

Volume

4

Balranald Mineral Sands Project

Commonwealth Environmental Impact Statement

Prepared for Iluka Resources Limited
July 2016

Appendix E - Non-Aboriginal Cultural Heritage Assessment

Appendix F - Rehabilitation and Closure Strategy

Appendix G - Water Assessment

Appendix H - Groundwater Dependant Ecosystems Assessment Report



Volume 1

Executive summary

Table of contents

Part A Introduction, site and context, regulatory framework and consultation

Part B Environmental impact statement

Part C Commitments and justification and conclusion

References

Acronyms and abbreviations

Appendix A Environmental impact statement guidelines

Appendix B Study team

Volume 2

Appendix C Biodiversity Assessment

Volume 3

Appendix D Aboriginal Cultural Heritage Assessment

Volume 4

Appendix E Non-Aboriginal Cultural Heritage Assessment

Appendix F Rehabilitation and Closure Strategy

Appendix G Water Assessment

Appendix H Groundwater Dependant Ecosystems Assessment Report

Volume 5

Appendix I Balranald Mineral Sands Project Groundwater Assessment

Appendix J Surface Water Management Report

Appendix K Geochemistry Assessment

Volume 6

Appendix L Radiation Risk Assessment

Appendix M Social Assessment

Appendix N Economic Assessment

Appendix E

Non-Aboriginal Cultural Heritage Assessment



Balranald Mineral Sands Project Pre-Feasibility Study

Non-Aboriginal Cultural Heritage Assessment



Report to Iluka Resources Limited
30 March 2012

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**Balranald Mineral Sands Project
Pre-Feasibility Study**

**Non-Aboriginal Cultural
Heritage Assessment**

Report to Iluka Resources Limited



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Executive Summary

Iluka Resources Limited (Iluka) is undertaking pre-feasibility studies (PFS) associated with the Balranald project to mine mineral sands at the West Balranald and Nepean Deposits within Exploration Licence EL7450, approximately 12 km northwest of Balranald in southwestern NSW.

As part of the pre-feasibility baseline environmental studies, Landskape was engaged by Iluka to identify possible non-Aboriginal (historical) cultural heritage objects or places within the proposed Balranald project area including areas associated with construction of mineral sands mines at the West Balranald and Nepean Deposits and ancillary infrastructure.

Non-Aboriginal (historical) cultural heritage in the Balranald region primarily relates to the arrival of European pastoralists and associated industries from the 1840s. No non-Aboriginal (historical) cultural heritage sites have previously been recorded in the Balranald project area. Predictive modelling derived from desktop review, complemented by a reconnaissance field survey of the study area, suggests that there is a low potential for significant historical cultural heritage to occur in the proposed Balranald Project area.

Contents

EXECUTIVE SUMMARY	ii
CONTENTS	iii
1 INTRODUCTION	1
1.1 Aims of the Investigation	1
2 CONTEXTUAL INFORMATION	4
2.1 Legislative Context	4
2.1.1 <i>Heritage Act 1977</i>	4
2.1.2 <i>Environmental Planning and Assessment Act 1979</i>	4
2.1.3 Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter).....	4
2.2 Environmental Context	5
2.3 Historical Cultural Heritage Context	6
2.3.1 First Exploration	6
2.3.2 Pastoral Settlement	6
2.3.3 Squatters	6
2.3.4 Selectors	7
2.3.5 World War One to Present	8
2.3.6 Types of Historical Cultural Heritage Sites in the Region.....	8
2.3.7 Previously Identified Historical Cultural Heritage in the Study Area	10
3 FIELD INSPECTION METHODOLOGY	11
3.1 Cultural Heritage Predictive Statement	11
3.2 Field Inspection Logistics	11
4 FIELD INSPECTION RESULTS	12
5 DISCUSSION	14
6 REFERENCES	15

List of Figures

Figure 1. Location of the West Balranald and Nepean mineral sands deposits (<i>source:</i> Iluka).	2
Figure 2. Potential disturbance areas associated with the Balranald Project (<i>source:</i> Iluka).	3
Figure 3. Woolshed on Tin Tin Station east of the Balranald project area <i>circa</i> 1925 (<i>source: Museum Victoria</i>).	9
Figure 4. Woolshed on Paika Station east of the Balranald project area <i>circa</i> 1925 (<i>source: Museum Victoria</i>).	9
Figure 5. Inferred route of the Burke and Wills Expedition on Tin Tin Station, with Ron Hoare (landholder, Tin Tin Station) to right (GDA94 Zone 54 730864 mE, 6186620 mN)	12
Figure 6. Water supply channel built <i>circa</i> 1890s by Alan and Walter McPherson on Tin Tin Station, with Ron Hoare (landholder, Tin Tin Station) in foreground (GDA94 Zone 54 730477 mE, 6188709 mN).....	13

List of Tables

Table 1. Land tenure of the Balranald project area..... 8

Table 2. Previously identified historical cultural heritage features near the Balranald project area..... 10

Conversions

Measures

In this study imperial units for common measurements are used until 1970 when the present metric system was introduced.

1 foot (ft)	=	0.30 m
1 chain (ch)	=	20.11 m
1 mile	=	1.61 km
1 acre	=	0.405 ha
1 square mile	=	2.59 km ²
1 acre-foot	=	1.233 ML
1 cubic foot	=	28.3 L

Monetary Values

Before 1966, Australian currency was expressed in pounds, shillings and pence (£ s d). The following form is used: £2 13s 6d.

Acknowledgments

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- Sarah Cohen, Maria Fantasia (Iluka)
- Ron Hoare (Tin Tin Station)
- Sue Morton (Pine Lodge Station)
- Bruce Williams (Karra Station).

1 Introduction

Iluka Resources Limited (Iluka) is undertaking pre-feasibility studies (PFS) associated with the Balranald project to mine mineral sands at the West Balranald and Nepean Deposits within Exploration Licence EL7450, approximately 12 km northwest of Balranald in southwestern NSW (Figures 1 and 2).

As part of the pre-feasibility baseline environmental studies, Landskape was engaged by Iluka to identify possible non-Aboriginal (historical) cultural heritage objects or places within the proposed Balranald project area including areas associated with construction of mineral sands mines at the West Balranald and Nepean Deposits and ancillary infrastructure.

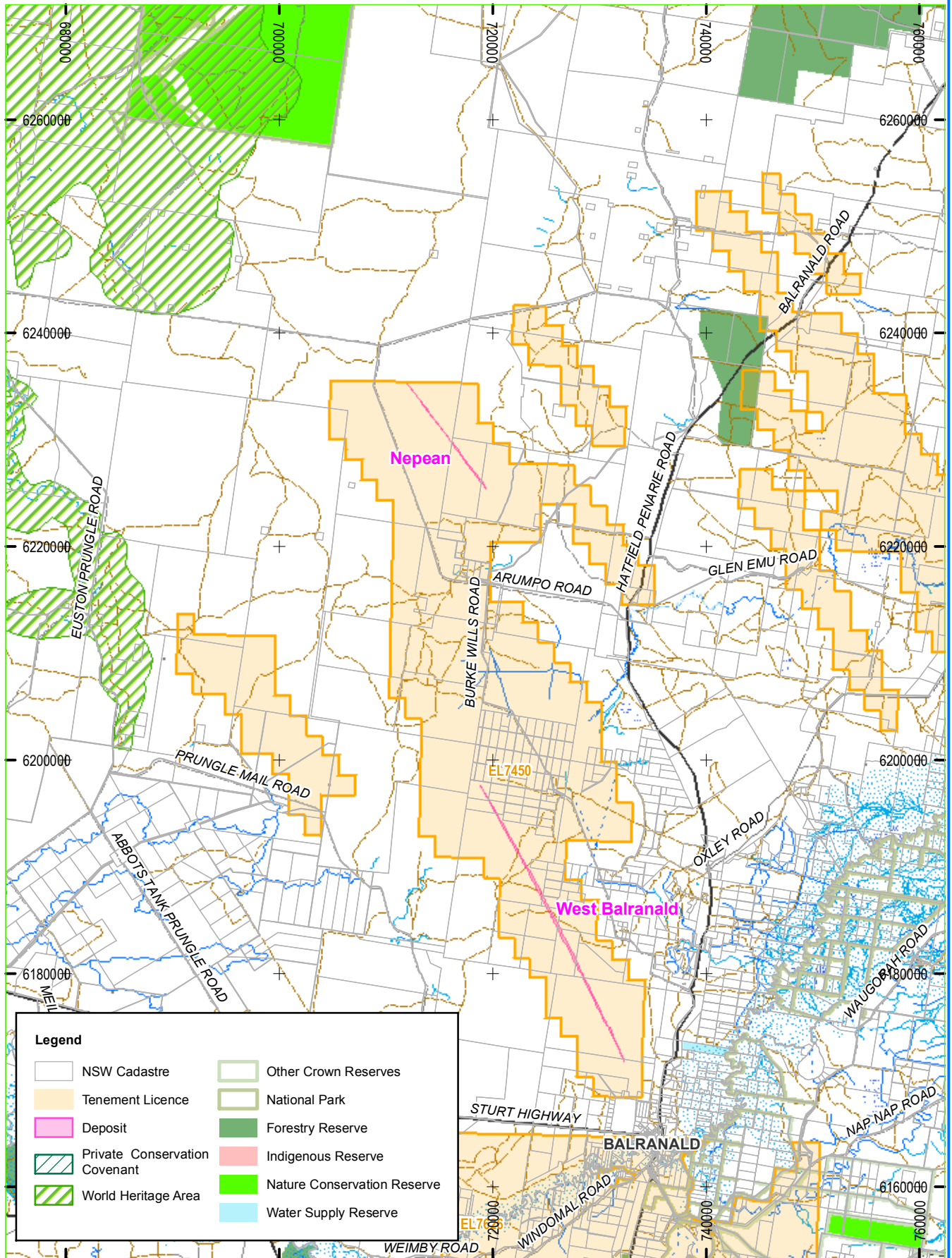
1.1 Aims of the Investigation

The aim of this preliminary non-Aboriginal (historical) cultural heritage investigation was to prepare a general statement identifying known historical cultural heritage places and objects and any areas of archaeological potential within the proposed Balranald project area. Statutory requirements pertaining to cultural heritage were also examined to determine their applicability to the Balranald project.

Preparation of this scoping study involved review of the *Environmental Planning and Assessment Act 1979* and *Heritage Act 1977*. Any historical cultural heritage places or objects recorded previously in the proposed Balranald project area were identified by searching the State Heritage Register of the NSW Heritage Council and Local Environmental Plan (LEP) of the Balranald Shire Council.

A general predictive model examining possible cultural heritage site locations within the proposed development areas was formulated from this and other relevant archaeological, historical and environmental data. Preparation of this model also involved the use of topographic and geological maps and aerial photographs to identify landscape features likely to contain archaeological sites.

A field inspection of the proposed Balranald project area was undertaken to complement the predictive model of the desktop assessment.



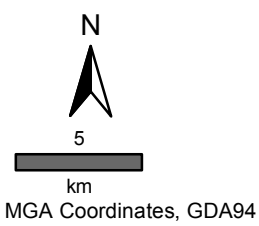
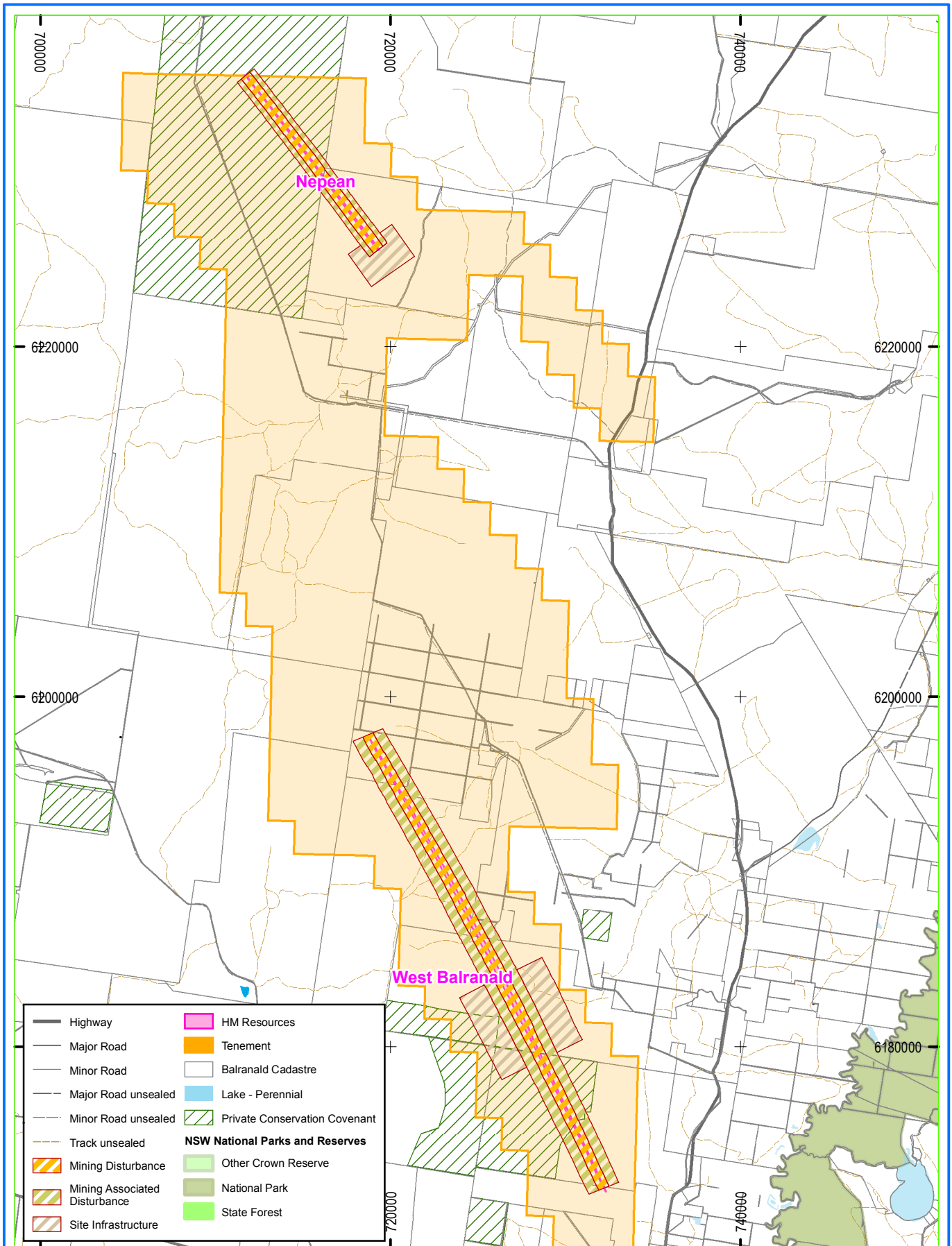
Legend

NSW Cadastre	Other Crown Reserves
Tenement Licence	National Park
Deposit	Forestry Reserve
Private Conservation Covenant	Indigenous Reserve
World Heritage Area	Nature Conservation Reserve
	Water Supply Reserve



Regional location map

West Balranald and Nepean Deposits



BALRANALD PROJECT

West Balranald and Nepean Mine Footprint



2 Contextual Information

2.1 Legislative Context

All historical sites in New South Wales are protected by the NSW *Heritage Act 1977* and the *Environmental Planning and Assessment Act 1979*. These Acts prohibit the wilful destruction or disturbance of any cultural heritage site, place or object, whether on private or public land. These places are considered to have significance according to the guidelines of the *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (the Burra Charter).

The Heritage Branch of the Office of Environment and Heritage is the NSW State Government agency that administers these Acts.

2.1.1 *Heritage Act 1977*

Historical sites in NSW are protected by the *Heritage Act 1977*. The act is designed to conserve places or items of historic, scientific, cultural, archaeological, natural or aesthetic significance to local communities or to the State. Items of particular importance are listed on the State Heritage Register. The Heritage Council of NSW is responsible for ensuring that listed sites are protected. Major changes to a heritage site require the approval of the Heritage Council.

2.1.2 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* also recognizes the need to protect the cultural and natural heritage of New South Wales. It complements the *Heritage Act 1977* in that it provides for planning before development and it obliges the developer to consult persons with relevant expertise or experience (Bowdler 1983:14). The heritage scope of this legislation is wider than that of the *Heritage Act 1977* and it protects sites of significance to contemporary communities.

2.1.3 **Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter)**

The *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (Burra Charter) was adopted in 1979 (latest update 1999). This charter defines the procedures and basic principles to be followed in the preservation of all types of sites, for example, Aboriginal shell middens, ancient camp sites represented by stone artefact scatters, or historic mining shafts. These places are considered to have cultural significance to Australians. Cultural significance is a term used to encompass all the

meanings and values that a particular place may have to people, beyond its utilitarian value. It refers to 'aesthetic, historical, scientific or social value for past or present generations, or for its likely value to future generations' (Marquis-Kyle and Walker 1992: 73).

Under the guidelines of the Burra Charter, any historical sites found in the proposed Balranald project area would have social value. According to the charter, social value is defined as:

...the qualities for which a place has become a focus of spiritual, political, national, or other cultural sentiment to a majority or minority group (Marquis-Kyle and Walker 1992: 73)

Any sites found in these proposed development areas could also have scientific value. This is assessed according to each particular site's research or scientific potential to provide information about Australian culture, the environment, or human behaviour generally. According to *the Burra Charter*:

The scientific or research value of a place will depend upon the importance of the data involved or its rarity, quality or representativeness and on the degree to which the place may contribute further substantial information (Marquis-Kyle and Walker 1992: 73).

2.2 Environmental Context

The Balranald project area consists of two mineral sands deposits - the West Balranald and Nepean deposits - located in dunefields and plains north of the Murrumbidgee River approximately 12 km northwest of Balranald in southwestern New South Wales. The Murrumbidgee River is a regulated permanent stream course with associated lakes and wetland areas. This fluvio-lacustrine system lies within the Riverine Plain of the Murray Basin. Climate is semi-arid, receiving approximately 315 mm of rainfall per annum (Bureau of Meteorology 2012). The surface geology of the region is mostly aeolian (wind-lain) sediments, while underlying sequences within the basin were deposited by shallow seas and lakes over the past 60 million years (Brown and Stephenson 1991).

Aeolian landforms of the Balranald project area comprise linear dunes, which are subdued, elongated sandy ridges with rounded crests; or sandplains, which are low, undulating regions of irregular sandy hummocks. The dunefields and sandplains are vegetated by mosaics of Mallee (*Eucalyptus* spp.) tall shrublands, Belah (*Casuarina pauper*) — Rosewood (*Alectryon oleifolius*) — Wilga (*Geijera parvifolia*) low-open woodlands and Bluebush (*Maireana* spp) low-open shrublands (Soil Conservation Service 1980, 1991).

2.3 Historical Cultural Heritage Context

2.3.1 First Exploration

Captain Charles Sturt was the first European to visit the lower Murrumbidgee River, passing by the site where the town of Balranald is now located in early January 1830 and reaching the junction of the Darling River with the Murray River on 14 January 1830 during his 1829-1831 expedition of the Murrumbidgee and Murray Rivers (Sturt 1982 [1833]). Surveyor-General of New South Wales Major Thomas Livingstone Mitchell camped at what later became the town of Balranald on 16 May 1836 during his southeastern Australian survey expedition (Mitchell 1839).

2.3.2 Pastoral Settlement

Within a couple of years of Mitchell's expedition, the routes along the Murrumbidgee and Murray were used to drive cattle overland from the colony of NSW to Adelaide. Joseph Hawdon and Charles Bonney were the first of the so-called 'overlanders' in 1838 (Kain 1991). They were closely followed by other overland expeditions led by Sturt and Edward John Eyre. Overlanders driving mobs of cattle to the colony of South Australia soon became a regular occurrence in the region.

Pastoralists brought sheep to the region soon after Eyre's 1844 exploration of southwestern NSW. This led to reports of land suitable for grazing. George Hobler claimed the entire northern reach of the Murrumbidgee River from the Lachlan to the Murray in March 1845, establishing a homestead at Paika Lake to the east of the Balranald project area (Feldtmann 1976). Government surveyor Francis P. McCabe made the first surveys of the region in 1847 and the Darling Pastoral District was declared at the end of that year. George James McDonald was appointed the first Commissioner for Crown Lands for the district. McDonald was from Balranald in the Outer Hebrides and named the town of Balranald to the south of the Balranald project area, which was gazetted in April 1851 (Feldtmann 1976).

2.3.3 Squatters

Establishment of the Darling Pastoral District in December 1847 legitimized squatting, with William Charles Wentworth taking up the Paika lease, encompassing most of the Balranald project area, in October 1848 (Feldtmann 1976). Paika had 33 miles of Murrumbidgee River frontage and by 1851 carried 11,000 fine woollen sheep. Augustus Morris managed the property for Wentworth, purchasing it from him 1853. Morris was a prominent member of the local community, representing Balranald in the NSW Legislative Assembly from 1859 to 1864 (Barnard 1974).

It was during Morris' ownership of Paika that the Victorian Exploring Expedition led by Robert O'Hara Burke with third in command William John Wills passed through the Balranald project area (Wills 1860, Feldtmann 1976). Burke and Wills camped at Balranald on 15 and 16 September 1860 before heading north to Paika station on 17 September 1860 (Wills 1860). The expedition camped one mile south of the homestead and on 18 September 1860 travelled northwest to an outstation of Paika at Tinn (Tin Tin Station). The following day they moved further northwest to another Paika outstation at Tcherickenkom (Bidura Station) before heading west to the Darling River via the Prungle Lakes and Arumpo Station (Wills 1860).

The decline in the meat market and drought in 1864-65 led to Morris' bankruptcy and the forced sale of his stations including Paika in 1866 (Barnard 1974). Walter Macfarlane and William Webster held the lease until 1872, when it was taken over by Peter McPherson (Feldtmann 1976, Bodinaar 1999).

The southwestern section of the Balranald project area was part of the 343,000 acre Canally Station. John Scott squatted on the land from the 1840s, with Nicholas Chadwick holding the pastoral lease from 1857-1872 (Feldtmann 1976, Bodinaar 1999). In 1872, Canally was bought by James F. Maguire and Edward Cohen, and in 1887 was purchased by Alexander Lawrence.

2.3.4 Selectors

A policy of closer settlement was pursued over the second half of the nineteenth century with the passing of the 1861 and 1884 *Crown Lands Acts*. Most (324,500 acres) of the old pastoral holding of Canally and over half (173,570 acres) of Paika were resumed, subdivided and reallocated as perpetual Western Lands Leasehold in February and June 1886 (NSW Department of Lands no date).

Land reform was designed to break the domination of land tenure by a few wealthy individuals, but this failed to stop the establishment of pastoral agglomerations. For example, Peter McPherson's sons Alan John McPherson, Charles Richard McPherson and Walter Alexander McPherson took up many of the Western Lands Leases totalling some 194,844 acres over the Balranald project area (now Tin Tin, Karra and Paika Stations) (NSW Department of Lands 1934). The Canally Pastoral and Agricultural Company Pty Ltd also bought up Western Lands Leases 3046, 3047, 3048, 3051 and 3053, which were retained as Canally Station (now Karinya Station).

The remainder of the Balranald project area was covered by Western Lands Lease 7893 held by David Buchanan as Bidura Station (now Wampo Station); 5506 and 5875 held by Hugh Curphey (now Hugh Dale and Pine Lodge Stations); 1108 held by William

Hinde (now Auley Station); and 1103, 1553, 1387 by John Murphy and Joseph Rodgers (now Wintong Station) (NSW Department of Lands 1934).

2.3.5 World War One to Present

At the end of World War One (1914-1918), sections of Paika near Pitarpunga Lake were subdivided into allotments as small as 320 acres in size as part of a Soldier Settlement Scheme to be allocated to returned servicemen (Ron Hoare *personal communication* 13 February 2012). These parcels were too small for economically viable agriculture and then-owner of Paika Fred Grabau purchased the freehold title. These areas now form part of Tin Tin Station.

Current land tenure of the Balranald project area is summarised in Table 1.

Table 1. Land tenure of the Balranald project area.

Property Name	Property Owner
Auley Station	Balranald Local Aboriginal Land Council
Karinya Station	Paul Gillbee
Hugh Dale Station	Sam Lanteri
Karra Station	Bruce Williams
Pine Lodge	Peter and Sue Morton
Tin Tin Station	Ron Hoare
Wampo Station	Anthony Curran
Wintong Station	Phillip Pippin

2.3.6 Types of Historical Cultural Heritage Sites in the Region

The types of historical heritage sites that occur in the southwestern NSW include:

2.3.6.1 Pastoral Sites

Historical heritage sites in the farming regions of southwestern NSW mostly relate to the arrival of European graziers and associated industries from the second half of the nineteenth century. Old homesteads and associated structures such as work sheds, shearing sheds and labourer's quarters are examples of historical heritage sites that may be encountered (Figures 3, 4). Less conspicuous sites include survey markers, particularly those blazed on Eucalypt and White Pine trees, which are also of historical interest.

2.3.6.2 Urban Sites

Towns in southwestern NSW contain historically significant commercial, public and residential buildings from the nineteenth and early twentieth centuries. Examples include railway stations, municipal halls, churches, libraries, schools and courthouses.

Parks, gardens and cemeteries including the monuments, grave markers and other structures they contain also have historical significance.

2.3.6.3 Transport Sites

Small bridges made from River Red Gum timber or calcrete cobbles may occur in the region. Shipping sites along the Darling, Murray, Murrumbidgee and Lachlan Rivers comprise the wrecks of old boats and barges, wharves and jetties, ferry and punt landings, shipbuilding yards and locks and weirs. Historical mileage markers and navigation markers may also be encountered.



Figure 3. Woolshed on Tin Tin Station east of the proposed Balranald project area *circa* 1925 (source: *Museum Victoria*).



Figure 4. Woolshed on Paika Station east of the proposed Balranald project area *circa* 1925 (source: *Museum Victoria*).

2.3.7 Previously Identified Historical Cultural Heritage in the Study Area

There are no registered historical cultural heritage sites in the proposed Balranald project area. The closest historical feature on the State Heritage Register (SHR) of the Heritage Council under the *Heritage Act* 1977 is the Willandra Lakes region, which is also listed on the Environmental Plan (LEP) of the Balranald Shire Council, the local government area encompassing the proposed Balranald project area (NSW Heritage Branch 2012). The historical significance of the Willandra Lakes region stems in part from the role it played in the history of inland exploration, with the Burke and Wills expedition passed south of Lake Mungo in 1860 (Wills 1860, Becker 1979 [1860-1861], Beckler 1993 [1860], Colwell 1971) and of the development of the pastoral industry in western NSW. The Willandra Lakes are approximately 15 km northwest of the proposed Balranald project area (Table 2).

The closest historical feature on the Balranald Shire Council LEP is the 1929 Balranald Fire Station in Market Street, Balranald, approximately 13 km south of the Balranald project area.

Table 2. Previously identified historical cultural heritage features near the proposed Balranald project area.

NSW Heritage Database Number	Site	Distance from Project Area
4690059	Balranald Fire Station	~13 km south
5045538	Willandra Lakes	~15km northwest

3 Field Inspection Methodology

In accordance with standard archaeological practice and the *NSW Heritage Manual* (NSW Heritage Office 1996) a project design and survey methodology was prepared as a key component of the cultural heritage assessment.

3.1 Cultural Heritage Predictive Statement

Any historical cultural heritage sites in the proposed Balranald project area were anticipated to most likely relate to early pastoral activities of the last half of the nineteenth century or the first half of the twentieth century. Site types that had the potential to occur included dwellings and outbuildings, discarded farm machinery and blazed survey marks. These features are most regularly encountered at pastoral homesteads.

The probability of encountering historical sites in the proposed Balranald project area was considered low, given that it does not encompass any current homesteads, where non-Aboriginal (historical) cultural heritage could be expected. Additionally, examination of historical pastoral maps did not reveal any previous pastoral homesteads in the proposed Balranald project area.

3.2 Field Inspection Logistics

Project historian Dr Matt Cupper conducted reconnaissance field inspections of parts of the proposed Balranald project area on 19-20 April 2011 and 13 February 2012. This involved driving along the West Balranald and Nepean Deposits, Burke and Wills Road to the east of the Balranald project area and across the centre of the Balranald project area to Karra Station.

During the field visit on 13 February 2012, Dr Cupper held discussions with Ron Hoare landholder of Tin Tin Station, Bruce Williams of Karra Station and Sue Morton of Pine Lodge Station to ascertain whether they were aware of any historical heritage sites in the study area.

4 Field Inspection Results

No non-Aboriginal (historical) cultural heritage sites were observed in the Balranald project area. Ron Hoare landholder of Tin Tin Station identified the inferred path of the 1860 Burke and Wills expedition (Figure 5) and an earthen water supply channel built by Alan and Walter McPherson in the 1890s (Figure 6) as features of historical interest. These are both outside the Balranald project area.



Figure 5. Inferred route of the 1860-61 Burke and Wills Expedition on Tin Tin Station, with Ron Hoare (landholder, Tin Tin Station) (GDA94 Zone 54 730864 mE, 6186620 mN)



Figure 6. Water supply channel built *circa* 1890s by Alan and Walter McPherson on Tin Tin Station, with Ron Hoare (landholder, Tin Tin Station) in foreground (GDA94 Zone 54 730477 mE, 6188709 mN)

5 Discussion

Non-Aboriginal (historical) cultural heritage in the Balranald region primarily relates to the arrival of European pastoralists and associated industries from the 1840s. No non-Aboriginal (historical) cultural heritage sites have previously been recorded in the Balranald project area proposed for construction and operation of mineral sands mines and ancillary infrastructure at the West Balranald and Nepean deposits. Predictive modelling derived from desktop review, complemented by a reconnaissance field survey of the study area suggests that there is a low potential for significant historical cultural heritage to occur in the proposed Balranald project area.

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