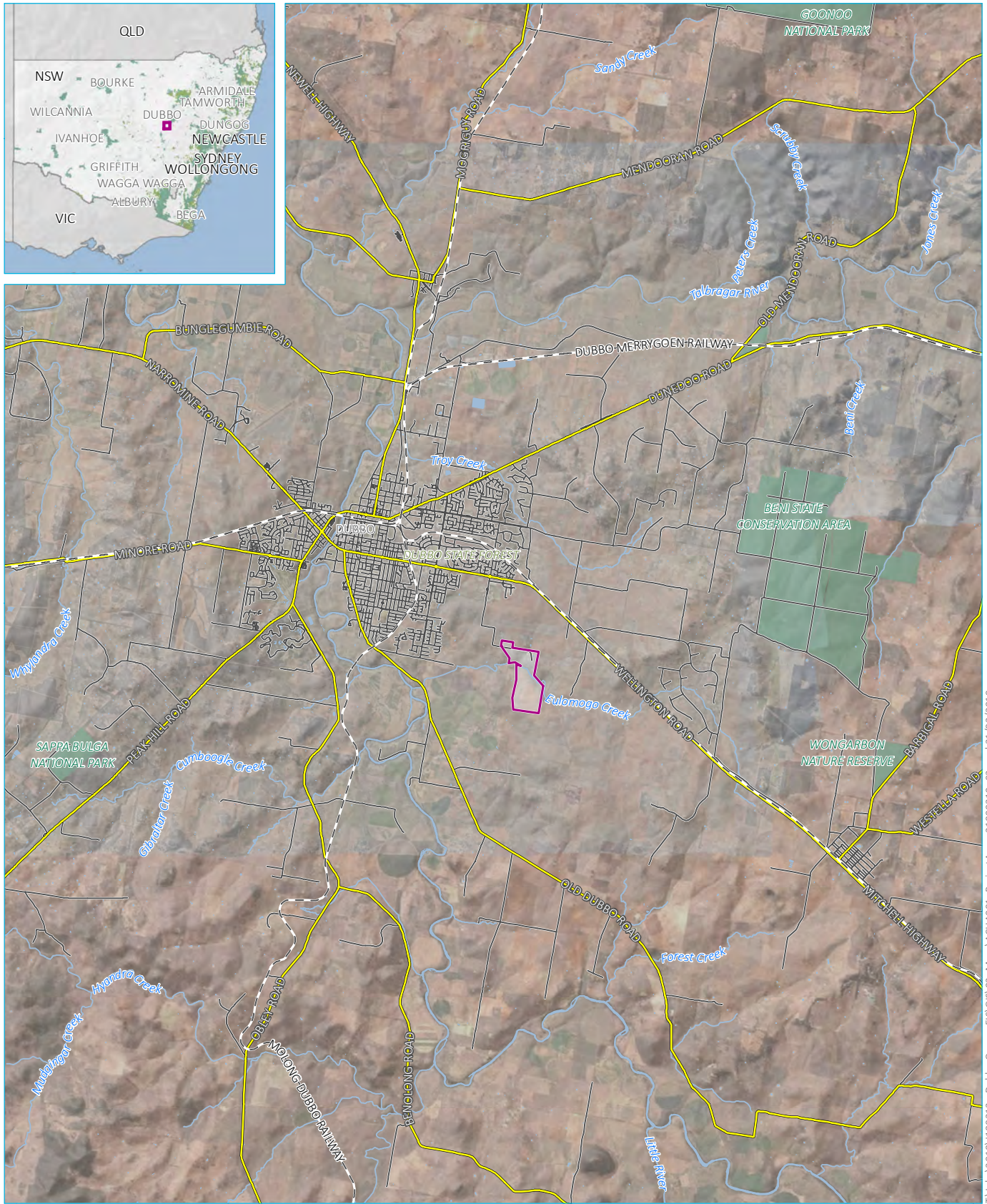
Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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Morgan Wilcox

From: Morgan Wilcox
Sent: Monday, 27 May 2019 5:04 PM
To: graham.kelly@lls.nsw.gov.au
Cc: peta.holcombe@lls.nsw.gov.au; admin.centralwest@lls.nsw.gov.au
Subject: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register
Attachments: DubboQuarryACHA_Invitation to register_Central West CMA_Aboriginal Reference Group_Graham Kelly.pdf

Dear Graham (Central West Catchment Management Authority Aboriginal Reference Group),

EMM Consulting on behalf of Holcim (Australia) Pty Ltd is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please see attached an invitation to register.

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c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

27 May 2019

Graham Kelly
Central West Catchment Management Authority Aboriginal Reference Group
PO Box 227
Wellington NSW 2820

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Graham,

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PO Box 506
Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

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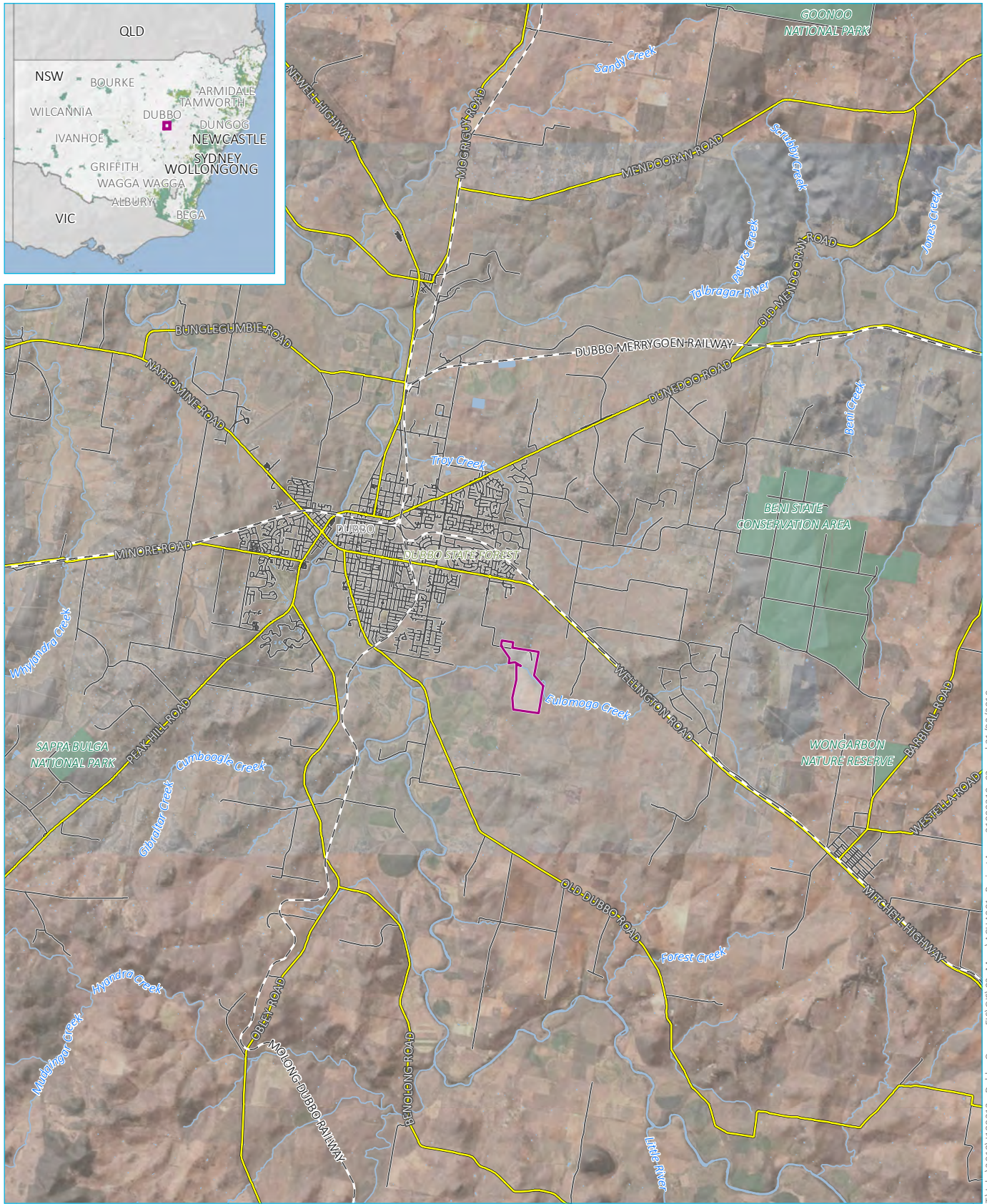
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Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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Dubbo Quarry Extension
Aboriginal cultural heritage assessment

Figure 1



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Morgan Wilcox

From: Morgan Wilcox
Sent: Monday, 27 May 2019 5:07 PM
To: Grace Toomey
Cc: council@dubbo.nsw.gov.au
Subject: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register
Attachments: DubboQuarryACHA_Invitation to register_DCC Aboriginal Community Working Party_Grace Toomey & Paul Carr.pdf

Dear Grace and Paul (Dubbo City Council Aboriginal Community Working Party)

EMM Consulting on behalf of Holcim (Australia) Pty Ltd is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area.

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Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

27 May 2019

Grace Toomey & Paul Carr
Dubbo City Council Aboriginal Community Working Party
PO Box 81
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Grace & Paul,

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Email: mwilcox@emmconsulting.com.au

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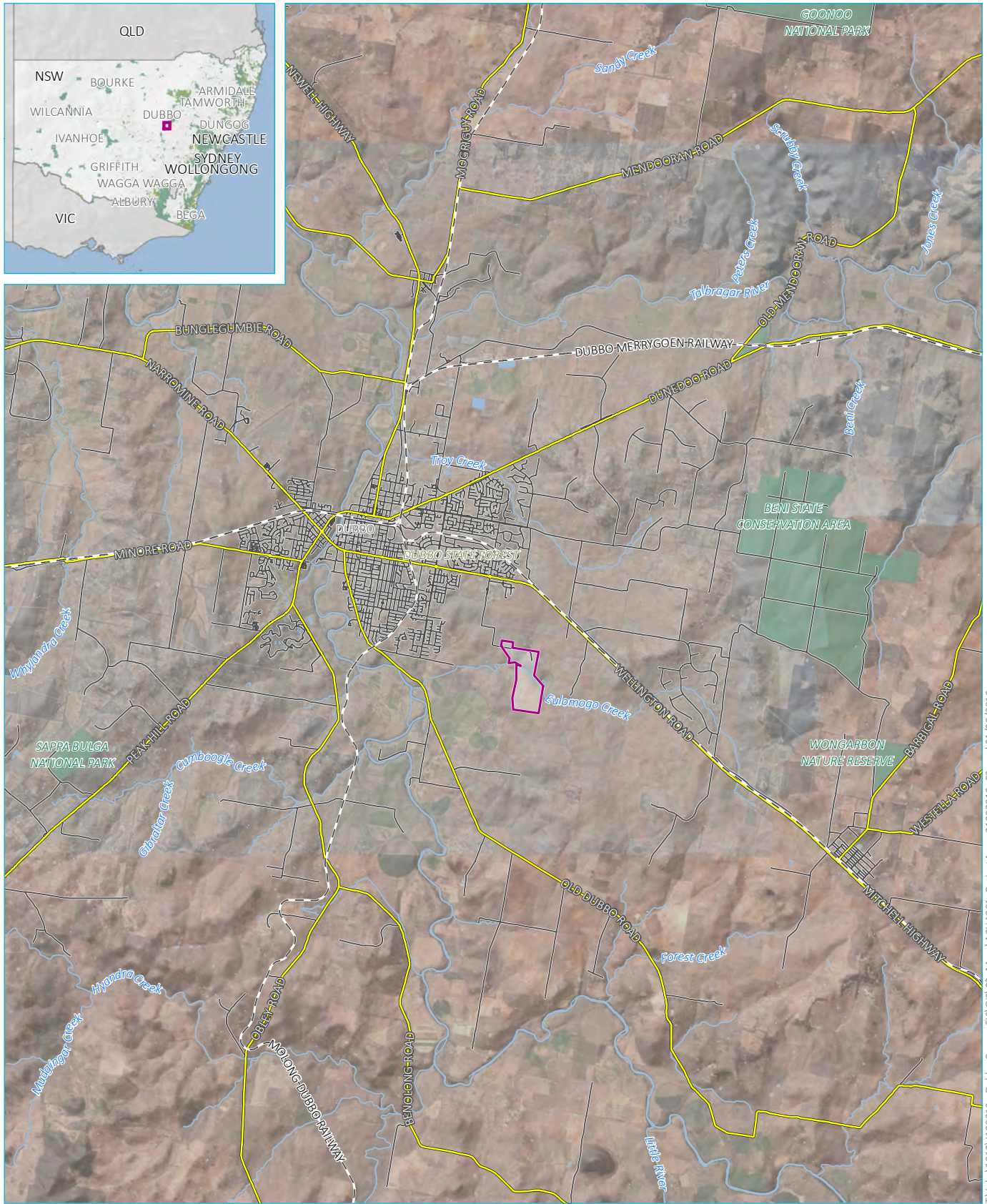
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Morgan Wilcox

Senior Archaeologist

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Figure 1



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Morgan Wilcox

From: Morgan Wilcox
Sent: Monday, 27 May 2019 5:00 PM
To: Suellyn Rees
Cc: raiwyn@dlalc.com.au
Subject: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register
Attachments: DubboQuarryACHA_Invitation to register_Dubbo LALC.pdf

Dear Suellyn and Dubbo Local Aboriginal Lands Council,

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Email: mwilcox@emmconsulting.com.au

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Morgan Wilcox
Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
in Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

Please consider the environment before printing my email.

27 May 2019

Suellyn Rees
Dubbo Local Aboriginal Lands Council
PO Box 1565
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Suellyn,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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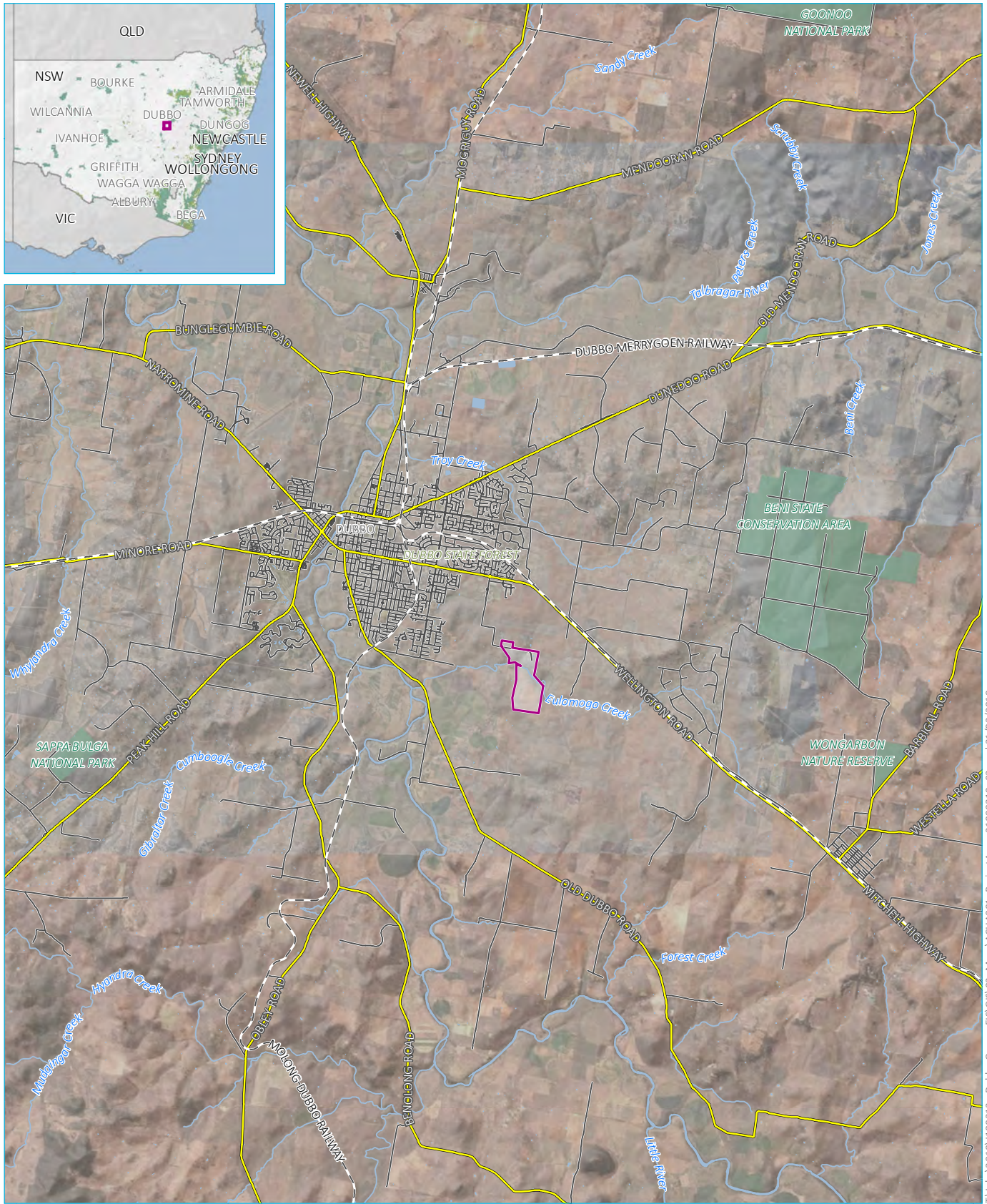
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 - Watercourse/drainage line

Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Jamie Grey
Binjang Wellington Wiradjuri Heritage Survey
260 Myall St
Dubbo NSW 2830

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Jamie,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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This information must be received by close of business on **10 June 2019**:

Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300

Email: mwilcox@emmconsulting.com.au

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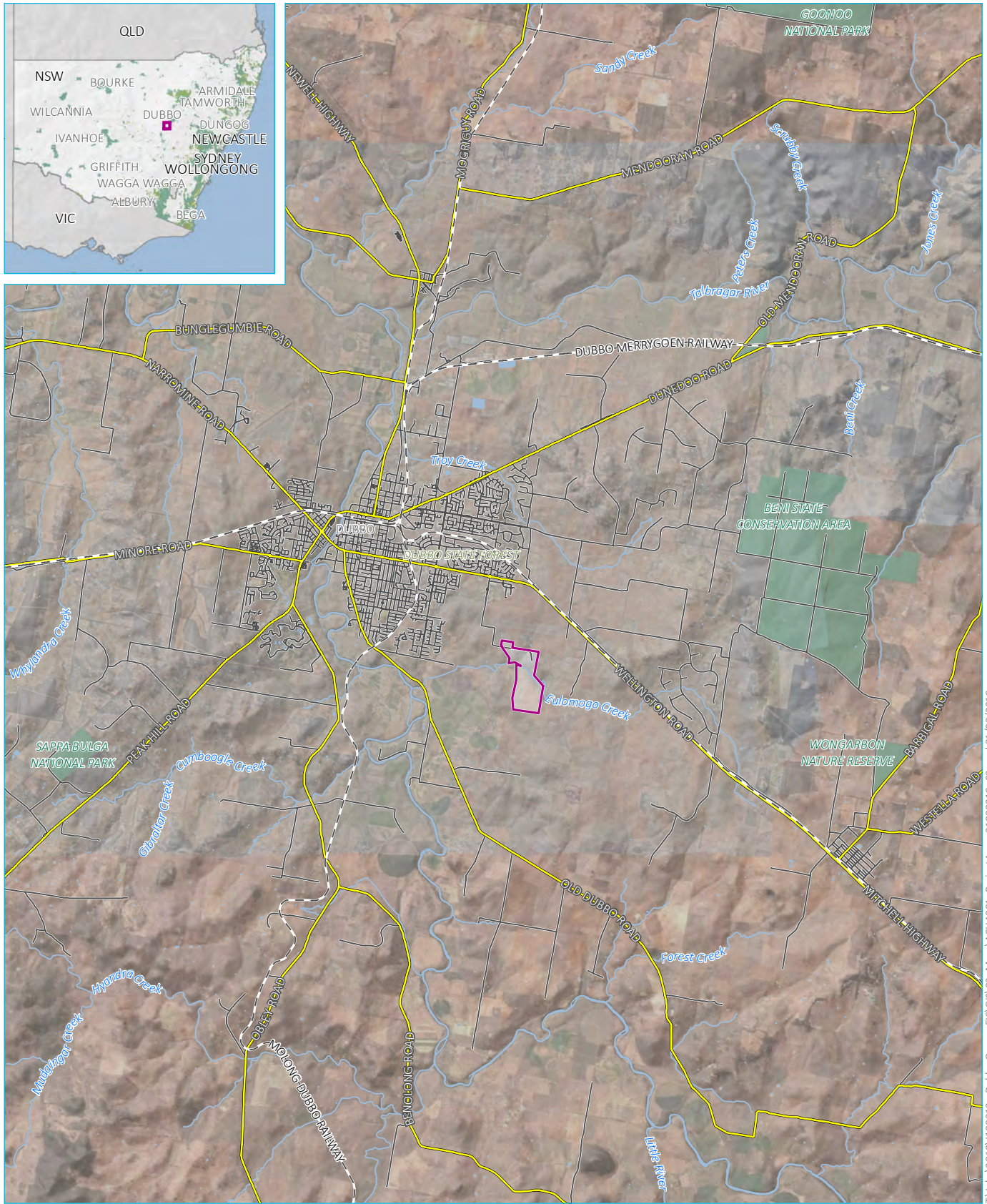
Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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 - Rail line
 - Main road
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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Katrina Mckinnon
33 Hinton Dr
Gunnedah NSW 2380

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Katrina,

EMM Consulting Pty Ltd (EMM) on behalf of Holcim (Australia) Pty Ltd (Holcim) is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area (LGA). Holcim are seeking approval for the continuation of operations at Dubbo Quarry through extension of the existing extraction area into part Lot 222 DP1247780 and establishment of a new extraction area on part Lot 100 DP628628 (refer to attached figure).

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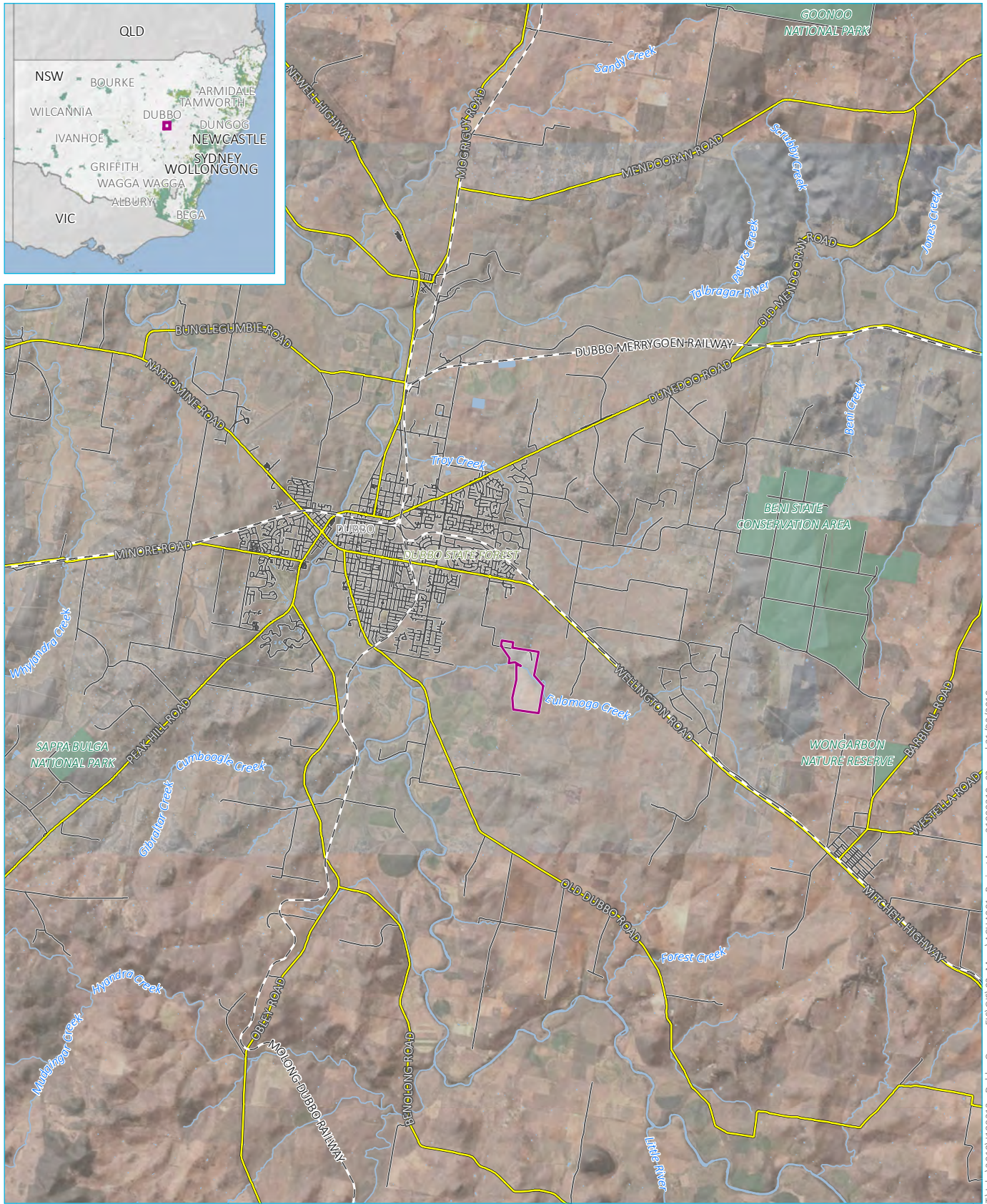
Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Natasha Rodgers
7 Toy Court
Wodonga VIC 3690

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Natasha,

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Yours sincerely

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Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au

27 May 2019

Neville Williams
Mooka
PO Box 70
Cowra NSW 2794

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Neville,

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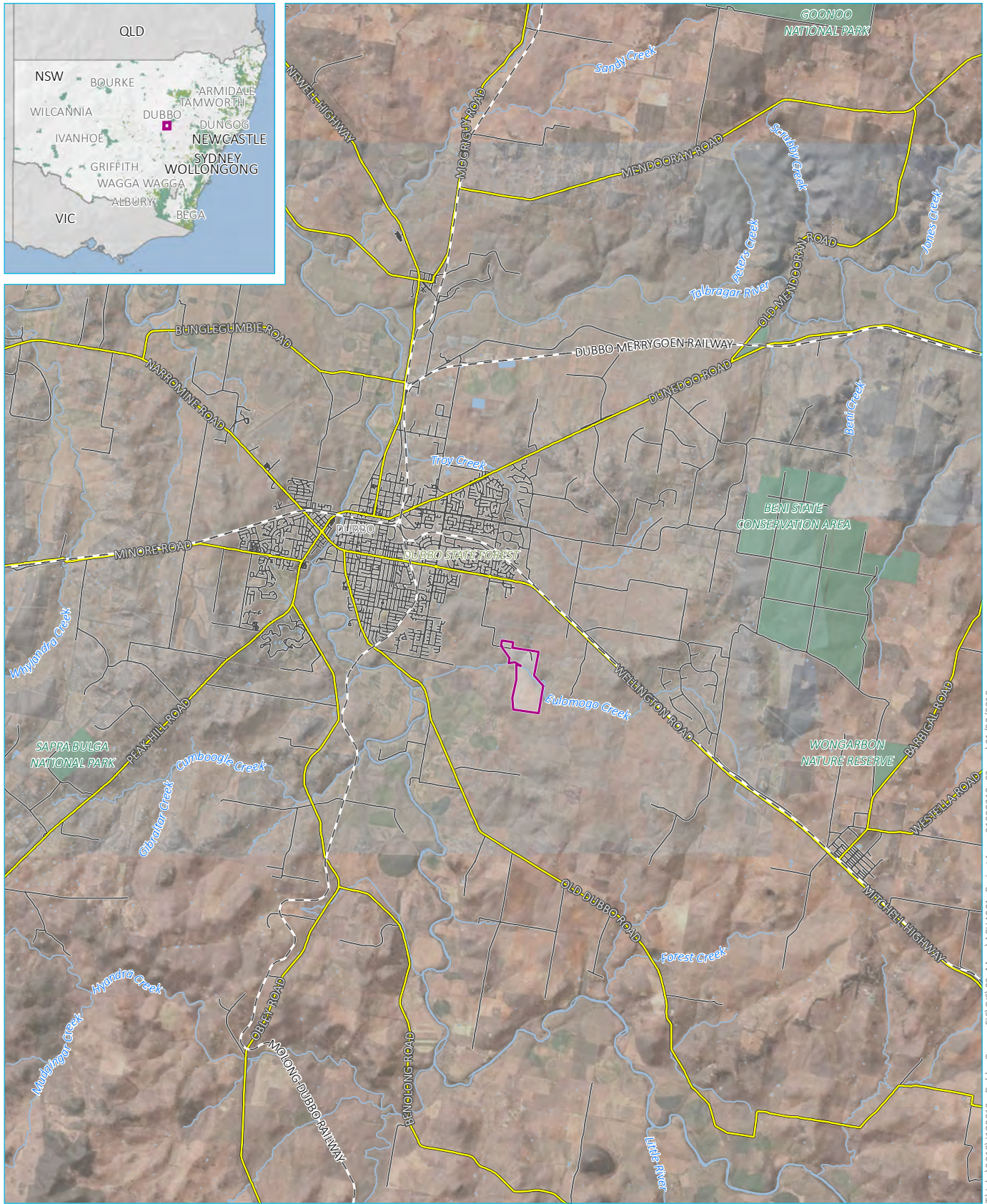
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Morgan Wilcox

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

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Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment
Figure 1



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27 May 2019

Paul Brydon
166 Minore St
Narromine NSW 2821

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Paul,

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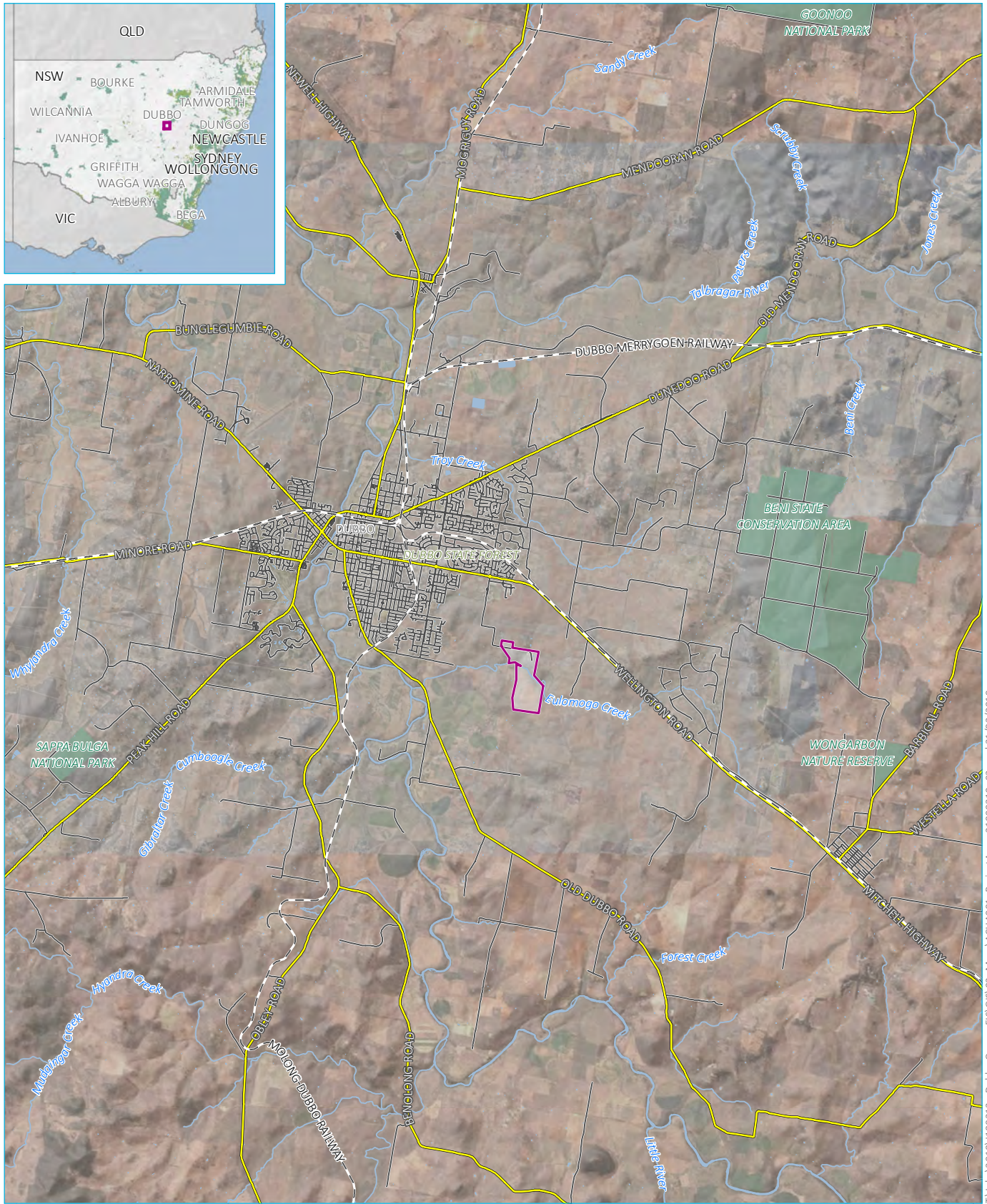
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Morgan Wilcox

Senior Archaeologist

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

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Dubbo Quarry Extension
Aboriginal cultural heritage assessment

Figure 1



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27 May 2019

Peter Peckham
27 Jennings St
Geurie NSW 2831

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Peter,

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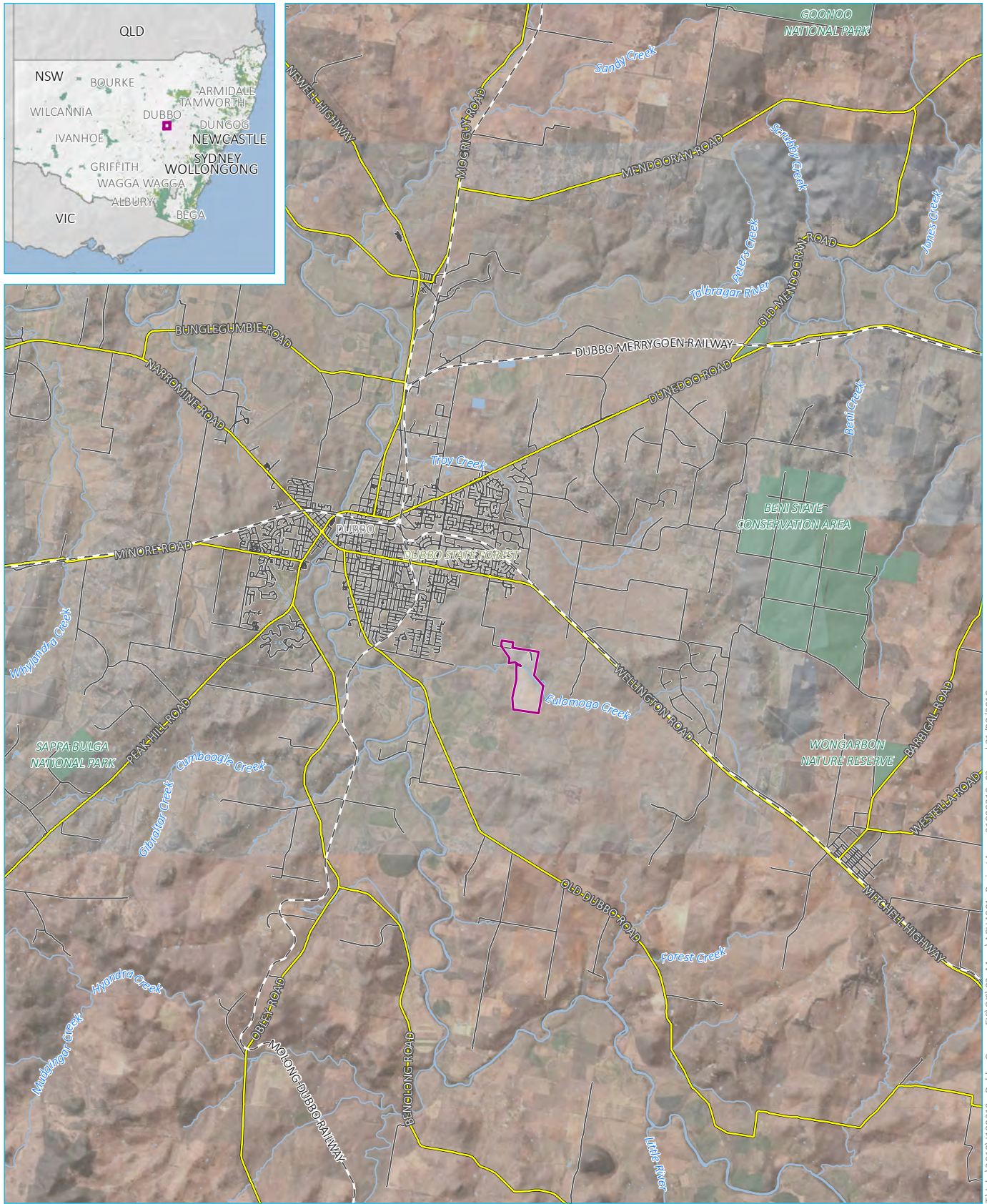
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Morgan Wilcox

Senior Archaeologist

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27 May 2019

Robert Clegg
Wiradjuri Council of Elders
28 Hodges St
Parkes NSW 2870

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Robert,

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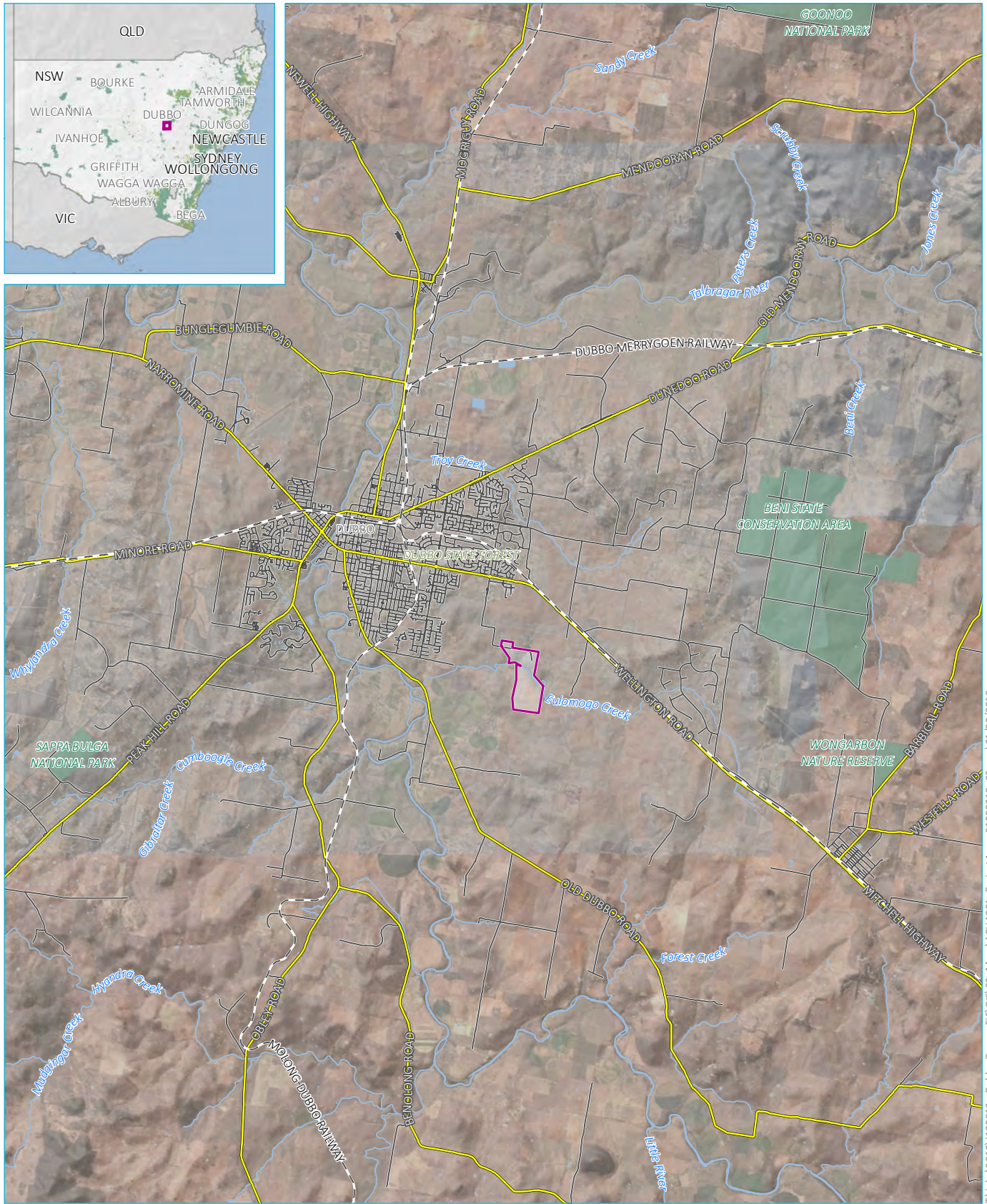
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27 May 2019

Trevor Robinson
PO Box 73
Peak Hill NSW 2869

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Trevor,

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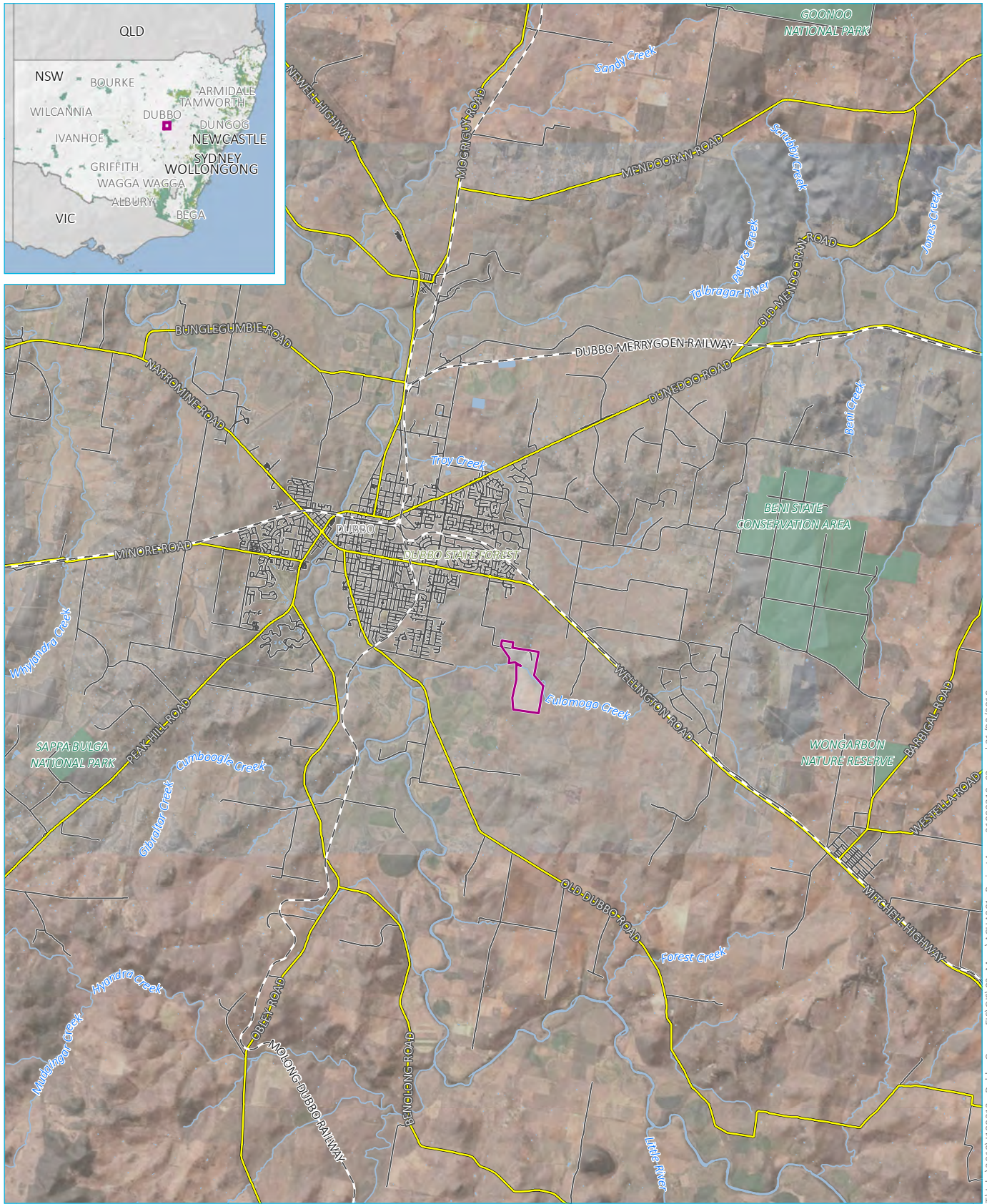
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27 May 2019

Wiradjuri Interim Working Party
PO Box 73
Peak Hill NSW 2869

Re: Dubbo Quarry Continuation Project - Invite to register

Dear Sir/Madam,

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As required by OEH guidelines, details of people registering as Aboriginal Parties will be forwarded to OEH and the relevant Local Aboriginal Land Council unless you specify otherwise.

Please note that registration of interest does not guarantee paid employment or fieldwork.

If you have chosen to register for this project, we will be in contact shortly after the registration period is closed to provide a presentation of the method for the Aboriginal heritage investigation of the project for your review and comment.

Please feel free to contact me with any questions or queries about the project. You can contact me on (02) 4901 4824 or my email as provided below.

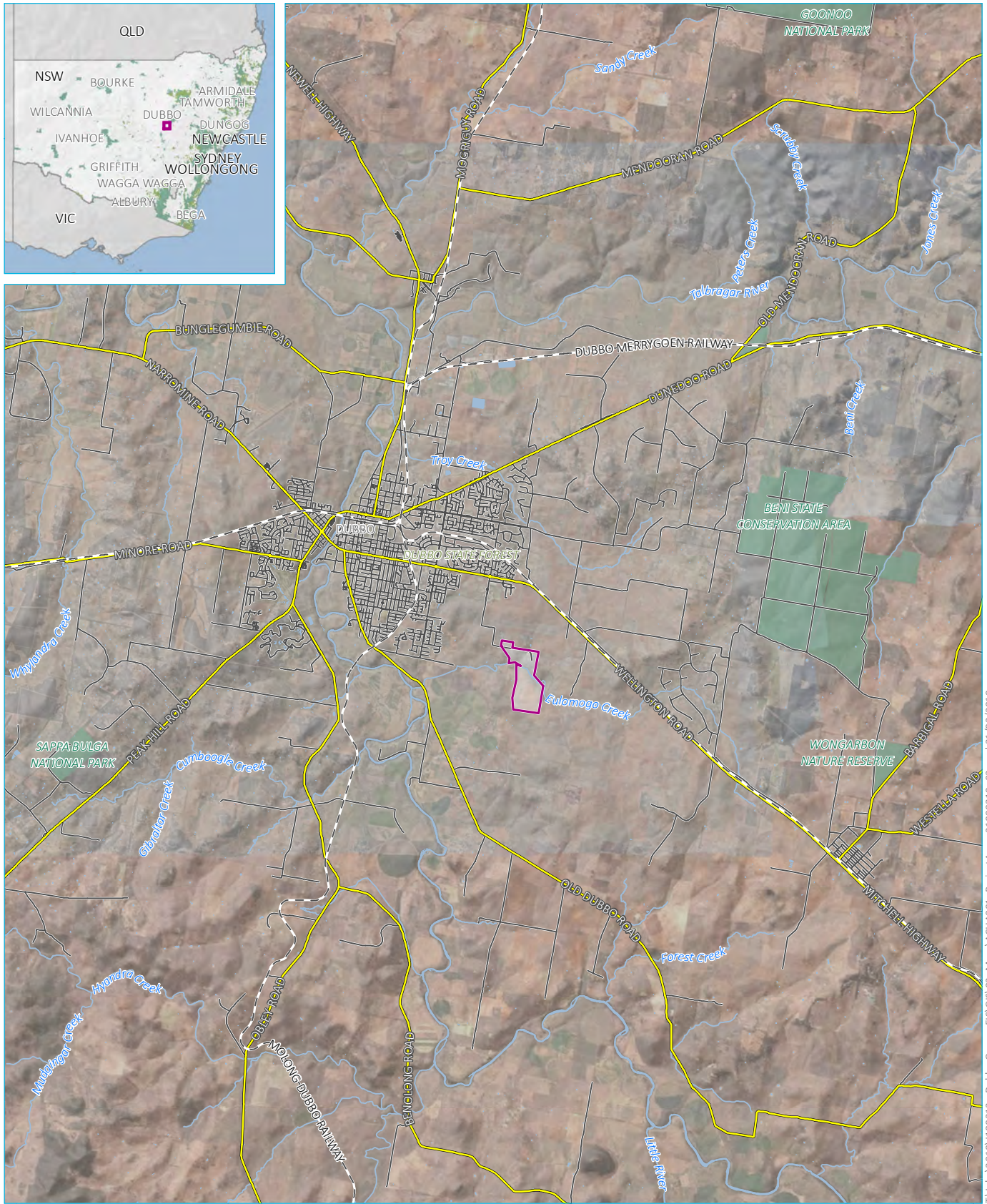
Yours sincerely

A handwritten signature in black ink, appearing to read 'M Wilcox', written in a cursive style.

Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au



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

- KEY**
- Project Area
 - Waterbody
 - NPWS reserve
 - State forest
 - Rail line
 - Main road
 - Local road
 - Watercourse/drainage line

Project area location

Dubbo Quarry Extension
Aboriginal cultural heritage assessment

Figure 1



T:\Jobs\2018\1180313 - Dubbo Quarry ESG\GIS\02_Maps\ACH\A01_ProjectArea_21090319_02.mxd 21/03/2019

Morgan Wilcox

From: Suellyn Rees <suellyn@dlalc.com.au>
Sent: Wednesday, 29 May 2019 8:27 AM
To: Morgan Wilcox
Subject: RE: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register

Dear Morgan,

Please register the Dubbo Local Aboriginal Land Council as an Aboriginal organisation who holds knowledge relevant to determining the cultural significance in the area of the existing Dubbo Quarry per below.

We have an Assessor on staff who is also a Traditional Owner with a wealth of knowledge in this area.

Kind regards

Suellyn Rees

CEO

Mobile: 0427 121 912



Dubbo Local Aboriginal Lands Council|Cnr Darling & Wingewarra Sts|POBox1565|Dubbo,NSW 2830|Ph 02 6884 5276

"Dubbo LALC would like to acknowledge the traditional custodians of this land and pay respects to the Elders both past and present"

From: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Sent: Monday, 27 May 2019 5:00 PM
To: Suellyn Rees <suellyn@dlalc.com.au>
Cc: Raiwyn Towney <raiwyn@dlalc.com.au>
Subject: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register

Dear Suellyn and Dubbo Local Aboriginal Lands Council,

EMM Consulting on behalf of Holcim (Australia) Pty Ltd is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please see attached an invitation to register.

If you wish to register your interest as an Aboriginal party your registration must be in writing (letter, fax or email) and include:

- your name/organisation;
- appointed representative; and
- current contact details (postal address, email, telephone number/s).

EMM is seeking to engage all future correspondence with registered Aboriginal parties (RAPs) via email. This method is considered the most reliable, cost-effective, and timely manner for consultation. As such, EMM requests your

agreement to undertake the consultation via email as the official method of contact. A simple response in writing stating 'I agree to be contacted by email as the main source of consultation' is requested.

This information must be received by Morgan Wilcox (see contact details below) by close of business on **Monday 10 June 2019**:


Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

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Morgan Wilcox

From: Grace Toomey <Grace.Toomey@dubbo.nsw.gov.au>
Sent: Tuesday, 28 May 2019 2:22 PM
To: Morgan Wilcox
Cc: 'Paul CARR'
Subject: RE: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register

Hi Morgan

I would like to register on behalf of the Dubbo Aboriginal Community working Party and nominate Paul Carr, Chairperson of Dubbo Local Aboriginal Land Council. I have copied Paul in this email.

Cheers

Grace Toomey
Aboriginal Liaison Officer
Dubbo Regional Council
P 02 6801 4406 **F** 02 6801 4259
M 0408 689 688
E Grace.Toomey@dubbo.nsw.gov.au



<http://dubbo.nsw.gov.au>

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From: Morgan Wilcox <mwilcox@emmconsulting.com.au>
Sent: Monday, 27 May 2019 5:07 PM
To: Grace Toomey <Grace.Toomey@dubbo.nsw.gov.au>
Cc: DRC Mailbox <council@dubbo.nsw.gov.au>
Subject: Dubbo Quarry ACHA - Aboriginal Consultation - Invitation to register

Dear Grace and Paul (Dubbo City Council Aboriginal Community Working Party)

EMM Consulting on behalf of Holcim (Australia) Pty Ltd is seeking to identify Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the existing Dubbo Quarry, located at Sheraton Road Dubbo NSW within the Dubbo Regional Council Local Government Area.

Please see attached an invitation to register.

If you wish to register your interest as an Aboriginal party your registration must be in writing (letter, fax or email) and include:

- your name/organisation;

- appointed representative; and
- current contact details (postal address, email, telephone number/s).

EMM is seeking to engage all future correspondence with registered Aboriginal parties (RAPs) via email. This method is considered the most reliable, cost-effective, and timely manner for consultation. As such, EMM requests your agreement to undertake the consultation via email as the official method of contact. A simple response in writing stating 'I agree to be contacted by email as the main source of consultation' is requested.

This information must be received by Morgan Wilcox (see contact details below) by close of business on **Monday 10 June 2019**:


Dubbo Quarry Continuation Project
c/o EMM Consulting Pty Ltd
Attn: Morgan Wilcox
PO Box 506
Newcastle NSW 2300
Email: mwilcox@emmconsulting.com.au

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

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Morgan Wilcox

From: Morgan Wilcox
Sent: Tuesday, 11 June 2019 1:26 PM
To: 'Helen Knight'
Cc: 'rog.nw@environment.nsw.gov.au'
Subject: RE: RAPs List for the Dubbo Quarry Continuation Project
Attachments: DubboQuarryACHA_Invitation to register_Dubbo LALC.pdf; Media Notice - 27 May 2019.JPG

Good afternoon Helen,

In accordance with item 4.1.6 of the consultation requirements please see below list of Aboriginal parties who registered to be consulted for the above project.

Registered Aboriginal Parties	Contact(s)	Address
Dubbo Local Aboriginal Lands Council	Suellyn Rees	PO Box 1565 Dubbo NSW 2830
Dubbo City Council Aboriginal Community Working Party	Paul Carr Grace Toomey	PO Box 81 Dubbo NSW 2830

As requested, please be advised that letters to the following parties were not delivered due to the reasons provided.

Organisation	Contact(s)	Address	Comments
Central West Catchment Management Authority Aboriginal Reference Group	Graham Kelly	PO Box 227 Wellington NSW 2820	Item not
Mooka	Neville Williams	PO Box 70 Cowra NSW 2794	Returned
	Natasha Rodgers	7 Toy Court Wodonga VIC 3690	Letter re
	Trevor Robinson	PO Box 73 Peak Hill NSW 2869	Returned
Wellington Valley Wiradjuri Aboriginal Corporation	Chairperson	PO Box 2290 Orange NSW 2800	Returned
Wiradjuri Council of Elders	Robert Clegg	28 Hodges St Parkes NSW 2870	Returned
Wiradjuri Interim Working Party	None provided	PO Box 73 Peak Hill NSW 2869	Returned

Please also find attached:


1. Copy of the letter notification requesting registrations for the project.
2. Copy of the advertisement requesting registrations for the project.

Should you require anything further please don't hesitate to ask.

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
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From: Helen Knight <Helen.Knight@environment.nsw.gov.au>

Sent: 16 May, 2019 12:36 PM

To: Morgan Wilcox <mwilcox@emmconsulting.com.au>

Subject: RAPs List for the Dubbo Quarry Continuation Project

Hi Morgan,

Find attached OEH's response with the RAPs List for the Dubbo Quarry Continuation Project

If you receive any return to sender letters, would you be able to advise us so we can amend our lists for future reference

Regards, Helen



Helen Knight
Conservation Planning & GIS Data
Information Officer
North West Planning Team
Conservation and Regional
Delivery

48–52 Wingewarra Street, Dubbo 2830
PO Box 211, Dubbo 2830
T 02 6883 5327 F 02 6884 8675
W: www.environment.nsw.gov.au

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

Morgan Wilcox

From: Morgan Wilcox
Sent: Tuesday, 11 June 2019 1:28 PM
To: 'Suellyn Rees'
Subject: RAPs List for the Dubbo Quarry Continuation Project
Attachments: DubboQuarryACHA_Invitation to register_Dubbo LALC.pdf; Media Notice - 27 May 2019.JPG

Good afternoon Suellyn,

In accordance with item 4.1.6 of the consultation requirements please see below list of Aboriginal parties who registered to be consulted for the Dubbo Quarry Continuation Project.

Registered Aboriginal Parties	Contact(s)	Address
Dubbo Local Aboriginal Lands Council	Suellyn Rees	PO Box 1565 Dubbo NSW 2830
Dubbo City Council Aboriginal Community Working Party	Paul Carr Grace Toomey	PO Box 81 Dubbo NSW 2830

Please also find attached:


1. Copy of the letter notification requesting registrations for the project.
2. Copy of the advertisement requesting registrations for the project.

Should you require anything further please don't hesitate to ask.

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



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D 02 4907 4824
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Morgan Wilcox

From: Morgan Wilcox
Sent: 11 June, 2019 12:58 PM
To: 'Suellyn Rees'
Subject: Dubbo Quarry Continuation Project: Stage 2/3 Consultation Letter
Attachments: J180313_Aboriginal Consultation_Stage 2 and Stage 3 Letter_V1.0.pdf

Dear Suellyn (and the Dubbo LALC),

Thank you for registering to be consulted as part of the Aboriginal cultural heritage assessment for the Dubbo Quarry Continuation Project.

See attached letter addressing Stage 2 and Stage 3 of the consultation requirements.


Please review the attached and provide any feedback or comments to me via reply email by **Tuesday 9 July 2019**.

Any questions at all please do not hesitate to contact me.

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
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Morgan Wilcox

From: Morgan Wilcox
Sent: 11 June, 2019 12:57 PM
To: 'carrs.brocky@gmail.com'
Cc: 'Grace Toomey'
Subject: Dubbo Quarry Continuation Project: Stage 2/3 Consultation Letter
Attachments: J180313_Aboriginal Consultation_Stage 2 and Stage 3 Letter_V1.0.pdf

Dear Paul, Grace,

Thank you for registering to be consulted as part of the Aboriginal cultural heritage assessment for the Dubbo Quarry Continuation Project.

See attached letter addressing Stage 2 and Stage 3 of the consultation requirements.


Please review the attached and provide any feedback or comments to me via reply email by **Tuesday 9 July 2019**.

Any questions at all please do not hesitate to contact me.

Kind regards
Morgan

Morgan Wilcox
Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

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11 June 2019

Re: Dubbo Quarry Continuation Project: Presentation of information, request for cultural information, and request for feedback about proposed Aboriginal cultural assessment methods

Dear Registered Aboriginal Party,

1 Introduction

Thank you for registering your interest in being consulted on Aboriginal cultural heritage matters for the Dubbo Quarry Continuation Project (henceforth referred to as 'the project'). EMM Consulting Pty Limited (EMM), on behalf of Holcim (Australia) Pty Ltd (Holcim), is preparing an Aboriginal cultural heritage assessment (ACHA) for the project. The ACHA will support a broader Environmental Impact Statement (EIS) currently being prepared for the project.

The aims of this letter are to:

- provide an overview of the project and approval pathway;
- establish the purpose and aims of the Aboriginal consultation process;
- provide your party with an opportunity to inform EMM about any Aboriginal cultural heritage values associated with the project and how they may affect, inform or refine the project and/or assessment methods;
- identify any culturally appropriate protocols that registered parties wish to be adopted during the information gathering process (eg protocols during field survey, or handling of culturally sensitive information);
- present a draft of the intended ACHA methods for your review and comment; and
- notify your party of upcoming fieldwork.

We welcome your written feedback at your earliest opportunity, and no later than **9 July 2019** (ie 28 days from issue of this letter). Whilst letters attached to email is the preferred mode of written communication as it reduces postal waiting periods, EMM are happy to discuss alternatives with your party if this is unsuitable.

2 Project description

Holcim are the owners and operators of Dubbo Quarry (the quarry) located on Sheraton Road, Dubbo. The quarry has operated since 1980 under a development consent granted by Dubbo Regional Council (DRC). Accessible basalt resources within the existing quarry boundary are close to exhaustion. Holcim is, therefore, seeking planning approval for the project which involves the continued operation of the quarry through the development of two new resource areas.

The project area encompasses a total area of 146 ha, including part Lot 222 DP1247780 and part Lot 100 DP628628 (as shown on Figure 1).

The project involves continued operations into two new resource areas:

- the Western Extension Area (WEA) located within Lot 100, west and north-west of the existing quarry pit; and
- the South Pit Area (SPA) located within Lot 222, to the south of the existing quarry boundary on the southern side of Eulomogo Creek.

Other project features would include:

- a private access/haul road in the form of a bridge or level crossing across Eulomogo Creek;
- relocation of the quarry access road along the northern boundary of Lot 100;
- a possible mobile crushing and screening plant within SPA; and
- water management systems for existing and new areas.

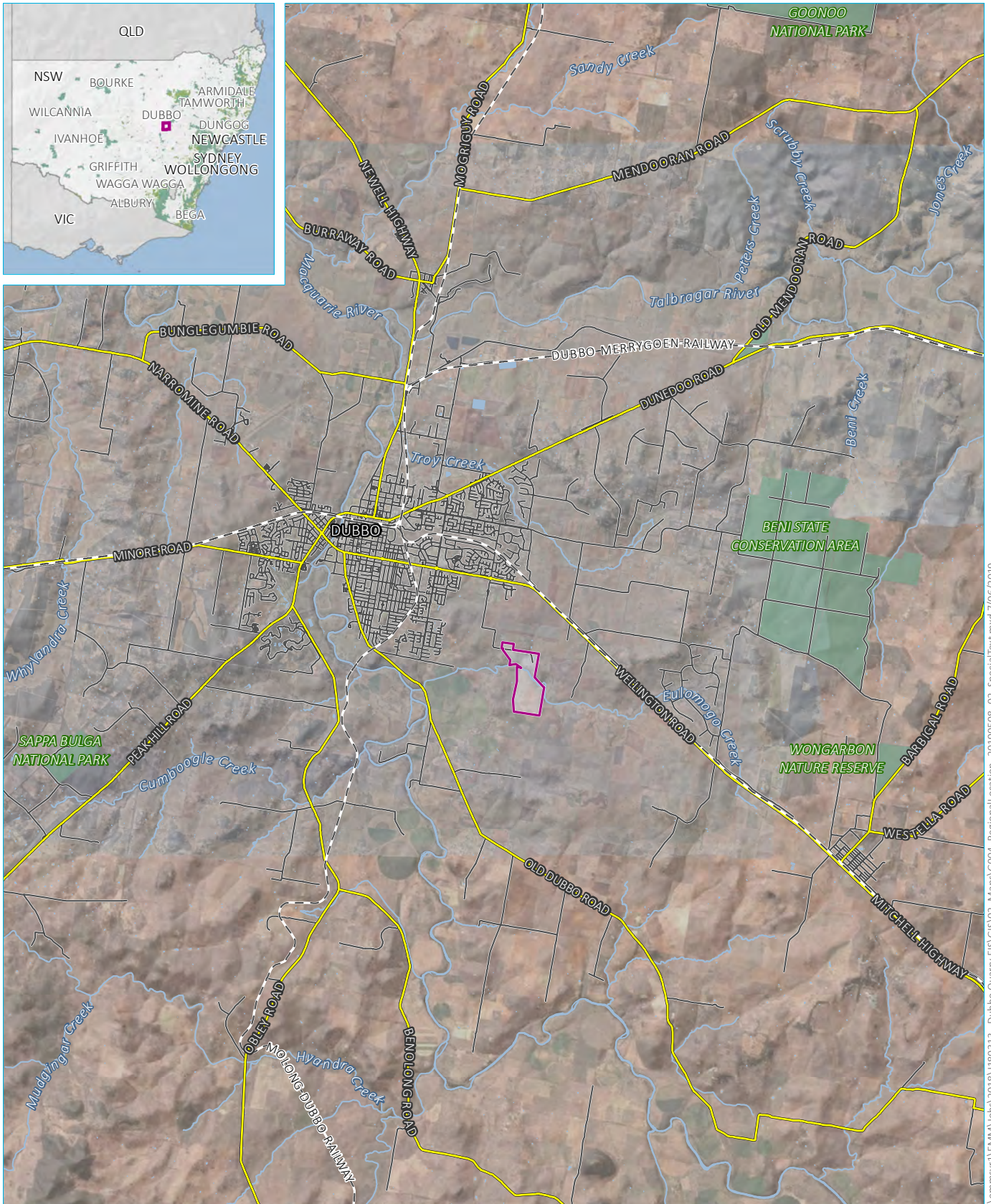
During the preparation of the EIS, the project development footprint may be refined on the basis of stakeholder engagement, environmental assessment and constraints identification, engineering assessment and financing considerations.

3 Project approval pathway

The project is declared State significant development (SSD) under Part 4, Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The NSW Minister for Planning is the consent authority for the project.

A development application (DA) for SSD is required to be submitted with an EIS prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs). Although project SEARs have not yet been issued, EMM anticipates they will specify that an ACHA is required to accompany the EIS.

By virtue of section 4.41 of the EP&A Act, an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the NSW *National Parks and Wildlife Act 1974* is not required for SSD. If the project is approved, any Aboriginal objects and/or places impacted would be managed under an Aboriginal Heritage Management Plan (AHMP), likely following endorsement by the NSW Department of Planning and Environment (DPE) and Office of Environment and Heritage (OEH).



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

KEY

- Project Area
- Waterbody
- NPWS reserve
- State forest
- Rail line
- Main road
- Local road
- Watercourse/drainage line

Project area location

Dubbo Quarry Continuation Project
Aboriginal cultural heritage assessment
Figure 1

\\emmsvr1\EMM\Jobs\2018\1180313 - Dubbo Quarry EIS\GIS\02_Maps\G004_Regional location_20190508_02_SpecialText.tmx: 7/06/2019

4 Preliminary desktop assessment

4.1 Overview

The following information is provided so that your party is introduced to the landscape within the project area and its archaeological context. The intent is that this will allow areas of potential cultural importance to be identified early for consideration in the archaeological survey. The information provided is an overview only, and the ACHA will provide more detailed background research and analysis that has been used to develop the predictive model of potential Aboriginal site locations which will guide the archaeological survey.

4.2 Landscape overview

The project area lies within the Brigalow Belt South Bioregion, and predominantly falls within the Talbragar Basalts ecosystem and Dubbo Basalts landscape unit. The topography of the Dubbo Basalts landscape unit is characterised by slightly elevated plains and low hills on flat lying Tertiary volcanics (basalt and trachyte). General elevation across this landscape ranges from 300 m to 330 m above sea level (ASL) with a local relief of 10 m. Topography of the project area features very subtly undulating slopes and plains ranging in elevation from 280–310 m ASL predominantly on a westerly aspect, with local relief in proximity to Eulomogo Creek.

The geology of the project area is dominated by basalt deposits and outcropping, with areas of sandstone outcropping. Soils are characterised by friable surface soils with moderate to high susceptibility to erosion. Undisturbed soils typically comprise strongly structured reddish-brown friable or cracking clay loams and light clay topsoils, with a dark reddish-brown clay subsoil at 40 cm.

The project area lies within the catchment system of the Macquarie River which is located approximately 2.7 km east of the project area. The project area is transected by Eulomogo Creek and features associated second and first order ephemeral drainage lines. The local hydrology would likely have provided a semi-permanent water supply, in addition to water collecting in stone outcropping during rainfall events.

Historical land use impacts within the project area has resulted in extensive vegetation clearance and cultivation which has increased susceptibility to sheet and gully erosion. The project area is currently broadly used for quarrying activities, pastoralism and cultivation. Existing land-use practices surrounding the site include commercial quarrying activities to the immediate north a solar farm further north, and rural residential properties. More distant land uses include low-density housing approximately 1.5 km to the west and a school precinct area to the north-west near the junction of Sheraton Road and the Mitchell Highway.

4.3 Archaeological background

4.3.1 AHIMS search results

EMM conducted a search of the Aboriginal Heritage Information Management System (AHIMS) database on 25 February 2019 which identified 77 sites within a 10 km x 10 km search area centred on the project area. The aim of the search was to identify if any Aboriginal sites or places are registered within the project area and to aid predictions for the project area from the frequency and distribution of Aboriginal site types in the broader landscape.

The location of AHIMS sites is shown on Figure 2 and a breakdown of AHIMS sites by type is provided in Table 1.

There are no AHIMS sites recorded within the project area. However, there are 13 sites within 1 km of the project area boundary, including two grinding groove sites, one modified tree, one isolated artefact and nine artefact scatters.



Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2018)

KEY

- Project Area
- Contour (10 m)
- Main road
- Stream order
 - 1st order
 - 2nd order
 - 3rd order
 - 4th order
 - 9th order
- AHIMS by site type
 - Aboriginal ceremony & dreaming, hearth, grinding groove, artefacts
 - Artefact (number not specified)
 - Artefact scatter
 - Burial, modified tree
 - Grinding groove
 - Isolated find
 - Midden, artefacts
 - Modified tree
 - Modified tree, midden, artefacts
 - PAD
 - Stone quarry, artefacts

AHIMS data and the project area

Dubbo Quarry Continuation Project
Aboriginal cultural heritage assessment
Figure 2



\\emmsvr1\EMM\jobs\2018\1180313 - Dubbo Quarry EIS\GIS\02_Maps\G003_AHIMS_21090604_02.mxd 7/06/2019

Table 1: AHIMS extensive search results (as of 25 February 2019)

Site type	Number of sites	Representation (%)
Open camp sites	38	49%
<i>Artefact site (number of artefacts not specified)</i>	24	31%
<i>Artefact scatter</i>	8	10%
<i>Isolated find</i>	6	8%
Culturally modified tree	30	39%
Grinding groove	2	2.5%
Burial with culturally modified tree (carved)	2	2.5%
Potential archaeological deposit (PAD)	1	1%
Quarry site with artefacts	1	1%
Culturally modified tree (scarred) with midden and artefacts	1	1%
Midden with artefacts	1	1%
Aboriginal ceremony & dreaming, hearth, grinding groove, artefacts	1	1%
Total	77	

4.3.2 Archaeological studies and their implications

This section provides a summary of the background research completed for the ACHA and discusses its implications for the project area based on landscape analysis. This provides a preamble to the predictive model presented in Section 4.4 which provides more succinct predictive statements for site types within the project area.

The following is a summary of previous investigations undertaken in the locality, including sites identified by the AHIMS extensive search, which are discussed in order of proximity to the project area.

Aboriginal due diligence assessment, proposed extension to Dubbo Quarry, Sheraton Road (Umwelt 2018)

As part of the current proposal to extend Dubbo Quarry, Holcim engaged Umwelt in 2018 to complete an Aboriginal heritage due diligence assessment of part of former Lot 22 DP793541 which now lies within Lot 100 due to a lot boundary adjustment. A site inspection identified the main landform as a broad crest with gently inclined slope to the west (Umwelt 2018, p. 5). The ground surface had been highly disturbed due to clearance of native vegetation and pastoral use, leading to significant erosion. Umwelt identified the level of erosion within their subject area as particularly important, particularly when considered in conjunction with the extremely shallow topsoils present in the subject area. They concluded that these characteristics together indicate a low archaeological potential as there is less chance that intact deposits will remain in skeletal topsoil.

No Aboriginal sites were identified as a result of the inspection. Mature eucalypts within the project area were examined for cultural scarring and no artefacts or evidence of flaking or fracturing on the basalt outcropping or pebbles was identified.

Archaeological survey of industrial candidate area no 1. – Mitchell/Eulomogo, east of Dubbo (CWAHS 1998)

In 1998, Central West Archaeological and Heritage Services Pty Ltd (CWAHS 1998) completed an archaeological assessment of 300 ha of privately-owned land identified as a potential area for a future industrial estate as part of an Urban Development Strategy. CWAHS' study area included land to the north and east of the project area and part of its northern portion (former Lot 22 DP793541).

A total of nine Aboriginal sites were recorded as a result of the assessment, including six open camp sites, two axe grinding groove sites and one scarred tree (CWAHS 1998). All nine sites are situated within 83–805 m from the project area.

The findings of the CWAHS assessment conformed with the distributional models of the report which predicted that sites would occur along the banks of perennial and ephemeral creek lines, with large open camp sites within 1 km of Eulomogo Creek. The variability of larger open camp sites on hillslopes exceeding 1 km from waterways is inferred to indicate that large amounts of basal outcropping would have trapped and pooled sufficient water during periods of rain (CHAHS 1998, p. 32).

CWAHS (1998, p. 33) note that the extent of disturbance resulting from changing and current land use has had significant implications for the preservation of Aboriginal sites and the loss of archaeological integrity within the study area most notably as a result of clearance and the continued destruction of known sites as a result of cultivation.

Aboriginal due diligence assessment subdivision of Lot 2 DP880413 Sheraton Road (OzArk 2017)

In 2017, OzArk Environmental and Heritage Management Pty Ltd (OzArk) completed a due diligence assessment of Lot 2 DP 880413, located on Sheraton Road to the immediate east of the project area.

Three previously recorded sites, recorded by CWAHS as discussed above, were identified in addition to one new site, Hillview-IF1 (AHIMS 36-1-0707) approximately 290 m from the project area. Hillview-IF1 is an isolated mudstone multidirectional core located on a gentle mid-slope landform in a cleared, grazed and possibly ploughed paddock, beside a paddock fence (OzArk 2017, p. 22). The potential for subsurface archaeological deposits was assessed as being low–moderate due to distance from water, the gentle sloping landform, and levels of ground disturbance.

An area of potential archaeological sensitivity encompassing a 30 m buffer from Eulomogo Creek was also identified by the assessment, delineated on the basis of landform potential and the presence of previously recorded Aboriginal objects, sites and potential archaeological deposits (PAD) (OzArk 2017, p. 31).

Archaeological Survey for the Proposed Keswick Housing Sub-division, Dubbo NSW (CWAHS 1995)

In 1995, CWAHS completed an archaeological assessment of 415 ha of rural land where a residential housing development was proposed, located to the immediate east of the project area. A total of 12 Aboriginal sites were recorded as a result of the assessment, including six culturally modified trees, four open camp sites, and two isolated finds. Three of these sites are located within 600 m of the project area.

CWAHS (1995, p. 46) attributes the notable absence of larger artefact types such as stone axes or grind stones from the landscape, which would once have been present in association with grinding groove sites and millstones, to artefact collectors of the early 1900s. For example, Gresser (1941) refers to large collections of artefacts removed from sites in the locality now known to be kept in the Australian Museum.

Assessment of Aboriginal sites in the Dubbo City Area (Koettig 1985)

In 1985, Margrit Koettig completed an archaeological assessment of Dubbo city and its limits as part of a Local Environmental Planning study. The assessment was undertaken in consultation with the local and regional Aboriginal Land Councils who also participated in fieldwork.

A total of 72 Aboriginal sites were recorded as a result of the study including 60 open campsites (five with associated scarred trees and three with associated hearth features), 11 scarred trees and one carved tree (Koettig 1985, p. 71). Ten of the 72 sites, M13 to M22 (AHIMS 36-1-0106 to 36-1-0115), are located within 3.5 km of the project area, including three scarred River Gums trees and seven open camp sites.

A wide variety of raw lithic materials were identified by the study including quartz, silcrete, quartzite, indurated mudstone, chert and others (Koettig 1985, p. 117). Artefact assemblages were dominated by

flakes, flaked pieces and cores; however, backed blades, hammerstones, hatchets, and a grindstone were also recorded (Koettig 1985, pp. 124-125). Artefact densities were noted to markedly decrease in correlation to increased distance from the Macquarie or Talbragar Rivers (Koettig 1985, p. 127).

Dubbo Local Government Aboriginal Heritage Study (OzArk 2007)

In 2007, OzArk completed a Dubbo local government area (LGA) wide Aboriginal cultural heritage study on behalf of Dubbo City Council. This project overlaid all AHIMS registered sites within the LGA on a mapped geomorphological GIS layer of landforms.

Results of the study confirmed that most Aboriginal sites are recorded within 100 m of water accompanied by a general trend of fewer sites being recorded more distant from water. The majority of sites were recorded on Quaternary alluvium soils. This geological unit occurs near major waterways such as Macquarie River and the major creek lines and supports the more complex ecological communities in the region. Therefore, on a local and regional model, the likelihood of associated Aboriginal sites increases with proximity to water.

This study recorded a total of 26 Aboriginal sites. Nine of the 26 sites are located in general proximity (3.5–7 km) to the project area. These sites include four scarred trees (DLGA-ST-01, 02, 06 and 07), two isolated finds (DLGA-IF-01 and 02) and three open camp sites (DLGA-OS-01 to 03). All nine sites are located along the immediate margins of the Macquarie River thereby conforming with the findings of the study which noted that the banks of the Macquarie River exhibited elevated archaeological sensitivity.

4.4 Predictive model

A predictive model of Aboriginal site locations has been developed from synthesising background information and applying it to the project area. The model enabled predictions to be made about the location of Aboriginal sites within the project area and this information will guide the archaeological survey. This will be updated and/or modified prior to survey based on the outcomes of registered Aboriginal parties (RAP) feedback within the 28-day period for information contained in this letter.

Predictions for the types of Aboriginal sites likely to be identified within the project area are as follows.

- **Open stone artefact sites** (scatters and isolated finds) are the most likely site types to occur due to the prevalence of this site type in the locality and the proximity of the project area to Eulomogo Creek.
- **Areas of PAD** have the potential to occur given the proximity to Eulomogo Creek. The project area exhibits varying levels of disturbance and it is possible that less disturbed areas may retain archaeological deposits.
- **Grinding grooves** are known to occur in the local area and have the potential to occur where stone outcropping is present in proximity to Eulomogo Creek.
- **Modified trees** (scarred or carved) may occur if mature trees of a sufficient age to bear the marks of traditional Aboriginal scarring or carving are present. The project area has been subject to a high level of historical land clearing practices; however, a number of isolated mature trees remain within the project area which have the potential to display evidence of cultural modification.
- **Quarry sites** have the potential to occur within areas of geological outcropping; however, previous investigations in the local area have only identified one possible quarry site.
- **Ceremonial grounds, mythological sites, and burials** can occur anywhere in the landscape, but their identification is very rare. Generally, they would be visually identifiable by mounds of earth or stone markers arranged in a conspicuous layout. These are unlikely to occur or survive in the project area because of the high levels of ground disturbance.

5 Draft assessment method

5.1 Objectives and methods overview

The purpose of the ACHA is to identify, assess and manage the Aboriginal heritage values related to the project area, specifically those that are at risk of being impacted. Aboriginal heritage values will be identified from the following methods:

- consultation with RAPs to identify Aboriginal sites, social or cultural values of the project area and places of special significance that should be considered;
- search of the AHIMS register for records of previously registered Aboriginal sites (a completed search has not identified any previously recorded sites within the project area);
- development of a predictive model of Aboriginal site location from combining:
 - a review of past Aboriginal heritage studies, ethno-historical information related to the region and local area;
 - analysis of the environmental context (eg water, landforms, geology and soils); and
 - information from existing sites on the AHIMS register and/or knowledge held by Aboriginal parties.
- an archaeological survey by archaeologists and representatives from RAPs (refer to Section 5.4);
- archaeological test excavation (if appropriate and required – refer to Section 5.5);
- assessing the significance of Aboriginal places and/or objects identified in the course of the archaeological investigations and through Aboriginal community consultation;
- assessing the impact of the project on identified Aboriginal cultural heritage values; and
- proposing appropriate management measures for potentially impacted Aboriginal cultural heritage values in response to their assessed significance.

5.2 Assessment guidelines

The assessment will be undertaken in accordance with the anticipated project SEARs. This will involve undertaking best practice archaeological investigation, Aboriginal consultation, and significance assessment in accordance with the relevant Aboriginal heritage impact assessment guidelines, which include:

- *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW 2011);
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010); and
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code) (DECCW 2010a).

5.3 Aboriginal consultation

5.3.1 Overview of consultation

The roles, functions and responsibilities of all parties involved in the consultation process are outlined in Table 2. In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), each private Aboriginal organisation or individual who responded with a written request to

be registered for consultation is referred to as a RAP. Government agencies who registered interest will also be consulted in parallel with RAPs.

Table 2 Roles, functions and responsibilities

Stakeholder	Roles and responsibilities
RAPs and registered Government agencies	<p>Provide cultural perspectives, views, knowledge and advice to EMM.</p> <p>Indicate areas of cultural significance.</p> <p>Provide Aboriginal representatives for archaeological fieldwork (if desired and suitably qualified and insured).</p> <p>Have an awareness and understanding of the commercial environment and constraints in which the proponent operates.</p> <p>Demonstrate awareness and understanding of the opportunities to provide input into the ACHA and management recommendations.</p> <p>Identify, raise, and discuss cultural concerns, perspectives and assessment requirements (if any).</p>
EMM (on behalf of Holcim)	<p>Undertake the ACHA, including coordinating and directing the fieldwork.</p> <p>Facilitate the Aboriginal consultation process.</p> <p>Consider the cultural perspectives, views, knowledge and advice of the RAPs in assessing cultural significance and developing management measures.</p> <p>Provide clear management measures that comply with relevant legislation, guidelines and significance.</p>
All stakeholders	<p>Mutual respect (each person has the right to have a say and be heard).</p> <p>Communicate in a professional manner.</p>

5.3.2 Providing cultural information

Aboriginal heritage incorporates a wide range of values such as stories, traditions and cultural practices. EMM welcomes any advice from the Aboriginal community about any form of Aboriginal cultural heritage values (which might include archaeological sites or other types of values) relevant to the project area and its surrounds.

Knowledge of areas of cultural significance may include, but are not limited to:

- sites or places associated with ceremonies, spiritual/mythological beliefs and traditional knowledge, which date from pre-contact period (note that these activities do not have to have persisted until the present time);
- sites or places associated with historical associations, which date from the post-contact period and are remembered today (eg plant and animal resource use areas and known camp sites); and
- sites or places of contemporary significance, for which the significance has been acquired in recent times.

EMM is seeking cultural information about the project area from registered RAPs in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010). If you are aware of any form of Aboriginal cultural heritage values (which might include archaeological sites or other types of values), please let us know so that we can take these values into account in the assessment.

EMM relies on the Aboriginal community for advice on non-archaeological Aboriginal values for the project area. We are happy to meet to discuss any information which you may be willing to share and will respect confidentiality where requested. Email is our preferred method of communication (see contact details at the end of this letter) but we will also accept letters and faxes, and information given in person over the coming months.

5.4 Archaeological survey

5.4.1 Survey aims

EMM proposes to conduct an archaeological field survey of the project area with the assistance of RAP representatives. Based on the outcomes of the survey and further refinement of project infrastructure, further survey may be required.

The survey area has been defined by the project area and, therefore, most of the survey will take place within the project area. There may be opportunities to inspect areas of interest outside the project area if it will help inform the assessment. **We welcome your party's advice on areas of cultural importance that should be inspected as part of the survey.**

The primary aims of the survey will be to:

- identify Aboriginal sites or potential Aboriginal places with the assistance of Aboriginal knowledge holders;
- characterise the landscape to aid predictions of surface and sub-surface archaeological potential;
- identify areas that may require further investigation if planned for development;
- identify areas that should be avoided by project construction where possible; and
- identify areas with minor or no heritage constraints that are suitable for development.

5.4.2 Sampling strategy

i Overview

The project area has been divided into classes of landform units for sampling during the survey. The extent of sampling within each class of landform unit will be proportionate to its level of archaeological sensitivity as presented in the predictive model. It should be acknowledged that the entire ground surface within the project area will not be surveyed, but a representative sample of each landform unit class will be gathered to characterise the archaeology, or its potential, of the project area.

The survey sampling strategy will be updated based on feedback from the RAPs and may incorporate areas of known or potential Aboriginal objects or places from knowledge held by RAPs.

ii Landform division for sampling

The project area has been divided into broad landform unit classes using the *Australian Soil and Land Survey Field Book* (National Committee on Soil and Terrain 2009), which will guide the boundaries of survey transects. The landform unit classes comprise:

- watercourses – this includes stream channels and a 50 m corridor of land adjacent to the watercourses;
- crests – this includes hill crests, spurs, and ridges;
- hill slopes – this is further divided into two categories: very gentle to gently inclined slopes (representing areas suitable for camping activities) and slopes of moderate inclination and above (representing steeper terrain not typically suitable for open camp sites; and
- flats – this includes flat terrain including undulating plains, floodplains and terraces.

iii Sampling approach

The survey will focus on areas predicted to have high archaeological sensitivity to verify the accuracy of the predictive model and identify its implications for the development footprint. In general terms, areas to be targeted for high sensitivity will comprise:

- watercourses and level to gently inclined landforms within 200 m of streams for open camp sites;
- areas of outcropping stone identified in the predictive model to have potential stone quarries, shelters, art or stone arrangements;
- areas with potential to have mature trees for modified trees; and
- areas identified by RAPs warranting inspection (to be updated after RAP review period).

5.5 Test excavation

The requirement for an archaeological test excavation as part of the ACHA is yet to be determined. Test excavation programs are typically implemented after survey fieldwork in areas where potential archaeological deposits (PADs) have been identified. If test excavation is required, EMM plan to follow the Code (DECCW 2010a). Deviations from the Code may be required depending on the nature of any PADs identified and their location.

Archaeological test excavation may be necessary if sub-surface Aboriginal objects with potential conservation value have a high probability of being present in an area, and the area cannot be substantially avoided by the project (DECCW 2010a: 24). The proposed archaeological survey will aim to firstly identify areas of higher archaeological potential for avoidance, but excavation may still be required depending on the nature of proposed ground disturbance and the location of the development footprint within the project area.

EMM welcomes input from RAPs during the review period of this document and during field survey about the suitability of excavation in particular areas, acknowledging that there may be limitations around culturally sensitive areas.

EMM will provide adequate notice and seek RAP and OEH feedback prior to undertaking any test excavation program.

5.6 Post fieldwork

After fieldwork, a draft ACHA report will be prepared by EMM. Each RAP will be invited to submit relevant information on Aboriginal heritage values which will be addressed in the report. Each group (or individual if not part of a group) will be issued with a draft report for review and comment within a 28-day timeframe. All comments will be addressed in the final report.

6 Indicative timing

The following indicative timeframe is anticipated for the assessment. The timeframe is subject to change which may be influenced by changes in project design or additional requirements such as further survey or test excavation.

Table 2 Indicative timing

Stage	Timing
RAP response to presentation of information and methods (this letter)	Within 28 days of letter distribution
Field survey	To be determined (possibly July or August)
Preparation of draft report for RAP review	August/September 2019
RAP consultation meeting about draft ACHA (if required)	During ACHA review period
Submission of final report to DPE	October 2019 (tentative)

7 What's next?

We look forward to receiving your responses to the proposed methodology or any cultural information or protocols you would like to provide that may influence the project. Your response will be documented and considered as part of the ACHA. Please remember to respond prior to **9 July 2019**.

EMM will be contacting RAPs shortly with an additional letter to organise fieldwork participation. Further information about the survey plan will be distributed prior to the survey.

8 Any questions or information?

Please feel free to contact the undersigned with any questions or queries about the project via email (provided below) or telephone on 02 4907 4800.

Yours sincerely,



Morgan Wilcox

Senior Archaeologist

mwilcox@emmconsulting.com.au

Morgan Wilcox

From: Morgan Wilcox
Sent: Friday, 28 June 2019 4:37 PM
To: Suellyn Rees
Subject: Dubbo Quarry Continuation Project ACHA - Invitation to participate on survey
Attachments: J180313_DubboQuarryContinuationProject_FieldworkRequest_V1.0.pdf

Good afternoon Suellyn,

See attached an invitation to participate in survey to be completed as part of the Aboriginal cultural heritage assessment (ACHA) for the Dubbo Quarry Continuation Project. You are invited to nominate for one paid representative to participate in the survey.

Please read the attached carefully prior to applying, as all applicants must be willing to agree with the information provided and satisfy the criteria regarding employment. Applications must be received by **12 July 2019** to ensure the fieldwork can commence within the scheduled timeframe.


I also draw your attention to the Stage 2/3 letter provided to you as per the below email. We are now half way through the review period for that document which closes **9 July 2019**. Should you have any comments or matters you would like to discuss please feel free to contact me via phone or email.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800
M 0400 264 916
D 02 4907 4824
 Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

[Please consider the environment before printing my email.](#)

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From: Morgan Wilcox
Sent: 11 June, 2019 12:58 PM
To: 'Suellyn Rees' <suellyn@dlalc.com.au>
Subject: Dubbo Quarry Continuation Project: Stage 2/3 Consultation Letter

Dear Suellyn (and the Dubbo LALC),

Thank you for registering to be consulted as part of the Aboriginal cultural heritage assessment for the Dubbo Quarry Continuation Project.

See attached letter addressing Stage 2 and Stage 3 of the consultation requirements.

Please review the attached and provide any feedback or comments to me via reply email by **Tuesday 9 July 2019**.

Any questions at all please do not hesitate to contact me.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800

M 0400 264 916

D 02 4907 4824

 Connect with us

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Morgan Wilcox

From: Morgan Wilcox
Sent: Friday, 28 June 2019 4:35 PM
To: carrs.brocky@gmail.com
Cc: Grace Toomey
Subject: Dubbo Quarry Continuation Project ACHA - Invitation to participate on survey
Attachments: J180313_DubboQuarryContinuationProject_FieldworkRequest_V1.0.pdf

Good afternoon Paul, Grace,

See attached an invitation to participate in survey to be completed as part of the Aboriginal cultural heritage assessment (ACHA) for the Dubbo Quarry Continuation Project. You are invited to nominate for one paid representative to participate in the survey.

Please read the attached carefully prior to applying, as all applicants must be willing to agree with the information provided and satisfy the criteria regarding employment. Applications must be received by **12 July 2019** to ensure the fieldwork can commence within the scheduled timeframe.


I also draw your attention to the Stage 2/3 letter provided to you as per the below email. We are now half way through the review period for that document which closes **9 July 2019**. Should you have any comments or matters you would like to discuss please feel free to contact me via phone or email.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



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From: Morgan Wilcox
Sent: 11 June, 2019 12:57 PM
To: 'carrs.brocky@gmail.com' <carrs.brocky@gmail.com>
Cc: 'Grace Toomey' <Grace.Toomey@dubbo.nsw.gov.au>
Subject: Dubbo Quarry Continuation Project: Stage 2/3 Consultation Letter

Dear Paul, Grace,

Thank you for registering to be consulted as part of the Aboriginal cultural heritage assessment for the Dubbo Quarry Continuation Project.

See attached letter addressing Stage 2 and Stage 3 of the consultation requirements.

Please review the attached and provide any feedback or comments to me via reply email by **Tuesday 9 July 2019**.

Any questions at all please do not hesitate to contact me.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



T 02 4907 4800

M 0400 264 916

D 02 4907 4824

 Connect with us

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28 June 2019

Re: Dubbo Quarry Continuation Project - Invitation to participate in fieldwork

Dear Registered Aboriginal Party,

1 Introduction

This letter is to invite you to apply to participate in survey fieldwork as part of the Aboriginal cultural heritage assessment (ACHA) for the Dubbo Quarry Continuation Project. It provides details of the fieldwork participation. You must agree to the contractual arrangement to be eligible.

The survey is anticipated to run from **Tuesday 16 July to Thursday 18 July 2019** (inclusive).

Your party is invited to apply for one paid representative to participate in the field survey. Applicants must be willing to agree with the information provided below and satisfy the criteria regarding employment.

If applicants are sole traders or individuals, we will only accept applications from the sole trader or individual nominated as part of the registration.

If applicants are an organisation, please nominate one person who will be part of the field survey.

The aim of fieldwork participation is to assist in the archaeological investigation.

As specified by the NSW Office of Environment and Heritage (OEH) guidelines, involvement in fieldwork is separate from the Aboriginal community consultation process. We will continue to consult with all registered parties regardless of the outcomes of the fieldwork application process.

2 Scope of work

The field survey aims are to understand the landforms within the project area, identify Aboriginal heritage values (including Aboriginal sites and areas of potential archaeological deposit), to inform the ACHA component of the environmental impact statement (EIS), including preparation of recommendations to manage potential impacts to Aboriginal sites and areas of archaeological potential.

The scope of work for field survey participation by registered Aboriginal parties (RAPs) is limited to involvement in field survey. No reports are requested as part of this arrangement. Reports submitted voluntarily are welcome but are not part of this contractual arrangement.

Separate to the scope of work for field surveys, all RAPs will be issued with a draft ACHA report for review and comment.

3 Fieldwork dates

The field survey is proposed to be completed over three days from **Tuesday 16 July to Thursday 18 July 2019** (inclusive). Fieldwork days will be from **8:00 am to 4:30 pm**.

The meeting point for the field survey will be provided prior to the fieldwork. Survey participants will need to be inducted and sign onto a Safe Work Method Statement prior to fieldwork.

Applications must be received by Friday 12 July 2019 to ensure the field survey can commence within the scheduled timeframe.

4 Roles and responsibilities

The roles and responsibilities of EMM archaeologists, RAPs and Holcim representatives (where required) during field surveys are outlined in Table 1. Specific work, health and safety responsibilities are included in the Safe Work Method Statement, which must also be signed prior to field surveys.

Table 1 Field survey roles and responsibilities

Team members	Roles and responsibilities
EMM archaeologists	<ul style="list-style-type: none">• direct the field surveys;• record Aboriginal sites and environmental data;• oversee safety (refer to Safe Work Method Statement);• consider and respect cultural perspectives, views, knowledge and advice and record data and/or direct field surveys based on these outcomes; and• apply professional code of conduct at all times.
RAPs	<ul style="list-style-type: none">• actively participate in field surveys, including assisting with Aboriginal site identification and recording where requested;• provide cultural perspectives, views, knowledge and advice to EMM archaeologists;• indicate areas of cultural significance (if known), including:<ul style="list-style-type: none">- sites or places associated with ceremonies, spiritual/mythological beliefs and traditional knowledge, which date from pre-contact period and which may have persisted until the present time;- sites or places with historical associations, which date from the post-contact period and are remembered today (eg plant and animal resource use areas and known camp sites); and- sites or places of contemporary significance (apart from those areas for which Aboriginal objects remain), for which the significance has been acquired in recent times;• be fit for work and have suitable experience to assist on the archaeological survey;• adhere to all safety protocols provided in the Safe Work Method Statement; and• apply professional code of conduct at all times.
Holcim representatives (where required)	<ul style="list-style-type: none">• provide general project oversight and in particular, coordinate site access with landowners;• where possible, assist by answering questions regarding the project;• adhere to all safety protocols provided in the Safe Work Method Statement; and• apply professional code of conduct at all times.

5 Code of conduct

Professional code of conduct is expected at all times from all participants. Harassment or other inappropriate behaviour is not acceptable. Professional code of conduct should be based upon principles of mutual respect (each member of the survey team has the right to have a say and be heard) and acknowledgement for the

knowledge, skills and experience of the other members of the survey team and their contributions to the program.

Any person who behaves in a manner that is abusive, threatening or humiliating towards other members of the survey team or other parties (eg landholders) will be asked to leave immediately and will not receive any payment for work on that day.

Common courtesy towards all project members and, in particular, to landowners providing site access is expected.

6 Contractual arrangement

Aboriginal stakeholders who agree to these terms will be contracted to EMM Consulting Pty Ltd.

6.1 Payment

The terms of payment for successful applicants are as follows:

- one nominated person from each successful RAP will attend on the rostered days;
- \$600 (excluding GST) per person per day for those nominated RAP members who are able to demonstrate more than five years' experience; and
- \$300 (excluding GST) per person per day for those nominated RAP members who have less than five years' experience.

The nominated daily rate for field surveys excludes GST. If your organisation is registered for GST please list this on the invoice. If you are not registered for GST please do not include.

6.2 Invoicing

Your invoices must be formal tax invoices and include:

- the registered business name, address and ABN;
- details of the persons and dates involved; and
- electronic banking details.

One invoice should be issued for all of an organisation's involvement. Invoices must be made out to **EMM Consulting Pty Ltd (ABN 28 141 736 558)**.

Payment will be made following receipt of a tax invoice from your party. Payment will not be made separately to individual organisation members. Invoices are processed on a monthly cycle, so invoices received by 30 July are anticipated to be paid in August. Invoices received after this date will be processed in the next monthly billing cycle.

Send all invoices to the details below or mwilcox@emmconsulting.com.au within four weeks of completion of the survey:

Dubbo Quarry Continuation Project
c/o Morgan Wilcox
PO Box 506
Newcastle NSW 2300

7 Application process

If your organisation agrees to the above scope of work, roles and responsibilities, code of conduct and contractual arrangement you are invited to apply to participate in fieldwork. You will need to complete the archaeological field survey employment agreement attached to the end of this letter and provide the following information with your application to be considered as part of the fieldwork team.

One representative from each successful group will be present on the rostered survey days.

7.1 Fitness to work

Persons involved in field surveys must be fit to perform strenuous physical activity in areas of rugged terrain. It is expected that over 10 km will be walked each day. Persons with medical conditions that hamper physical activity should not participate for safety reasons. Surveys are designed in loops or other configurations which will not involve returning to vehicles for breaks. All food and water must be carried. Survey participants must not be under the influence of drugs or alcohol.

Field representatives should also be able to show evidence of their previous experience in archaeological field surveys. As a minimum requirement, field representatives must be able to identify a range of Aboriginal object and site types. This includes, but is not limited to:

- stone artefacts (and the ability to distinguish these from naturally occurring rocks);
- ceremonial areas;
- grinding stones and grinding grooves;
- rock shelters (including rock art); and
- scarred or carved trees.

Knowledge regarding areas of potential archaeological deposits is also welcome.

7.2 Insurance

All participants must have a registered business name, ABN and address. These details must be unique to the organisation.

Appropriate insurance coverage (workers compensation, public liability insurance) must be provided by all applicants. If your organisation does not require these insurances please provide a written statement from WorkCover or your insurance provider acknowledging your insurance status and the reasons why this occurs.

Applications will not be considered without attached copies of workers compensation and public liability insurance, or evidence that workers compensation is not required.

7.3 Safety

Each person who participates in the field survey will be required to read and sign on to EMM's Safe Work Method Statement prior to commencing the field survey.

Each day, each participant will be required to bring:

- hat with sun brim, sun block, safety glasses (or sunglasses that provide equivalent protection) and suitable clothing and footwear (ie high visibility shirt or vest, long sleeved shirt, long pants, wet weather gear, work gloves and steel-capped lace-up boots; no sneakers or running shoes);

- food and water sufficient for the day (at least 2 litres of water);
- pens, notebooks etc as required to satisfy your group's recording requirements; and
- a bag to carry your food, water and equipment.

The survey will cease if extreme weather (eg electrical storms or extreme wind, heat or cold) or other unsafe conditions (eg bushfires) occur. However, the survey will continue through light rain, and it is the responsibility of each survey member to bring adequate clothing in case of poor weather.

Should participants not have appropriate clothing they may not be able to participate in the survey.

8 Checklist

Does your application contain the following information?

- evidence of the nominated representative's previous experience in archaeological field surveys;
- evidence of workers compensation and public liability insurance where applicable or a statement declaring they are not required; and
- the completed archaeological field survey employment agreement attached to the end of this letter.

9 Close

Applications must be received by Friday 12 July 2019 to ensure the field survey can commence within the scheduled timeframe.

Please do not hesitate to contact me if you have any questions or comments. I can be contacted on 02 4907 4824 or via email mwilcox@emmconsulting.com.au.

We look forward to working with you on this project.

Yours sincerely



Morgan Wilcox
Senior Archaeologist
mwilcox@emmconsulting.com.au

Dubbo Quarry Continuation Project – Archaeological Field Survey Employment Agreement

I have reviewed and agree to the terms and conditions provided in this letter relating to employment services and criteria, safety, fitness for work, payment, code of conduct and insurance.

Name:

Organisation:

Signature:

Date:

Morgan Wilcox

From: Suellyn Rees <suellyn@dlalc.com.au>
Sent: Tuesday, 23 July 2019 11:50 AM
To: Morgan Wilcox
Subject: FW: Send data from MFP11722036 23/07/2019 11:05
Attachments: DOC230719-23072019110538.pdf

Hi Morgan,
Please find report attached per Ray Smith's instructions.

Kind regards
Suellyn Rees
CEO
Mobile: 0427 121 912

Dubbo Local Aboriginal Lands Council | Cnr Darling & Wingewarra Sts | POBox1565 | Dubbo, NSW 2830 | Ph 02 6884 5276

"Dubbo LALC would like to acknowledge the traditional custodians of this land and pay respects to the Elders both past and present"

-----Original Message-----

From: Toshiba Tag 160432 DLALC <mfpdlac@optusnet.com.au>
Sent: Tuesday, 23 July 2019 9:06 AM
To: Suellyn Rees <suellyn@dlalc.com.au>
Subject: Send data from MFP11722036 23/07/2019 11:05

Scanned from MFP11722036
Date:23/07/2019 11:05
Pages:2
Resolution:200x200 DPI



Dubbo Local Aboriginal Land Council

ABN 16 308 384 841

PO Box 1565
Dubbo NSW 2830

Phone: 02 6884 5276

Email: suellyn@dlalc.com.au

ABORIGINAL CULTURAL FIELD SURVEY REPORT

Date of Survey: Tuesday 16 July through to Thursday 18 July, 2019

Site Assessor: Raymond Smith, Traditional Owner
David Smith, Traditional Owner (18 July 2019 only)

Site: Dubbo Quarry Continuation Project

Title Particulars: Lot 222 DP 1247780
Lot 100 DP 628628
Dubbo Regional Council Local Government area

Report Prepared for: EMM Consulting Pty Limited
Level 1, 146 Hunter Street
Newcastle NSW 2300
Contact: Morgan Wilcox, Senior Archaeologist

Outcome:

This field survey was requested as part of the Aboriginal Cultural Heritage Assessment for the extension of the Dubbo Quarry located on Sheraton Road, Dubbo.

The Site area physically surveyed for this report is all of the area within the Lots specified above requested by EMM Consulting Pty Limited. The report has been prepared to assist EMM to meet the statutory requirements under Part 4 of the EP&A Act.

"Looking after our mob"

There were several areas across Lot 100 DP 628628 (Lot 100) where Artifacts were found. These were found close to the Eulomogo Creek at the northern end of the block on the north-western corner and the north-eastern corner.

There were rocks piled around trees toward the southern end of Lot 100 and EMM Consulting staff have agreed that when these rocks are removed, the Dubbo Local Aboriginal Land Council will be notified so that it may be determined whether the trees are scarred or there is anything else of significance there.

There was one area on the Western Extension Area of the existing Quarry on Lot 222 DP 1247780 where there were also Artifacts found.

All of the Artifacts and areas of significance found were recorded (photos were taken) by the EMM Consulting Senior Archaeologist, Morgan Wilcox.

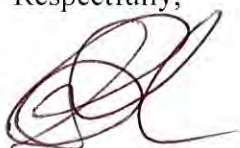
One of the project features is the 'relocation of the quarry access road along the northern boundary of Lot 100'. This description is ambiguous, however, it is assumed that the road is intended to be relocated to the northern boundary of Lot 100 adjacent to, and following the path of the creek.

We acknowledge that due to historical land clearing for pastoral purposes, the loss of archaeological integrity in this area is difficult to determine but is also inferred due to the Artifacts found. It is important to preserve what has not yet been completely diminished.

As some of the Artifacts were found in this vicinity, could we please ask for a more specific description of this project feature or some assurance that the road will be relocated well clear of those Artifacts found.

I look forward to receiving your draft report.

Respectfully,



Suellyn Rees

Chief Executive Officer

The Dubbo Local Aboriginal Land Council acknowledge Traditional Owners of the area on which this assessment took place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

Morgan Wilcox

From: Morgan Wilcox
Sent: Wednesday, 18 December 2019 3:38 PM
To: carrs.brocky@gmail.com; Suellyn Rees
Cc: Grace Toomey
Subject: Dubbo Quarry Continuation Project - Project Update

Dear Suellyn (Dubbo LALC) and Paul (Dubbo Aboriginal Community Working Party),

Thank you for your patience and involvement as an Aboriginal stakeholder for the Dubbo Quarry Continuation Project.

To provide you with a project update, the scoping report is being finalised to be lodged with the Department of Planning, Industry and Environment (DPIE; formerly OEH) this week. As such we anticipate that the Secretary's Environmental Assessment Requirements (SEARs) for the project will be issued late February. Following that the draft Aboriginal Cultural Heritage Assessment (ACHA) can be completed and circulated to you for review and comment.

As always, in the meantime if you have any questions or additional information you would like incorporated into the assessment please do not hesitate to contact me.

I wish you all a safe and happy Christmas and New Year. I look forward to continuing to work alongside you in 2020.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist



D 02 4907 4821

M 0400 264 916

 Connect with us

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

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Morgan Wilcox

From: Morgan Wilcox
Sent: Thursday, 16 July 2020 4:12 PM
To: carrs.brocky@gmail.com; Suellyn Rees
Cc: Grace Toomey
Subject: Dubbo Quarry Continuation Project - Project Update

Dear Suellyn (Dubbo LALC) and Paul (Dubbo Aboriginal Community Working Party),

Again, thank you for your patience. SEARs for the Dubbo Quarry Continuation Project were issued on the 3 April 2020 and Holcim is in the process of finalising the proposed project design. In the near future you will receive the draft ACHA for your review and comment.

Until then, if you have any questions please do not hesitate to contact me.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist

Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS) Division

T 02 4907 4821

M 0400 264 916

www.emmconsulting.com.au

From: Morgan Wilcox
Sent: Wednesday, 18 December 2019 3:38 PM
To: carrs.brocky@gmail.com; Suellyn Rees <suellyn@dlalc.com.au>
Cc: Grace Toomey <Grace.Toomey@dubbo.nsw.gov.au>
Subject: Dubbo Quarry Continuation Project - Project Update

Dear Suellyn (Dubbo LALC) and Paul (Dubbo Aboriginal Community Working Party),

Thank you for your patience and involvement as an Aboriginal stakeholder for the Dubbo Quarry Continuation Project.

To provide you with a project update, the scoping report is being finalised to be lodged with the Department of Planning, Industry and Environment (DPIE; formerly OEH) this week. As such we anticipate that the Secretary's Environmental Assessment Requirements (SEARs) for the project will be issued late February. Following that the draft Aboriginal Cultural Heritage Assessment (ACHA) can be completed and circulated to you for review and comment.

As always, in the meantime if you have any questions or additional information you would like incorporated into the assessment please do not hesitate to contact me.

I wish you all a safe and happy Christmas and New Year. I look forward to continuing to work alongside you in 2020.

Kind regards
Morgan

Ryan Desic

From: Ryan Desic
Sent: Tuesday, 4 August 2020 6:03 PM
To: carrs.brocky@gmail.com; suellyn@dlalc.com.au; Grace.Toomey@dubbo.nsw.gov.au
Cc: Morgan Wilcox; Rachael Thelwell
Subject: Dubbo Quarry Continuation Project: Provision of Draft Aboriginal Cultural Heritage Assessment (ACHA) for RAP review.
Attachments: J180313_RP15_v1.pdf

Dear Registered Party,

Introduction

Thank you for your continued participation in the Aboriginal cultural heritage assessment (ACHA) for the Dubbo Quarry Continuation Project. We appreciate your involvement and knowledge sharing. We are now up to the next stage of consultation for the project which is providing the draft ACHA to registered Aboriginal parties (RAPs) for their review and comments.

The ACHA is attached to this email for you to download and review.

Notes for your review and comment on the draft ACHA

If you have specific comments for the draft ACHA 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 **highlighted** sections of the document that will be updated based on further consultation and amended for the final report. Notably, the consultation log and consultation material will be collated and attached in the final document.

When to respond by

If you wish to comment on the draft ACHA, please provide your consolidated comments within 28 days (**ie by September 2 2020**). If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Closing

Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the documents. However, the primary contact for consultation matters remains as Morgan Wilcox mwilcox@emmconsulting.com.au.

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
in Connect with us

Morgan Wilcox

From: Morgan Wilcox
Sent: Monday, 7 September 2020 7:42 PM
To: Ryan Desic; carrs.brocky@gmail.com; suellyn@dlalc.com.au; Grace.Toomey@dubbo.nsw.gov.au
Cc: Rachael Thelwell
Subject: RE: Dubbo Quarry Continuation Project: Provision of Draft Aboriginal Cultural Heritage Assessment (ACHA) for RAP review.
Attachments: J180313_RP15_v1.pdf

Good evening Suellyn, Paul,

I hope this email find you both safe and well.

We have not yet received a response to the attached draft ACHA from Dubbo LALC or the Dubbo Aboriginal Community Working Party. If you would like discuss the draft document please feel free to give me a call, alternatively if you are satisfied with the draft report and have no further comment if you could please respond as such that would be much appreciated.

I look forward to hearing from you.

Kind regards
Morgan

Morgan Wilcox

Senior Archaeologist

Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS) Division

T 02 4907 4821

M 0400 264 916

www.emmconsulting.com.au

From: Ryan Desic <rdesic@emmconsulting.com.au>
Sent: Tuesday, 4 August 2020 6:03 PM
To: carrs.brocky@gmail.com; suellyn@dlalc.com.au; Grace.Toomey@dubbo.nsw.gov.au
Cc: Morgan Wilcox <mwilcox@emmconsulting.com.au>; Rachael Thelwell <rthelwell@emmconsulting.com.au>
Subject: Dubbo Quarry Continuation Project: Provision of Draft Aboriginal Cultural Heritage Assessment (ACHA) for RAP review.

Dear Registered Party,

Introduction

Thank you for your continued participation in the Aboriginal cultural heritage assessment (ACHA) for the Dubbo Quarry Continuation Project. We appreciate your involvement and knowledge sharing. We are now up to the next stage of consultation for the project which is providing the draft ACHA to registered Aboriginal parties (RAPs) for their review and comments.

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Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the documents. However, the primary contact for consultation matters remains as Morgan Wilcox mwilcox@emmconsulting.com.au.

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
-  Connect with us

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Appendix B

AHIMS data

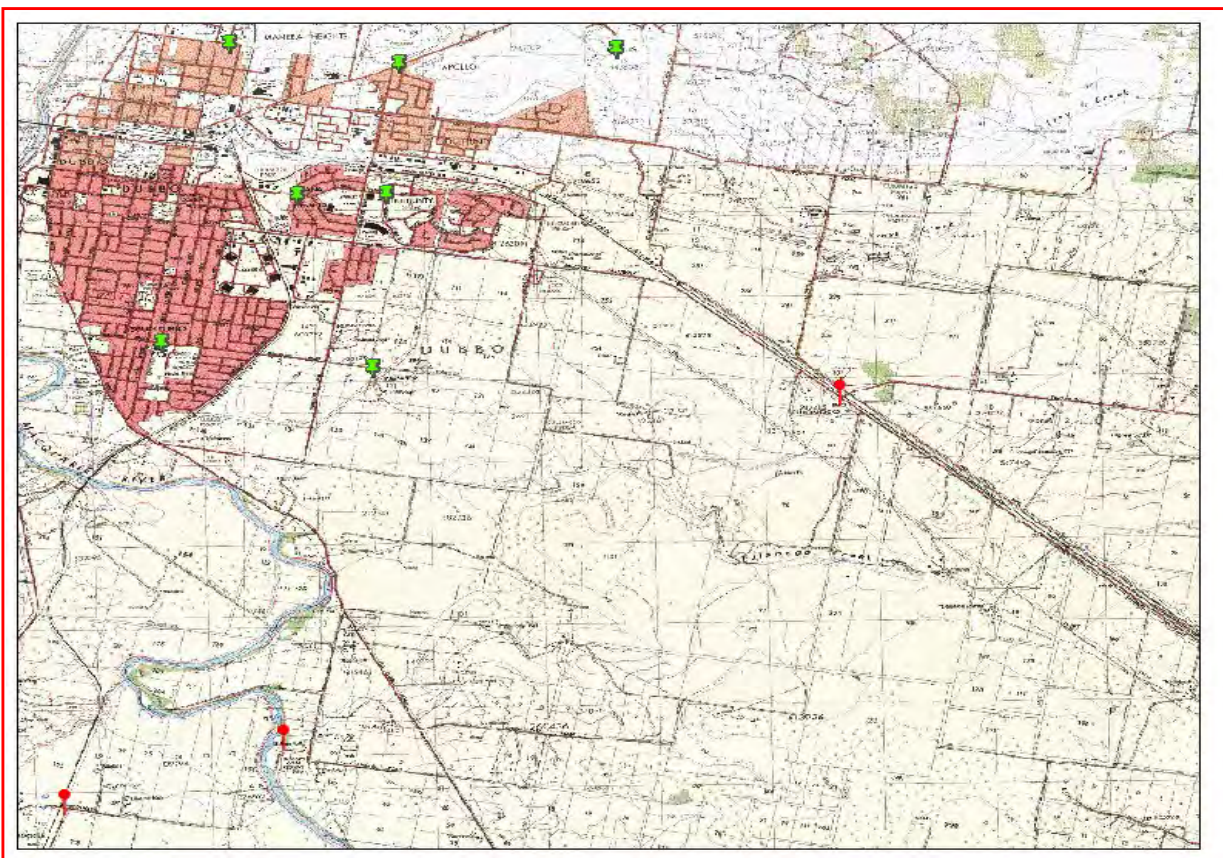
EMM Consulting Pty Ltd
Level 1, 146 Hunter Street
Newcastle New South Wales 2300
Attention: Heritage Emm
Email: heritage@emmconsulting.com.au

Date: 25 February 2019

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters, conducted by Heritage Emm on 25 February 2019.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

77	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location.*

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0246	EC-OS-1;Eulomogo Creek;	AGD	55	654950	6426800	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0247	EC-OS-2;Eulomogo Creek;	AGD	55	655210	6426690	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0248	Eulomogo Creek (EC-OS-3)	GDA	55	656544	6427593	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0249	EC-OS-4;Keswick South (Eulomogo);	AGD	55	656100	6428000	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0250	EC-OS-5; Keswick South (Eulomogo)	GDA	55	656662	6427183	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0251	EC-OS-6; Keswick South (Eulomogo)	GDA	55	656726	6426485	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0252	EC-ST-1; Keswick South (Eulomogo)	GDA	55	656559	6427271	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0253	EC-AG-2;Eulomogo Creek;	AGD	55	655150	6426670	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0254	EC-AG-1;Eulomogo Creek;	AGD	55	655380	6426870	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0403	Cobra Street ST	AGD	55	651422	6430087	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Miss.Rebecca Ogden-Brunell					Permits	1701	
36-1-0351	WR-TT-01	AGD	55	660050	6425950	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Guarra Aboriginal Site Surveys					Permits		
36-1-0409	SP-OS-08	AGD	55	650680	6431960	Open site	Valid	Artefact : -		
	Contact	Recorders	L Nolan					Permits		
36-1-0410	SP-OS-07	AGD	55	650670	6431960	Open site	Valid	Artefact : -		
	Contact	Recorders	L Nolan					Permits		
36-1-0550	DLGA-ST-07	GDA	55	650722	6431972	Open site	Valid	Modified Tree (Carved or Scarred) :		102502
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		

Report generated by AHIMS Web Service on 25/02/2019 for Heritage Emm for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : Baseline archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 77

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0551	DLGA-ST-06	GDA	55	650933	6432435	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0557	DLGA-ST-02	AGD	55	651652	6427032	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0558	DLGA-ST-01	AGD	55	651300	6426770	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0559	DLGA-OS-03	AGD	55	651324	6427339	Open site	Valid	Artefact : 5		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0560	DLGA-OS-02	AGD	55	651407	6427264	Open site	Valid	Artefact : 2		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0561	DLGA-OS-01	AGD	55	651688	6427148	Open site	Valid	Artefact : 18		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0562	DLGA-IF-02	AGD	55	651224	6427616	Open site	Valid	Artefact : -		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0563	DLGA-IF-01	AGD	55	651353	6427429	Open site	Valid	Artefact : -		
	Contact Searle									Recorders OzArk Environmental and Heritage Management
										Permits
36-1-0616	TA-ST-01	AGD	55	651770	6424670	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact									Recorders Lloyd Nolan
										Permits
36-1-0324	TG-ST-01	AGD	55	655780	6431770	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	Contact									Recorders Lloyd Nolan
										Permits
36-1-0319	TG-9-01	AGD	55	655710	6431840	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	
	Contact									Recorders Lloyd Nolan
										Permits
36-1-0320	TG-05-04	AGD	55	655690	6432220	Open site	Valid	Artefact : -	Open Camp Site	
	Contact									Recorders Lloyd Nolan
										Permits
36-1-0321	TG-05-03	AGD	55	655750	6432030	Open site	Valid	Artefact : -	Open Camp Site	
	Contact									Recorders Lloyd Nolan
										Permits
36-1-0322	TG-05-02	AGD	55	655800	6431580	Open site	Valid	Artefact : -	Open Camp Site	

Report generated by AHIMS Web Service on 25/02/2019 for Heritage Emm for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : Baseline archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 77

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Lloyd Nolan					<u>Permits</u>	1432	
36-1-0323	TG-05-01	AGD	55	655710	6431840	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>	<u>Recorders</u>	Lloyd Nolan					<u>Permits</u>	1432	
36-1-0040	Dubbo;Cootha;	AGD	55	650955	6427521	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	<u>Contact</u>	<u>Recorders</u>	Michael Pearson					<u>Permits</u>		
36-1-0154	Old Dubbo Rd	AGD	55	653120	6425750	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	<u>Contact</u>	<u>Recorders</u>	Katrina Geering					<u>Permits</u>		
36-1-0212	Mugga Hill 1;	AGD	55	657970	6431780	Open site	Valid	Artefact : -	Isolated Find	3161
	<u>Contact</u>	<u>Recorders</u>	Mr.Matthew Barber					<u>Permits</u>		
36-1-0213	K-ST-6	AGD	55	653640	6428240	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	<u>Contact</u>	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		
36-1-0179	Keswick-Scarred Tree-5 (K-ST-5)	GDA	55	653794	6429259	Open site	Destroyed	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	<u>Contact</u>	<u>Recorders</u>	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					<u>Permits</u>	3873	
36-1-0180	K-ST-4	AGD	55	654590	6428590	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	<u>Contact</u>	<u>Recorders</u>	Central West Archaeological and Heritage Services Pty Ltd					<u>Permits</u>		
36-1-0181	K-ST-3	AGD	55	654510	6428580	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	<u>Contact</u>	<u>Recorders</u>	Central West Archaeological and Heritage Services Pty Ltd					<u>Permits</u>		
36-1-0182	K-ST-2	AGD	55	654220	6428870	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	<u>Contact</u>	<u>Recorders</u>	Central West Archaeological and Heritage Services Pty Ltd					<u>Permits</u>		
36-1-0114	M21 Dubbo	AGD	55	651120	6425550	Open site	Valid	Artefact : 25	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0115	M22 Dubbo	AGD	55	650940	6426290	Open site	Valid	Artefact : 219	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0186	K-IF-2;	AGD	55	654830	6426680	Open site	Valid	Artefact : -	Isolated Find	3348,103709
	<u>Contact</u>	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		

Report generated by AHIMS Web Service on 25/02/2019 for Heritage Emm for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : Baseline archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 77

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0061	Bloomfield;	AGD	55	659565	6425462	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact									
	Recorders			ASRSYS						
36-1-0021	Dundallimal;	AGD	55	650921	6426608	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Ceremonial Ring (Stone or Earth) : -, Hearth : -, Artefact : -, Grinding Groove : -	Axe Grinding Groove,Mound (Oven),Open Camp Site	
	Contact									
	Recorders			P Gresser,A.K. Morris						
36-1-0024	Dubbo1	AGD	55	652005	6431140	Open site	Valid	Modified Tree (Carved or Scarred) : 2	Carved Tree	65,102502
	Contact									
	Recorders			David Bell						
36-1-0025	Dubbo	AGD	55	652005	6431140	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : 12	Carved Tree	65,102502
	Contact									
	Recorders			David Bell,R Etheridge						
36-1-0026	Dubbo Railway Station	AGD	55	651639	6431153	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s,Carved Tree	65,102502
	Contact									
	Recorders			David Bell,R Etheridge,W.Y Thomas						
36-1-0030	Cootha;Dubbo;	AGD	55	650955	6427521	Open site	Valid	Artefact : -	Open Camp Site	
	Contact									
	Recorders			Michael Pearson						
36-1-0187	K-OS-2;	AGD	55	654770	6426650	Open site	Valid	Artefact : -	Open Camp Site	3348,103709
	Contact									
	Recorders			Jim Kelton						
36-1-0188	K-OS-3;	AGD	55	654840	6426873	Open site	Valid	Artefact : -	Open Camp Site	3348,102800,1 03709
	Contact									
	Recorders			Jim Kelton						
36-1-0189	K-OS-4;	AGD	55	653790	6426830	Open site	Valid	Artefact : -	Open Camp Site	3348
	Contact									
	Recorders			Jim Kelton						
36-1-0190	K-OS-1;	GDA	55	651870	6427290	Open site	Valid	Artefact : -	Open Camp Site	3348
	Contact									
	Recorders			Jim Kelton						
36-1-0191	K-ST-1;	GDA	55	651870	6427290	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	3348
	Contact									
	Recorders			Jim Kelton						
36-1-0192	K-IF-1;	GDA	55	651940	6427470	Open site	Valid	Artefact : -	Isolated Find	3348

Report generated by AHIMS Web Service on 25/02/2019 for Heritage Emm for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : Baseline archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 77

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		
36-1-0436	PR-IF1	AGD	55	657498	6429191	Open site	Valid	Artefact : 1		99011
	<u>Contact</u>	<u>Recorders</u>	Doctor,Jodie Benton					<u>Permits</u>		
36-1-0515	DWTP-OS1	AGD	55	650830	6428395	Open site	Valid	Artefact : 6		
	<u>Contact</u> Searle	<u>Recorders</u>	Doctor,Jodie Benton					<u>Permits</u>	2166,2167,2216,2305	
36-1-0613	Dundullimal Reserve Scarred Tree 1 (DR-ST1)	AGD	55	650605	6426823	Open site	Valid	Modified Tree (Carved or Scarred) : -		101792
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management					<u>Permits</u>		
36-1-0614	Dundullimal Reserve Scarred Tree 2 (DR-ST2)	AGD	55	650695	6426925	Open site	Valid	Modified Tree (Carved or Scarred) : 1		101792
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management					<u>Permits</u>		
36-1-0615	Dundullimal Reserve Open Site with PAD (DR-OS1-WITH PAD)	AGD	55	650592	6426739	Open site	Valid	Artefact : 50		
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management					<u>Permits</u>		
36-1-0714	HD-OS1 with PAD	GDA	55	652699	6426886	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management, Miss, Philippa Sokol					<u>Permits</u>		
36-1-0301	TP-OS-3	AGD	55	650650	6431890	Open site	Valid	Artefact : -	Open Camp Site	4362
	<u>Contact</u>	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		
36-1-0273	ER-IF-1	AGD	55	659170	6428110	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>	Lloyd Nolan					<u>Permits</u>		
36-1-0274	ER-ST-1	AGD	55	659400	6428580	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>	<u>Recorders</u>	Lloyd Nolan					<u>Permits</u>		
36-1-0106	M13 Dubbo	AGD	55	650940	6426590	Open site	Valid	Artefact : -	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin, Margrit Koettig, Rex Silcox					<u>Permits</u>		
36-1-0107	M14 Dubbo	AGD	55	651780	6426690	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin, Margrit Koettig, Rex Silcox					<u>Permits</u>		
36-1-0108	M15 Dubbo	AGD	55	651200	6426450	Open site	Valid	Artefact : -	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin, Margrit Koettig, Rex Silcox					<u>Permits</u>		
36-1-0109	M16 Dubbo	AGD	55	652500	6425940	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0110	M17 Dubbo	AGD	55	652410	6425220	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0111	M18 Dubbo	AGD	55	651990	6425360	Open site	Valid	Artefact : 1000	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0112	M19 Dubbo	AGD	55	651290	6424640	Open site	Valid	Artefact : 30, Shell : -, Modified Tree (Carved or Scarred) : -	Midden,Open Camp Site,Scarred Tree	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0113	M20 Dubbo	AGD	55	651110	6424400	Open site	Valid	Artefact : -, Shell : -	Midden,Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>	N Franklin,Margrit Koettig,Rex Silcox					<u>Permits</u>		
36-1-0336	TA-ST-02	AGD	55	651550	6424410	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>	Lloyd Nolan					<u>Permits</u>		
36-1-0630	Dundullimal Scarred Tree 1	GDA	55	650995	6426688	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Doctor,Jodie Benton,OzArk Environmental and Heritage Management					<u>Permits</u>		
36-1-0665	DSD1 (RAAF-OS1)	GDA	55	652323	6429705	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Morgan Wilcox					<u>Permits</u>	4345	
36-1-0666	RAAF-ST3	GDA	55	652764	6429580	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Morgan Wilcox					<u>Permits</u>		
36-1-0667	Scarred Tree 1 (RAAF-ST1)	GDA	55	652642	6429881	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Morgan Wilcox					<u>Permits</u>	4345	
36-1-0668	Scarred Tree (RAAF-ST2)	GDA	55	652788	6429549	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>	Ms.Morgan Wilcox					<u>Permits</u>		
36-1-0707	Hillview-IF1	GDA	55	655038	6427478	Open site	Valid	Artefact : -		103709
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management,Doctor.Chris Lovell					<u>Permits</u>		

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<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
36-1-0704	Macquarie-OS1	GDA	55	651268	6427884	Open site	Destroyed	Artefact :-		103498,10367 0
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management,OzArk Environmental and Heritag				<u>Permits</u>	4087		

Report generated by AHIMS Web Service on 25/02/2019 for Heritage Emm for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : Baseline archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 77

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EMM Consulting - St Leonards - Individual users

Date: 16 July 2020

Ground Level, Suite 01 20 Chandos Street
St Leonards New South Wales 2065

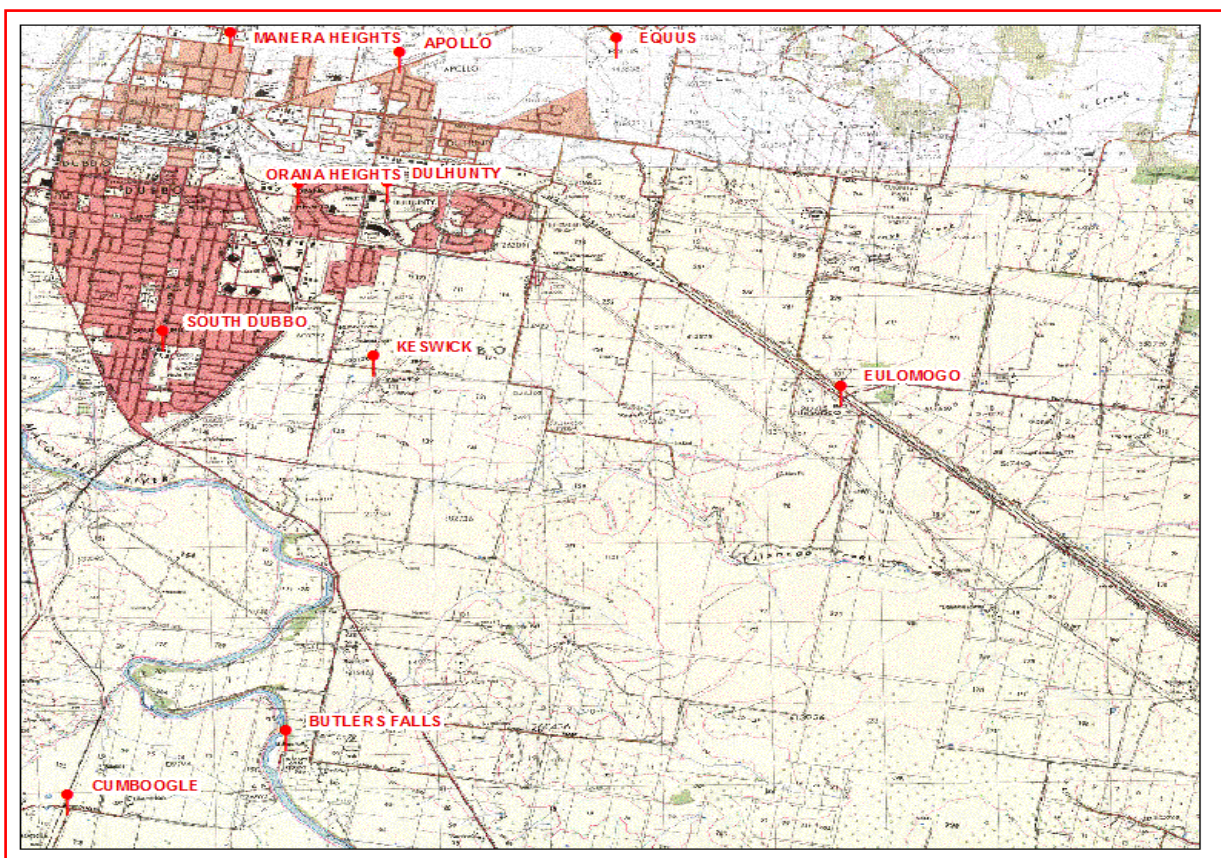
Attention: Morgan Wilcox

Email: mwilcox@emmconsulting.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters, conducted by Morgan Wilcox on 16 July 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

78	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.



SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0246	EC-OS-1;Eulomogo Creek;	AGD	55	654950	6426800	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0247	EC-OS-2;Eulomogo Creek;	AGD	55	655210	6426690	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0248	Eulomogo Creek (EC-OS-3)	GDA	55	656544	6427593	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0249	EC-OS-4;Keswick South (Eulomogo);	AGD	55	656100	6428000	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0250	EC-OS-5; Keswick South (Eulomogo)	GDA	55	656662	6427183	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0251	EC-OS-6; Keswick South (Eulomogo)	GDA	55	656726	6426485	Open site	Valid	Artefact : -	Open Camp Site	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0252	EC-ST-1; Keswick South (Eulomogo)	GDA	55	656559	6427271	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1276,1277	
36-1-0253	EC-AG-2;Eulomogo Creek;	AGD	55	655150	6426670	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0254	EC-AG-1;Eulomogo Creek;	AGD	55	655380	6426870	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	4378
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1276,1277	
36-1-0403	Cobra Street ST	AGD	55	651422	6430087	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Miss.Rebecca Ogden-Brunell					Permits	1701	
36-1-0351	WR-TT-01	AGD	55	660050	6425950	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Guarra Aboriginal Site Surveys					Permits		
36-1-0409	SP-OS-08	AGD	55	650680	6431960	Open site	Valid	Artefact : -		
	Contact	Recorders	L Nolan					Permits		
36-1-0410	SP-OS-07	AGD	55	650670	6431960	Open site	Valid	Artefact : -		
	Contact	Recorders	L Nolan					Permits		
36-1-0550	DLGA-ST-07	GDA	55	650722	6431972	Open site	Valid	Modified Tree (Carved or Scarred) :		102502
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0551	DLGA-ST-06	GDA	55	650933	6432435	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0557	DLGA-ST-02	AGD	55	651652	6427032	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0558	DLGA-ST-01	AGD	55	651300	6426770	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0559	DLGA-OS-03	AGD	55	651324	6427339	Open site	Valid	Artefact : 5		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0560	DLGA-OS-02	AGD	55	651407	6427264	Open site	Valid	Artefact : 2		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0561	DLGA-OS-01	AGD	55	651688	6427148	Open site	Valid	Artefact : 18		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0562	DLGA-IF-02	AGD	55	651224	6427616	Open site	Valid	Artefact : -		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0563	DLGA-IF-01	AGD	55	651353	6427429	Open site	Valid	Artefact : -		
	Contact Searle	Recorders OzArk Environmental and Heritage Management						Permits		
36-1-0616	TA-ST-01	AGD	55	651770	6424670	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders Lloyd Nolan						Permits		
36-1-0772	K-OS-4 Reburial location	GDA	55	653381	6427225	Open site	Valid	Artefact : -		
	Contact	Recorders OzArk Environmental and Heritage Management, Miss. Stephanie Rusden						Permits		
36-1-0324	TG-ST-01	AGD	55	655780	6431770	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders Lloyd Nolan						Permits		
36-1-0319	TG-9-01	AGD	55	655710	6431840	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	
	Contact	Recorders Lloyd Nolan						Permits		
36-1-0320	TG-05-04	AGD	55	655690	6432220	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders Lloyd Nolan						Permits		
36-1-0321	TG-05-03	AGD	55	655750	6432030	Open site	Valid	Artefact : -	Open Camp Site	

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Lloyd Nolan					Permits		
36-1-0322	TG-05-02	AGD	55	655800	6431580	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Lloyd Nolan					Permits	1432	
36-1-0323	TG-05-01	AGD	55	655710	6431840	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Lloyd Nolan					Permits	1432	
36-1-0040	Dubbo;Cootha;	AGD	55	650955	6427521	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	Contact	Recorders	Michael Pearson					Permits		
36-1-0154	Old Dubbo Rd	AGD	55	653120	6425750	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	Contact	Recorders	Katrina Geering					Permits		
36-1-0212	Mugga Hill 1;	AGD	55	657970	6431780	Open site	Valid	Artefact : -	Isolated Find	3161
	Contact	Recorders	Mr.Matthew Barber					Permits		
36-1-0213	K-ST-6	AGD	55	653640	6428240	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	Contact	Recorders	Jim Kelton					Permits		
36-1-0179	Keswick-Scarred Tree-5 (K-ST-5)	GDA	55	653794	6429259	Open site	Destroyed	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	3873	
36-1-0180	K-ST-4	AGD	55	654590	6428590	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
36-1-0181	K-ST-3	AGD	55	654510	6428580	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
36-1-0182	K-ST-2	AGD	55	654220	6428870	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	3350
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
36-1-0114	M21 Dubbo	AGD	55	651120	6425550	Open site	Valid	Artefact : 25	Open Camp Site	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0115	M22 Dubbo	AGD	55	650940	6426290	Open site	Valid	Artefact : 219	Open Camp Site	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0186	K-IF-2;	AGD	55	654830	6426680	Open site	Valid	Artefact : -	Isolated Find	3348,103709
	Contact	Recorders	Jim Kelton					Permits		
36-1-0061	Bloomfield;	AGD	55	659565	6425462	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	ASRSYS					Permits		
36-1-0021	Dundallimal;	AGD	55	650921	6426608	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Ceremonial Ring (Stone or Earth) : -, Hearth : -, Artefact : -, Grinding Groove : -	Axe Grinding Groove,Mound (Oven),Open Camp Site	
	Contact	Recorders	P Gresser,A.K. Morris					Permits		
36-1-0024	Dubbo1	AGD	55	652005	6431140	Open site	Valid	Modified Tree (Carved or Scarred) : 2	Carved Tree	65,102502
	Contact	Recorders	David Bell					Permits		
36-1-0025	Dubbo	AGD	55	652005	6431140	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : 12	Carved Tree	65,102502
	Contact	Recorders	David Bell,R Etheridge					Permits		
36-1-0026	Dubbo Railway Station	AGD	55	651639	6431153	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s,Carved Tree	65,102502
	Contact	Recorders	David Bell,R Etheridge,W.Y Thomas					Permits		
36-1-0030	Cootha;Dubbo;	AGD	55	650955	6427521	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Michael Pearson					Permits		
36-1-0187	K-OS-2;	AGD	55	654770	6426650	Open site	Valid	Artefact : -	Open Camp Site	3348,103709
	Contact	Recorders	Jim Kelton					Permits		
36-1-0188	K-OS-3;	AGD	55	654840	6426873	Open site	Valid	Artefact : -	Open Camp Site	3348,102800,1 03709
	Contact	Recorders	Jim Kelton					Permits		
36-1-0189	K-OS-4	GDA	55	653901	6427013	Open site	Destroyed	Artefact : -	Open Camp Site	3348,104317
	Contact	Recorders	Jim Kelton,OzArk Environmental and Heritage Management,Miss.Stephanie Rusder					Permits	4471	
36-1-0190	K-OS-1;	GDA	55	651870	6427290	Open site	Valid	Artefact : -	Open Camp Site	3348
	Contact	Recorders	Jim Kelton					Permits		
36-1-0191	K-ST-1;	GDA	55	651870	6427290	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	3348

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0192	K-IF-1;	GDA	55	651940	6427470	Open site	Valid	Artefact : -	Isolated Find	3348
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0436	PR-IF1	AGD	55	657498	6429191	Open site	Valid	Artefact : 1		99011
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0515	DWTP-OS1	AGD	55	650830	6428395	Open site	Valid	Artefact : 6		
	<u>Contact</u> Searle	<u>Recorders</u>						<u>Permits</u>	2166,2167,2216,2305	
36-1-0613	Dundullimal Reserve Scarred Tree 1 (DR-ST1)	AGD	55	650605	6426823	Open site	Valid	Modified Tree (Carved or Scarred) : -		101792
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0614	Dundullimal Reserve Scarred Tree 2 (DR-ST2)	AGD	55	650695	6426925	Open site	Valid	Modified Tree (Carved or Scarred) : 1		101792
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0615	Dundullimal Reserve Open Site with PAD (DR-OS1-WITH PAD)	AGD	55	650592	6426739	Open site	Valid	Artefact : 50		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0714	HD-OS1 with PAD	GDA	55	652699	6426886	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0301	TP-OS-3	AGD	55	650650	6431890	Open site	Valid	Artefact : -	Open Camp Site	4362
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0273	ER-IF-1	AGD	55	659170	6428110	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0274	ER-ST-1	AGD	55	659400	6428580	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0106	M13 Dubbo	AGD	55	650940	6426590	Open site	Valid	Artefact : -	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0107	M14 Dubbo	AGD	55	651780	6426690	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
36-1-0108	M15 Dubbo	AGD	55	651200	6426450	Open site	Valid	Artefact : -	Open Camp Site	1065
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		

Report generated by AHIMS Web Service on 16/07/2020 for Morgan Wilcox for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : ACHA. Number of Aboriginal sites and Aboriginal objects found is 78

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0109	M16 Dubbo	AGD	55	652500	6425940	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0110	M17 Dubbo	AGD	55	652410	6425220	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0111	M18 Dubbo	AGD	55	651990	6425360	Open site	Valid	Artefact : 1000	Open Camp Site	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0112	M19 Dubbo	AGD	55	651290	6424640	Open site	Valid	Artefact : 30, Shell : -, Modified Tree (Carved or Scarred) : -	Midden,Open Camp Site,Scarred Tree	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0113	M20 Dubbo	AGD	55	651110	6424400	Open site	Valid	Artefact : -, Shell : -	Midden,Open Camp Site	1065
	Contact	Recorders	N Franklin,Margrit Koettig,Rex Silcox					Permits		
36-1-0336	TA-ST-02	AGD	55	651550	6424410	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Lloyd Nolan					Permits		
36-1-0630	Dundullimal Scarred Tree 1	GDA	55	650995	6426688	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Doctor.Jodie Benton,OzArk Environmental and Heritage Management					Permits		
36-1-0665	DSD1 (RAAF-OS1)	GDA	55	652323	6429705	Open site	Valid	Artefact : 1		4345
	Contact	Recorders	Ms.Morgan Wilcox					Permits		
36-1-0666	RAAF-ST3	GDA	55	652764	6429580	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Ms.Morgan Wilcox					Permits		
36-1-0667	Scarred Tree 1 (RAAF-ST1)	GDA	55	652642	6429881	Open site	Valid	Modified Tree (Carved or Scarred) : 1		4345
	Contact	Recorders	Ms.Morgan Wilcox					Permits		
36-1-0668	Scarred Tree (RAAF-ST2)	GDA	55	652788	6429549	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Ms.Morgan Wilcox					Permits		

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AHIMS Web Services (AWS) Extensive search - Site list report

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0707	Hillview-IF1	GDA	55	655038	6427478	Open site	Valid	Artefact : -		103709
	Contact									
36-1-0704	Macquarie-OS1	GDA	55	651268	6427884	Open site	Destroyed	Artefact : -		103498,103670
	Contact									
	Recorders			OzArk Environmental and Heritage Management,Doctor.Chris Lovell					Permits	
	Recorders			OzArk Environmental and Heritage Management,OzArk Environmental and Heritag					Permits	4087

Report generated by AHIMS Web Service on 16/07/2020 for Morgan Wilcox for the following area at Datum :GDA, Zone : 55, Eastings : 650700 - 660700, Northings : 6422500 - 6432500 with a Buffer of 0 meters. Additional Info : ACHA. Number of Aboriginal sites and Aboriginal objects found is 78

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Appendix C

Additional archaeological information

C.1 Site definitions and recording methods used for this assessment

C.1.1 Aboriginal sites

In the AHIMS database, Aboriginal sites are defined in several ways. At the simplest level, sites are recorded as ‘closed’ or ‘open’. Closed sites are associated with rock shelters and include other evidence of Aboriginal occupation that may be present, such as areas where subsurface Aboriginal objects may occur within the shelter (‘potential archaeological deposit’ (PAD)), faunal remains, and art on the shelter walls (paintings/engravings). Open sites are broadly defined and encompass all other types of Aboriginal site features that are located in areas where there is no rock shelter. The most common open site features found generally include artefacts, grinding grooves, art, culturally modified trees, and shell deposits (middens) (OEH 2012). The presence or absence of stone artefacts is often a defining factor in site identification, with almost every site likely to have at least some associated artefacts, as discard or loss of this most ubiquitous and practically indestructible marker of past Aboriginal visitation.

Any one site (or group of linked sites described as a ‘complex’) can contain several different site features. For example, a shelter may have art on the walls, artefacts on the floor surface or outside the shelter, and be predicted to contain faunal remains and further artefacts in the accumulated deposit inside.

A description of terms used to describe different site features known to occur in the vicinity of the project area is provided in Table C.1 and use definitions provided by Heritage NSW and those adopted by EMM in their field investigations to ensure consistency in recording. Similarly, there may be places of contemporary significance to Aboriginal people in the region and that will require consultation with this community to identify.

Table C.1 Site definitions and recording

Site feature	Definition and recording methods
Aboriginal ceremony and Dreaming	Previously referred to as mythological sites these are spiritual/story places where no physical evidence of previous use of the place may occur; eg natural unmodified landscape features, ceremonial or spiritual areas, men’s/women’s sites, dreaming (creation) tracks, marriage places, etc.
Artefact site (open stone artefact site)	Objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating evidence of use of the area by Aboriginal people. Open stone artefact sites were defined by the presence of one (isolated find) or more (artefact scatter) stone artefacts visible on the ground surface. The boundaries of a site are limited to the spatial extent of the visible stone artefacts. The mapped site points and/or ‘site areas’ do not represent the areas of potential archaeological deposit (PAD) that also apply to some sites (refer to the term ‘PAD’ below). Open stone artefact sites were recorded by marking each artefact location or each cluster of artefacts within a 5 m radius as a separate waypoint in the GPS. Site boundaries were allocated by drawing a line around the cluster waypoints for each site using ArcGIS software. Stone artefacts more than 50 m apart were recorded as separate sites. EMM acknowledges that the 50 m rule applied here is an arbitrary distinction for site boundaries and is used mainly for efficiencies in site management and to establish consistency in site recording methods.

Table C.1 Site definitions and recording

Site feature	Definition and recording methods
Burials	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked; eg in caves, marked by stone cairns, in sand areas, along creek banks, etc.
Fish trap	A modified area on watercourses where fish were trapped for short-term storage and gathering.
Grinding grooves	Grinding grooves were defined as an area of outcropping bedrock containing evidence of one or more grinding grooves where ground-stone hatchets or other grinding practices (ie seed grinding) were implemented.
Habitation structure	Structures constructed by Aboriginal people for short- or long-term shelter. More temporary structures are commonly preserved away from the NSW coastline, may include historic camps of contemporary significance. Smaller structures may make use of natural materials such as branches, logs and bark sheets or manufactured materials such as corrugated iron to form shelters. Archaeological remains of a former structure such as chimney/fireplace, raised earth building platform, excavated pits, rubble mounds, etc.
Modified tree (carved or scarred)	<p>Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials shrouds, for medicinal purposes, foot holds, etc., or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area, again these carvings may also act as territorial or burial markers.</p> <p>Modified trees (either carved or scarred) can be difficult to identify. Scars commonly occur on trees through natural processes such a branch tears, insect damage, storm and fire damage and faunal damage. Scars can also occur from mechanical damage from vehicles or farming equipment.</p> <p>The attributes of potential scarred trees were discussed during the survey amongst archaeologists and RAPs before it was decided if a scar would be recorded or not. A precautionary approach was adopted, whereby some of the more ambiguous examples were recorded anyway. The assessment of scar trees was made from the experience of the survey team and the guideline <i>Aboriginal scarred trees in New South Wales: a field manual</i> (DEC 2005). In some of the more ambiguous examples, it cannot be verified whether some scars recorded during the survey are of natural or Aboriginal origin. In such instances, an expert evaluation by a scar tree expert (arborist or other) would be required to determine the status of certain trees.</p>

Table C.1 Site definitions and recording

Site feature	Definition and recording methods
Potential archaeological deposit (PAD)	<p>An area where Aboriginal objects may occur below the ground surface.</p> <p>The term ‘potential archaeological deposit’ was first applied in Sydney regional archaeology in the 1980s and referred to rock shelters that were large enough and contained enough accumulated deposit to allow archaeologists to predict that subsurface cultural material was likely to be present. Since then the term has come to include open sites where the same prediction can be made.</p> <p>EMM has defined PADs as the predicted extent of concentrated subsurface Aboriginal objects in a particular area. PADs are not technically Aboriginal sites until, and if, subsurface Aboriginal objects are identified, which is typically established through archaeological test excavation. PAD areas have been assigned to landforms that are distinguishable from the surrounding landscape (eg elevated areas with good outlook overlooking watercourses) as being likely to retain higher artefact densities than the assumed ‘background scatter’ of archaeological material in the broader landscape.</p> <p>The identification of PADs associated with Aboriginal open camp sites was partly based on observations in the field and discussions with RAPs, but also related to the predictive model. Although PAD was attributed to areas for a variety of reasons, the main qualifiers were:</p> <ul style="list-style-type: none"> • The presence of surface artefacts or other Aboriginal objects. Ground surface visibility as part of the archaeological survey effort was typically considered high enough in each PAD area to identify at least one or more surface artefacts thereby indicating likelihood of subsurface potential. Notwithstanding, finding no visible surface artefacts in an area would not disqualify an area from being attributed with PAD. • Level to gently inclined ground (<10%) indicating suitable camping or activity areas. • Contours that distinguish the landforms with PAD from the surrounding landscape (eg spur crest, hill crest or knoll). Landform boundaries were also interpreted through observations in the field. Notably, rocky crest landforms that were protected from intensive cultivation were often attributed with PAD. • Proximity to water: typically up to 100 m from 1st and 2nd order streams and up to 200 m from 3rd order streams and above. Elevated landforms at the confluence of higher order streams were also more likely to be attributed with PAD. <p>EMM acknowledges that all PAD areas have been historically cleared of native vegetation and some have been subject to pasture improvements such as ploughing. As such, the term PAD does not assume high subsurface integrity; instead it is a prediction of potential subsurface artefact concentrations.</p> <p>All stone quarry sites are predicted to have PAD. The assumption is that in most cases the visible surface material at quarries is represented by larger artefacts (such as cores) and that smaller material (eg flakes) is likely to be buried.</p>
Restricted	<p>Site information contained in the Aboriginal Heritage Information Management System is available only to certain authorised groups of people, as requested by the Aboriginal community. Detailed information may not be available in search reports.</p>
Shell	<p>An accumulation or deposit of shellfish from beach, estuarine, lacustrine or riverine species resulting from Aboriginal gathering or consumption. Usually found in deposits previously referred to as shell middens. Must be found in association with other objects like stone tools, fish bones, charcoal, fireplaces/hearths, and burials. Will vary greatly in size and composition.</p>

Table C.1 **Site definitions and recording**

Site feature	Definition and recording methods
Stone quarry	<p>Usually a source of good quality stone which is quarried and used for the production of stone tools.</p> <p>Stone quarries represent where Aboriginal people gathered raw stone materials for stone tools and/or manufactured stone tools from the adjacent source material. Quarry sites are found at rock outcrops where the material was of suitable quality to have been used to manufacture stone tools. Stone quarries were defined by the presence of outcropping stone material with nearby evidence of the same material type used in the stone tool manufacture process. This was most commonly indicated by large stone cores or stone flakes distributed amongst the same naturally outcropping material.</p> <p>EMM acknowledges that the 'open stone artefact' site type shares some of the same characteristics as 'stone quarries', such as the presence of stone artefacts. However, they have been distinguished from each other because quarries can not only represent open camping activities, but also a fixed location where Aboriginal people needed to visit to extract a resource. In contrast, the location of typical open camp sites were not fixed but chosen by Aboriginal people for their favourable conditions.</p>