



APPENDIX 12

Historical Heritage Assessment



**Ravensworth
Operations**

Managed by



Ravensworth Operations Pty Limited

Ravensworth Operations Project Historical Heritage Assessment

January 2010



Ravensthorpe Operations Project Historical Heritage Assessment

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Ravensthorpe Operations Pty Limited

| | | |
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1.0 Introduction

Ravensworth Operations Pty Limited (Ravensworth Operations) operates the Ravensworth West and Narama Mines, located between Singleton and Muswellbrook in the New South Wales (NSW) Upper Hunter Valley (refer to **Figure 1.1**). Ravensworth Operations proposes to continue open cut mining within its existing mine leases, and expand operations by accessing additional coal resources as part of the Ravensworth Operations Project (the 'project'). The project also includes the integration of a number of existing operations, including Narama, Ravensworth West, Cumnock and Ravensworth Underground Mines. The project is identified as a Part 3A Project as defined by the State Environmental Planning Policy Major Projects 2005, and requires the approval of the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979*.

Umwelt (Australia) Pty Limited (Umwelt) has been commissioned by Ravensworth Operations to prepare an Environmental Assessment (EA) for the project, with this European heritage assessment undertaken as part of the EA. This report examines the European heritage issues associated with the project with the aim of assessing and evaluating the potential heritage impacts associated with the project. The report identifies the heritage sites contained within the project area and assesses the significance of any impacts on these sites potentially resulting from the project.

This assessment has been undertaken in accordance with guidelines set out in the *NSW Heritage Manual 1996*, produced by the Heritage Branch, Department of Planning (DoP), including *Archaeological Assessments* and *Assessing Heritage Significance* and with consideration of the principles contained in the *Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance*.

This report does not include an assessment or consideration of any Aboriginal heritage issues of the project area. Aboriginal heritage issues are discussed in a separate report prepared by Umwelt (Umwelt 2009b).

1.1 Statutory Overview

The *Heritage Act 1977* (NSW) and the *Environmental Planning and Assessment Act 1979* (EP&A Act) are the primary statutory controls protecting European/historic heritage within New South Wales. As the project is defined as a 'Major Project', the Minister for Planning will be the determining authority and the relevant approval provisions of the *Heritage Act 1977* (NSW) and local planning instruments established under the EP&A Act do not apply.

However, this does not exempt the project from requiring a heritage assessment, which may identify heritage sites and provide recommendations for their management. The Director-General's Requirements (DGRs) for the project require an assessment of the potential impacts of the project on the historic heritage values of the project area. Approval conditions relating to heritage may be issued by DoP in consultation with the Heritage Council of NSW and delegate officer of the Heritage Branch, Department of Planning. As such, the project will still be influenced by the approval requirements of the *Heritage Act 1977* (NSW) and any relevant planning instruments established under the EP&A Act.



FIGURE 1.1
Locality Plan

1.2 Heritage Listings

As part of this assessment a review of relevant databases of heritage items in the local area was undertaken including:

- the Australian Heritage Database maintained by the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA);
- the State Heritage Register (SHR) and State Heritage Inventory maintained by the NSW Heritage Council;
- the Register of the National Trust (NSW);
- the Singleton Local Environmental Plan 1996; and
- the Register of the National Estate (RNE).

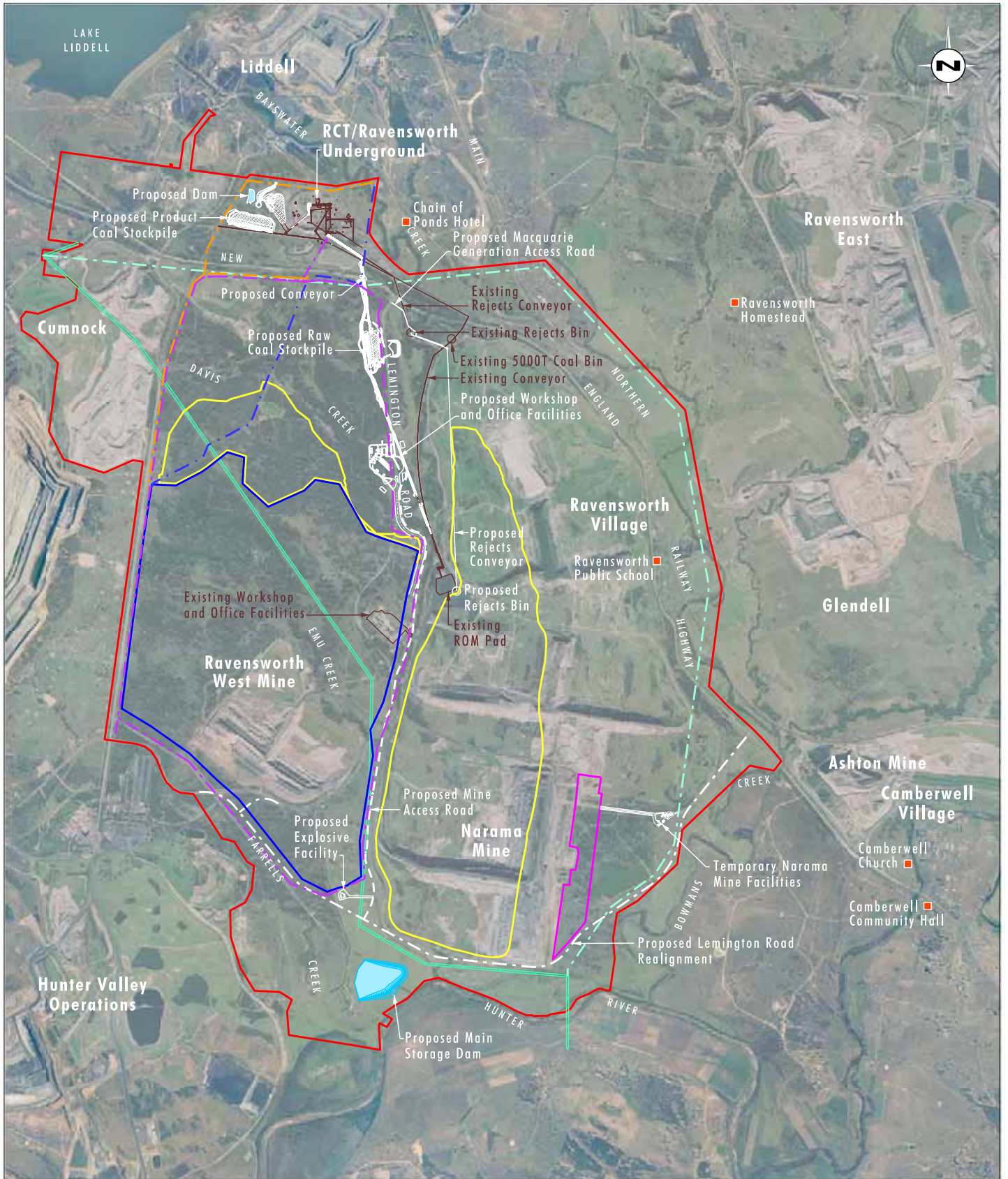
The review identified the following heritage listing within the project area but outside of the proposed disturbance area:

- Singleton Local Environmental Plan 1996 (LEP) Schedule 3 Heritage Items, Part 3 Items classified as being of local significance – Ravensworth Public School, New England Highway

In addition, there are several heritage items in the vicinity of the project area with relevance to the history of the area. These include:

- State Heritage Register Listing No. 00242 – Inn & Outbuildings (former) Old New England Highway, Chain of Ponds, NSW.
- Singleton Local Environmental Plan 1996 (LEP) Schedule 3 Heritage Items, Part 1 Items classified as being of state significance – Former Chain of Ponds Hotel, Old Singleton Road, Liddell.
- Register of the National Estate (RNE) Place ID: 1400 – Chain of Ponds Hotel and Outbuildings, Old Singleton Rd, Liddell, NSW, Australia.
- National Trust of Australia (NSW) register - Chain of Ponds Hotel and Outbuildings, Liddell NSW.
- Singleton Local Environmental Plan 1996 (LEP) Schedule 3 Heritage Items, Part 2 Items classified as being of regional significance – Ravensworth Homestead, Ravensworth.
- Register of the National Estate (RNE) Place ID: 101927 – Ravensworth Homestead, Hebden Rd, Ravensworth, NSW, Australia.
- Singleton Local Environmental Plan 1996 (LEP) Schedule 3 Heritage Items, Part 3 Items classified as being of local significance – St. Clements Anglican Church, Camberwell
- Singleton Local Environmental Plan 1996 (LEP) Schedule 3 Heritage Items, Part 3 Items classified as being of local significance – Community Hall (C.I.), Camberwell.

Figure 1.2 shows the location of the listed items in relation to the boundary of the project area.



Source: Ravensworth Operations 2009

0 1.0 2.0 3km
1:60 000

Legend

- | | |
|---|---|
| Project Area | Existing Infrastructure |
| Ravensworth North Pit | Proposed Infrastructure |
| Out of Pit Overburden Emplacement | Existing EnergyAustralia 66kV Powerline |
| Narama Extended (subject to separate approval) | Proposed EnergyAustralia 66kV Powerline |
| Existing 330kV Transmission Line | Ravensworth Operations 66kV Realignment |
| Proposed 330kV Transmission Line | ■ Historic Heritage Sites |
| Proposed Lemington Road Realignment | |
| Proposed Mine Access Road | |

FIGURE 1.2

Locations of listed Heritage Items within and in the Vicinity of the Project Area

2.0 Ravensworth Operations Project Overview

Ravensworth Operations is comprised of the Ravensworth West Mine and Narama Mine, located between Singleton and Muswellbrook, NSW. There has been an extended history of mining operations in this area since the 1970s. Current mining operations, including Ravensworth West Mine and Narama Mine, have been operating since the early 1990s.

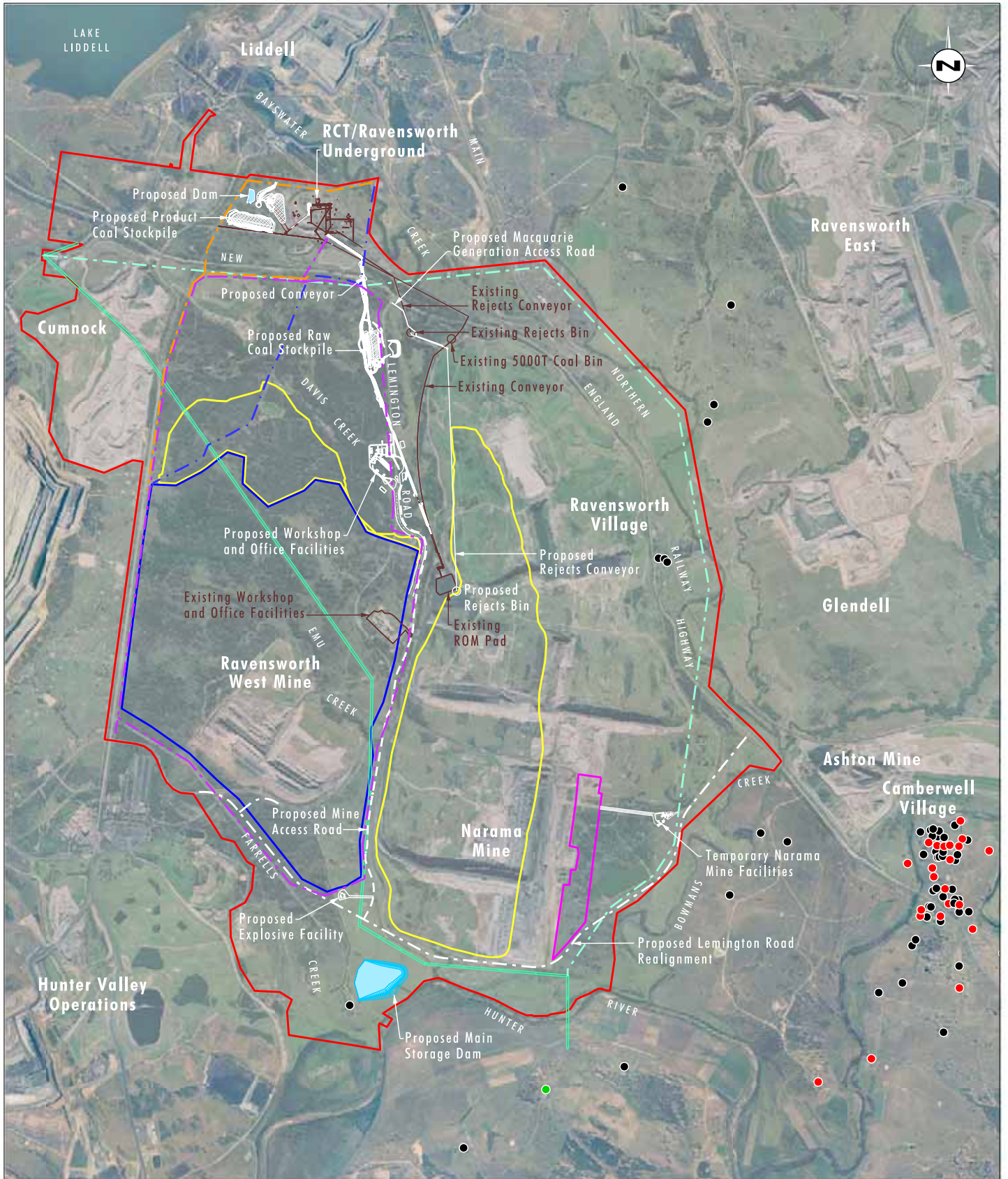
Ravensworth Operations has undertaken an extensive coal exploration program within its mining leases, which has identified a significant coal resource within the Ravensworth area. The extent of this resource indicates sufficient reserves to enable continuation of open cut mining operations for a further 20 to 30 years.

The project proposes to access these coal resources through continued open cut mining within existing mine leases and access of additional mining areas, to provide for continued mining operations for a further 29 years. The project includes the integration of a number of existing operations, including Narama, Ravensworth West, Cumnock and Ravensworth Underground Mines.

Key features of the project are provided in **Table 2.1**. Key features of the project are shown in **Figure 2.1**.

Table 2.1 – Overview of the Ravensworth Operations Project

| Major Project Components/Aspects | Proposed Operations |
|----------------------------------|---|
| Limits on Extraction | Up to 16 million tonnes per annum (Mtpa) run-of-mine (ROM) coal |
| Capital Expenditure | \$750,000,000 |
| Mine Life | Up to 29 years from granting of approval |
| Operating Hours | 24 hrs/day, 7 days/week |
| Number of Employees | Approximately 550 full time equivalents |
| Mining Methods | Open cut mining using dragline and truck and shovel |
| Mining Areas | Extension of existing operations and additional open cut mine and out-of-pit dump areas |
| Infrastructure | <ul style="list-style-type: none"> • Upgrade/expansion of existing Ravensworth Operations mine infrastructure area • New surface infrastructure facilities and workshop building north of Davis Creek (where required) • New ROM coal conveyor system and raw coal stockpile • Construction of temporary employee, maintenance and equipment storage facilities for existing Narama mining facilities • Expansion and upgrade of the Ravensworth Coal Terminal (RCT) / Ravensworth Coal Handling and Preparation Plant (RCHPP) to process and transport up to 20 Mtpa ROM coal from Ravensworth Operations and Ravensworth Underground • Expansion of rail load out infrastructure and capacity at RCT/RCHPP • Realignment of existing 330 kV line • Upgrade/expansion of Ravensworth Underground Mine surface infrastructure |
| Tailings Strategy | <ul style="list-style-type: none"> • Tailings emplacement in former Cumnock open cut, Ravensworth South and Narama voids • Co-disposal of tailings with overburden |



Source: Ravensworth Operations 2009

0 1.0 2.0 3km
1:60 000

Legend

- ▬ Project Area
- ▬ Ravensworth North Pit
- ▬ Out of Pit Overburden Emplacement
- ▬ Narama Extension (subject to separate approval)
- ▬ Existing 330kV Transmission Line
- ▬ Proposed 330kV Transmission Line
- ▬ Proposed Lemington Road Realignment
- ▬ Proposed Mine Access Road
- ▬ Existing Infrastructure
- ▬ Proposed Infrastructure
- ▬ Existing EnergyAustralia 66kV Powerline
- ▬ Proposed EnergyAustralia 66kV Powerline
- ▬ Ravensworth Operations 66kV Realignment
- Mine Owned Residence
- Private Residence
- Private Residence with Agreement

File Name (A4): R14_V1/2383_246.dgn

FIGURE 2.1

Ravensworth Operations Project

Table 2.1 – Overview of the Ravensworth Operations Project (cont)

| Major Project Components/Aspects | Proposed Operations |
|----------------------------------|--|
| External Coal Transport | <ul style="list-style-type: none"> • Use of RCT/RCHPP and transport of product coal via the Main Northern Railway line • Use of existing conveyor system for transport of coal to domestic power generators |
| Road Diversions | <ul style="list-style-type: none"> • Realignment of Lemington Road requiring the upgrade of the existing intersection with the New England Highway approximately 6 kilometres south-east of the current Lemington Road intersection |
| Water Management | <ul style="list-style-type: none"> • Construction of a new mine water storage dam • Construction of clean water diversions and management controls, including the diversion of Emu Creek around the proposed mining area • Construction of mine water management controls, including drains, pipelines and water storages |

A key feature of the project is the establishment of a multi-seam open cut mining operation to the west of Bayswater Creek (refer to **Figure 2.1**). This pit is known as the proposed Ravensworth North Pit and will incorporate the existing Ravensworth West open cut pit. The existing Narama open cut pit will also be integrated into the project, however active mining at this operation will cease during the initial stages of the project.

ROM coal will be transported via the conveyors shown on **Figure 2.1** to either local domestic power generators or the Ravensworth Coal Terminal (RCT), where it will be processed for sale.

The project will maximise the use of existing infrastructure through the integration and upgrade of the RCT and Ravensworth Underground Mine surface infrastructure facilities. The project also includes the construction of a new mine infrastructure area and a water storage dam within the southern extent of the project area (refer to **Figure 2.1**). An existing 330 kV transmission line and Lemington Road, a local public road, will be relocated as part of the project (refer to **Figure 2.1**).

Ravensworth Operations has undertaken detailed concept and pre-feasibility studies for the project and considered numerous mine and infrastructure plans. Early conceptual mine plans for the project included mining and out of pit overburden emplacement areas extending to the northern extent of the project area, requiring the removal of Davis Creek. In response to the identification of a number of ecological and archaeological constraints, including grinding groove sites, along Davis Creek, a decision was made early in the design process to limit mining operations to the south of Davis Creek.

3.0 Historical Background

As part of NSW heritage assessment procedures it is essential to have a full understanding of a site or item based on its historical and physical context. This section of the report provides a historical context for the project area and its broader locality to provide an understanding of the significance of any heritage sites within the project area.

The upper Hunter Valley of NSW has an extensive history of research, and in recent decades, has become one of the most intensively studied regions in NSW with numerous studies conducted in advance of proposed mining activity. This body of research has been focused predominantly on Aboriginal heritage associated with Aboriginal archaeological surveys and excavations. However, there are number of heritage reports relevant to the historical heritage of the project area and the surrounding region. The context below has been prepared using relevant information included in the following reports:

- *Environmental Impact Statement for Narama Coal Mine*. Prepared by Envirosiences Pty Limited for Narama Joint Venture (Envirosiences 1990).
- *Ravensworth, A history*. Prepared by C. Hunter (1997) for EJE Architecture on behalf of Glendell Coal Joint Venture (Hunter 1997).
- *Extension of Mining Operations at Ravensworth Mine Environmental Impact Statement*. Prepared by ERM Mitchell McCotter for Peabody Resources Limited (ERM 1997).
- *Cumnock No.1 Colliery Mine Life Extension Environmental Impact Statement*. Prepared by HLA Envirosiences for Cumnock No.1 Colliery (HLA 2001).
- *Investigation of Historic Archaeology and Archival Recording–Haul Road Footprint, Ravensworth West Mining Operations*. Prepared by Umwelt on behalf of Ravensworth Operations (2005a).
- *Historical Heritage Assessment for Modification of Glendell Mine Operations*. Prepared by Umwelt for Xstrata Mt Owen (2005b).

In addition, research undertaken by Rob Tickle of the Muswellbrook Local & Family History Society Inc has been utilised during the preparation of this report.

3.1 European Contact

The Central Lowlands of the Hunter Valley is the traditional country of the Wonnarua people, one of the 600 different clan groups or 'nations' present in Australia at the time of European contact. Although early records on traditional tribal boundaries are limited, it is understood that the country of the Wonnarua was centered on the Upper Hunter Valley. Records also identify that the Wonnarua were closely affiliated with the Kamilaroi, whose country extended from the west as far south as Jerry's Plains according to some early authors (Threlkheld 1892, Matthew 1903). Other early authors, such as Howitt (1904:104), further describe the Geawegal (part of the Kamilaroi 'nation') as occupying the eastern side of the Hunter Valley, from Ravensworth to Murrurundi (Brayshaw 1986:51). The Wonnarua also had close connections with other surrounding groups, such as the Awabakal centred on Lake Macquarie and the Worimi north of the Hunter River. There was apparently considerable contact between all of these groups, with social links connecting coast and inland (Brayshaw 1986:51).

With the arrival of European settlers in the nineteenth century, traditional patterns of Aboriginal life were quickly and dramatically altered. Disease spread through the Aboriginal population of the Hunter Valley, and displacement from traditional lands soon followed, with European settlers taking up land first along the major river systems then spreading inland. Conflict often resulted, with warriors fighting to retain access to land and country, and Aboriginal use of resources – including hunting of settler stock – seen as theft, and quickly punished. Although not all interactions were hostile, some authors (refer to Milliss 1992) argue that there was a general hostility between the European settlers and Aboriginal people, evidenced by violent skirmishes from the earliest European settlement.

There are a number of specific references to the Ravensworth area in ethnohistoric sources, many of which relate to violent encounters between the European settlers and the Wonnarua. Among these accounts are a series of escalating violent encounters associated with the Bowman estate (refer to **Section 3.3** below), which lead to the death of up to 19 Aboriginal people, colloquially known as the ‘Ravensworth massacre’. These accounts have been used to register (on the Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register) a massacre site at the Ravensworth village. However further research has indicated that the site of this conflict is highly unlikely to be in the Ravensworth area (for further discussion refer to Umwelt 2009a & b).

Documentary evidence suggests that by 1830 (only nineteen years after the first European settlers arrived in the Hunter) ‘all armed resistance by local Aborigines’ had ceased (Davidson and Lovell-Jones, 1993:17). However, in the late 1830s James White, who managed the Ravensworth property, still felt it necessary to construct a ‘stockade-like’ arrangement on Ravensworth; however, this may have been as much for protection against bushrangers as it was for protection against attack by Aboriginal people (Hunter 1997:17). By this time, the traditional use of the land by the Wonnarua and their social structure and interactions had been dramatically affected – all within one generation. On the other hand, there are also some accounts of cultural ceremonies being conducted decades later, such as a ceremony held at Bulga in 1852, noted by Blyton et al. (2004:9); and a ceremony held at the junction of the Page and Isis Rivers at Gundy reported in the 1870s (McDonald 1878:255-258).

The material culture of Aboriginal people also changed dramatically following contact, with the rapid influx of new technologies and materials. For example, Threlkeld (in Gunson 1974:54, 67) provides two examples of new technologies being utilised by Aboriginal people within the Lake Macquarie area, noting that bottle glass was replacing stone (‘fragments of quartz’) in Aboriginal weapons and that iron and glass were being used for fish hooks. A number of archaeological sites have also been recorded throughout the Hunter Valley evidencing Aboriginal use of introduced materials.

3.2 Early Settlement and Exploration

The area of the Hunter Valley was one of the first large stretches of suitable pastoral land found following the arrival of European settlers in NSW. Lieutenant John Shortland discovered the Hunter River in 1797. Four years later the Hunter Valley was reserved, in the interests of the public, chiefly for its coal and timber resources. This action effectively closed the district to rural settlement until the 1820s when the necessity of opening the valley to settlers was recognised by Governor Macquarie. His despatch of 8 March 1819 acknowledged the growing population and the ‘extensive rich and fertile land being found at no great distance’ along the principal sources of the Hunter River (Campbell, 1926:73). Macquarie thought it:

...judicious to establish settlers on the plains along the River Hunter where they would have the combined advantages of a fertile soil of comparatively easy cultivation, and the benefit of water conveyance for their produce to Newcastle and thence by sea to the principal mart of Sydney...

[Campbell, 1926; 74]

In 1821, Henry Dangar was commissioned to undertake a survey of the Hunter Valley to assess its suitability for settlement and farming, with the survey of the lower Hunter Valley complete in 1822 and the Upper Hunter Valley complete in 1826 (Brayshaw 1986:9). In 1823 John Howe, Benjamin Singleton and others discovered an overland route to the Hunter region from Windsor, resulting in stock being overlanded into the area from the overcrowded Cumberland Plain (Heritage Office 1996:46).

The region opened to free settlement in 1820 and settlement followed closely behind Dangar's 1821 survey party, with settlers occupying land as far north as Singleton by October 1821. Early reports describing the suitability of the land for pastoral pursuits resulted in the establishment of large scale pastoral holdings. European settlement expanded quickly in the mid nineteenth century, with a total of 372,141 acres being allotted to European settlers in the Hunter Valley between 1822 and 1826. This was increased to over 500,000 acres by 1867 (Brayshaw 1986:10). During the nineteenth century, pastoral grazing was the dominant land use of the Hunter Valley, with more than 25,000 cattle and 80,000 sheep introduced to the area by 1867. Agriculture was also important to the growing economy of the region, with a variety of crops cultivated including maize, potatoes, wheat, barley and tobacco.

Wool production, dairy farming and wheat growing were the predominant industries. Horse breeding also became a thriving industry as early as 1822. Wheat production went into decline in the mid 1800s owing to the disease *rust* which struck severely in 1857 (Turner, 1995). The late nineteenth century saw the decline of agriculture along river flats as they were converted to dairying on pastures improved by pump irrigation (Dean-Jones and Mitchell 1993:2). The pastoral and dairy industries continued to dominate into the twentieth century.

Many of the land holders in the region also owned tracts of land inland and the trend in the late 1800s was for these landholders to replace sheep with cattle from their inland runs. Many of the larger holdings were subdivided in the early 1900s, some of which were part of the Soldier Settlement Scheme following the First World War. In the latter part of the twentieth century, many of the smaller holders were reconsolidated into large scale coal mining leases.

A summary of key regional historical events in the development of the Upper Hunter which are relevant for understanding the history of the region of Singleton and the area of the Ravensworth Estate (which is partially included in the project area) is provided in **Table 3.1** below.

Table 3.1 - Time Line of the Regional History of Upper Hunter Singleton Region and Ravensworth Estate

(Source: Heritage Office & DUAP 1996:44-49 and Umwelt 2002a)

| Date | Historical Event |
|--------------|--|
| 1820 | The Hunter Valley was opened for free settlement. |
| 1822 to 1823 | A route (roughly in alignment with the present Old Bulga Road) from Windsor was found by Benjamin Singleton, John Howe and others which made possible the overlanding of stock from the Cumberland Plain to the Hunter Valley. |
| 1824 | Dr James Bowman applied for a grant of 11,000 acres which became the foundation of the Ravensworth Estate. |

**Table 3.1 - Time Line of the Regional History of Upper Hunter
Singleton Region and Ravensthorpe Estate (cont)**

(Source: Heritage Office & DUAP 1996:44-49 and Umwelt 2002a)

| Date | Historical Event |
|---------------------|--|
| 1825 | Approximately 360,000 acres of the better land of the valley had been granted to private settlers and land use was predominantly sheep grazing with some cattle in the Ravensthorpe Estate and immediate locality. |
| 1828 | 50,000 sheep and 11,000 cattle grazed the area. |
| 1830 | Township of Singleton gazetted. |
| 1836-1839 | Drought years leading to the 1839-40 depression. |
| 1841 | Local population was 215 and a post office had been established at Glennies Creek. |
| 1847 | The Bowman family sells the Ravensthorpe Estate to Captain William Russell and his wife, Eliza, as joint tenants. |
| Late 1850s to 1860s | Russell commences acquisition of adjoining lands to the Ravensthorpe Estate. Acquisition continues after 1860s and the introduction of the (Robertson) Crown Lands Alienation legislation. |
| 1863 | Singleton station on the main north rail line opens. |
| 1869 | Camberwell Station (renamed Ravensthorpe 1873) on the main north rail line opens |
| 1869 | Musclebrook Station (renamed Muswellbrook 1890) on the main north rail line opens |
| 1882 | Mackay purchased Ravensthorpe Estate from Russell and continued to expand the estate. |
| 1880s | Mackay commenced acquisition of additional land in the Goorangoola Parish. |
| 1890s | Local creameries established to separate cream from milk for despatch to Newcastle. |
| 1892 | The first co-operative creamery established in the Hunter Valley at Osterley. Dairying began to flourish to replace wheat and wool. |
| 1897 | After his death, DF Mackay's brother takes over the Ravensthorpe Estate. |
| 1898 | 360 dairies registered in Singleton District - milking herds ranged in size from 8 to 86 cows. |
| 1906 | Formation of Kayuga Coal-Mining Company. |
| 1908 | Mackay surrendered individual grants for the extended Ravensthorpe Estate and all lands are consolidated. |
| 1908 | Scone Co-operative Dairy Co established to service the north and north-west areas of the Hunter Valley |
| 1909 | Formation of Muswellbrook Coal Company. |
| 1911 | F. L. Measures purchased and subdivided the extended Ravensthorpe Estate. |
| 1915 | Advent of 'city milk' – increased demand for dairies for the supply of milk for city consumption. |
| 1911 to 1979 | Subdivision of large holdings into smaller farm holdings purchased by graziers, mixed farmers and small dairies. |
| 1944 | Open cut coal mining established in Muswellbrook. |
| 1979 to present | The project area is purchased by mining companies and land developers interested in the development of coal mining. |

3.3 Land Ownership

The earliest land taken up in the region was that of Dr James Bowman. Other early settlers included Alexander Bowman (son of George Bowman and unrelated to James Bowman). **Figures 3.1 to 3.5** (Parish Maps of Ravensworth, Vane and Liddell) illustrate the locations of these and other settlers in the region of the project area. These early settlers within the project area are discussed further in the following sections.

3.3.1 Dr James Bowman and the Ravensworth Estate

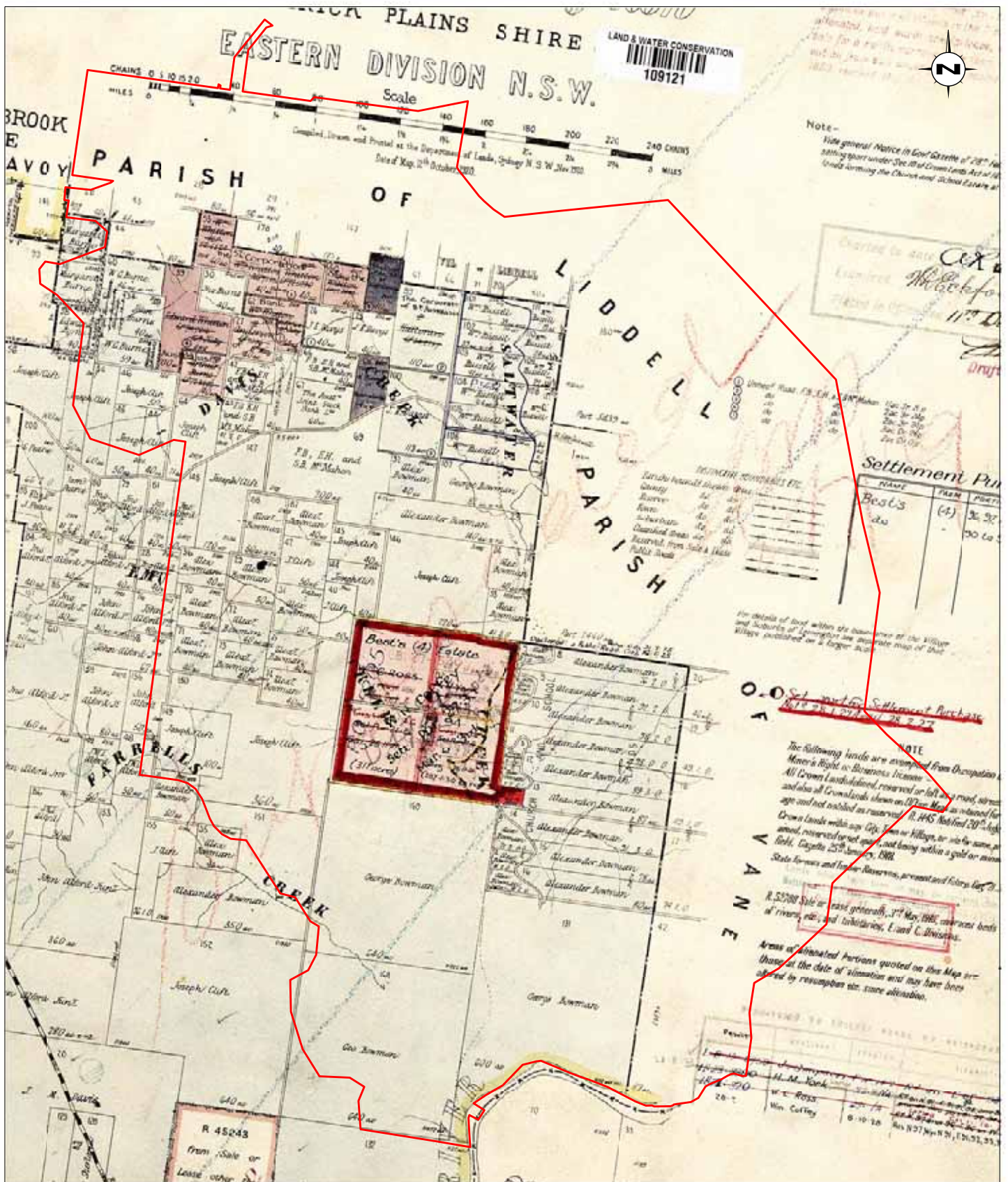
Land was first taken up in the region of the project area by Dr James Bowman (surgeon and pastoralist) at Ravensworth in October 1824, and for one year, the Bowman estate was the northernmost settlement of the Hunter Valley.

James Bowman entered the Royal Navy as an assistant surgeon in 1806, being promoted to surgeon in 1807. He arrived in NSW in 1816 on the *Mary Anne* as a surgeon appointed to the convicts. In 1823 he had married Mary, the second daughter of John and Elizabeth Macarthur, whose dowry included 2000 merino sheep and more than 200 head of cattle. His request for land commensurate with his fortune was granted in 1824 and with additional purchases his estate, Ravensworth, located between Singleton and Muswellbrook, exceeded 12,000 acres (4856 hectares). **Figure 3.6** shows Robert Dixon's 1837 Map of the Colony of NSW indicating the location of Ravensworth. Following his marriage to Mary Macarthur Bowman lived at the general hospital in Sydney and the Ravensworth Estate was established, stocked and developed by overseers and convict labour. In 1824 he was appointed a member of the Australian Agricultural Company in 1824 and became an inspector of colonial hospitals in 1828.

The Bowman estate was described in 1824 as '12,160 acres in three portions' (Hunter 1997:1) encompassing Bowmans Creek and Yorks Creek. The property was later expanded to include frontage to the Hunter River, and by 1828, over 40 convicts and overseers worked on the Ravensworth property as shepherds, labourers, carpenters, sawyers, blacksmiths and stone masons (Hunter 1997:17). The estate was further expanded following the Robertson Land Acts of 1861 that allowed any person to select from 40 to 320 acres of land.

In 1829 James White became sheep manager at Ravensworth, having previously worked as sheep superintendent for the Australian Agricultural Company. The White family became one of NSW's most influential pastoral families of the nineteenth and twentieth centuries. The ten years (1829 to 1839) James White spent managing Ravensworth enabled him to become established as a major landholder in rural NSW (Hunter 1997:6-7).

While James White managed his Hunter estate Bowman purchased over thirty-six acres of land in Glebe and engaged architect John Verge to design and build a mansion house; Lyndhurst. Following the departure of James White, Bowman had taken a more active role in Ravensworth. He soon became involved in community affairs in the Singleton district and became the President of the Singleton Benevolent Society. In 1841 he donated two acres of land for the erection of an Anglican Church and burial ground near the Falbrook crossing, now Camberwell, however it was not ready for services until the 1850s after Bowman's death. With the economic depression of the 1840s and the costs of building Lyndhurst Bowman fell into financial trouble, however James and William Macarthur took over his liabilities and the management of his estate. He died in 1846 at Ravensworth and the Macarthurs sold the property in 1847 to Captain William Russell.



Source: LPI NSW, 1999

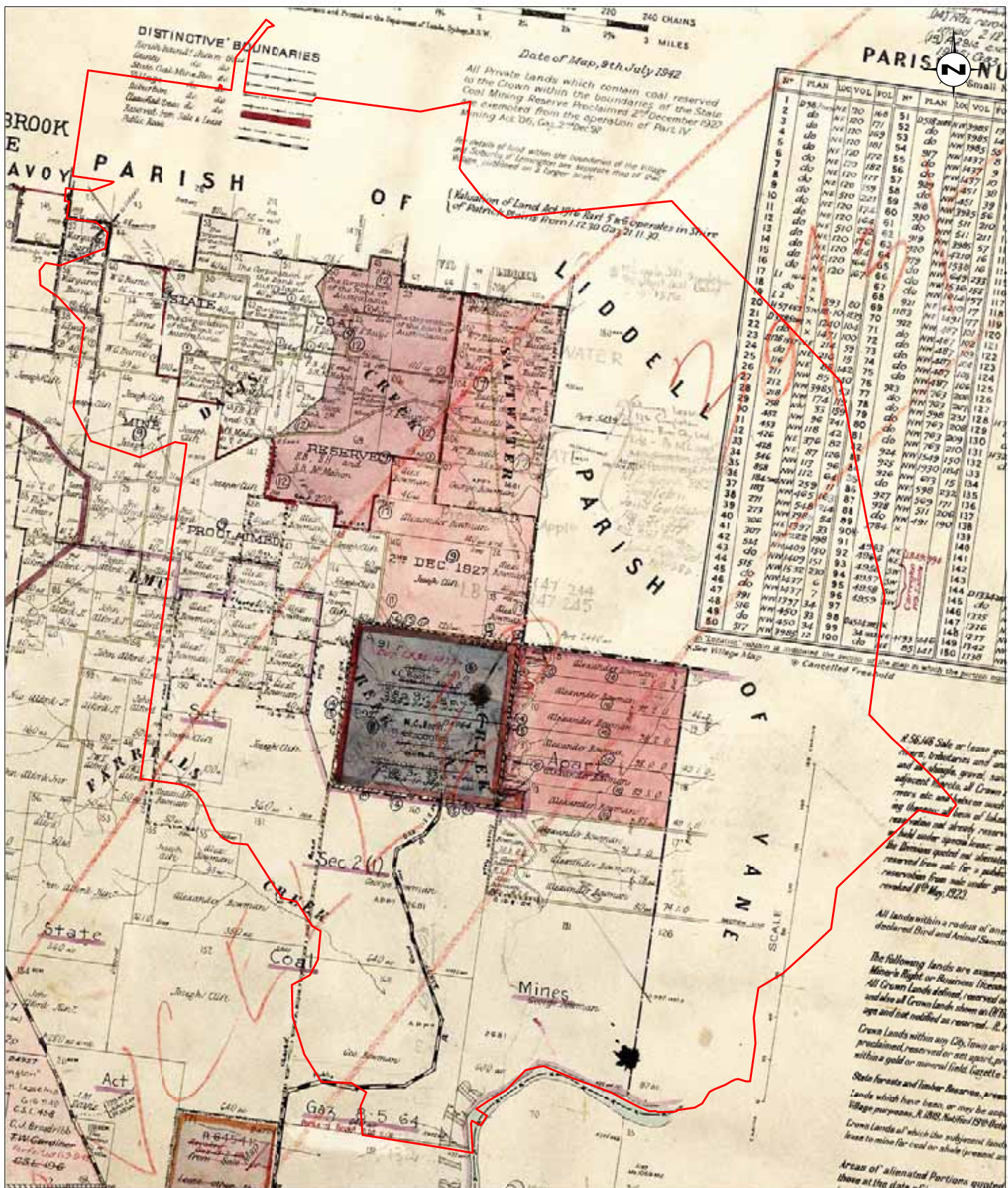
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Legend

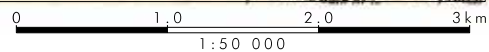
Ravensworth Operations Project Area

FIGURE 3.1

1920 Parish Map of Ravensworth indicating location of Ravensworth Operations Project Area

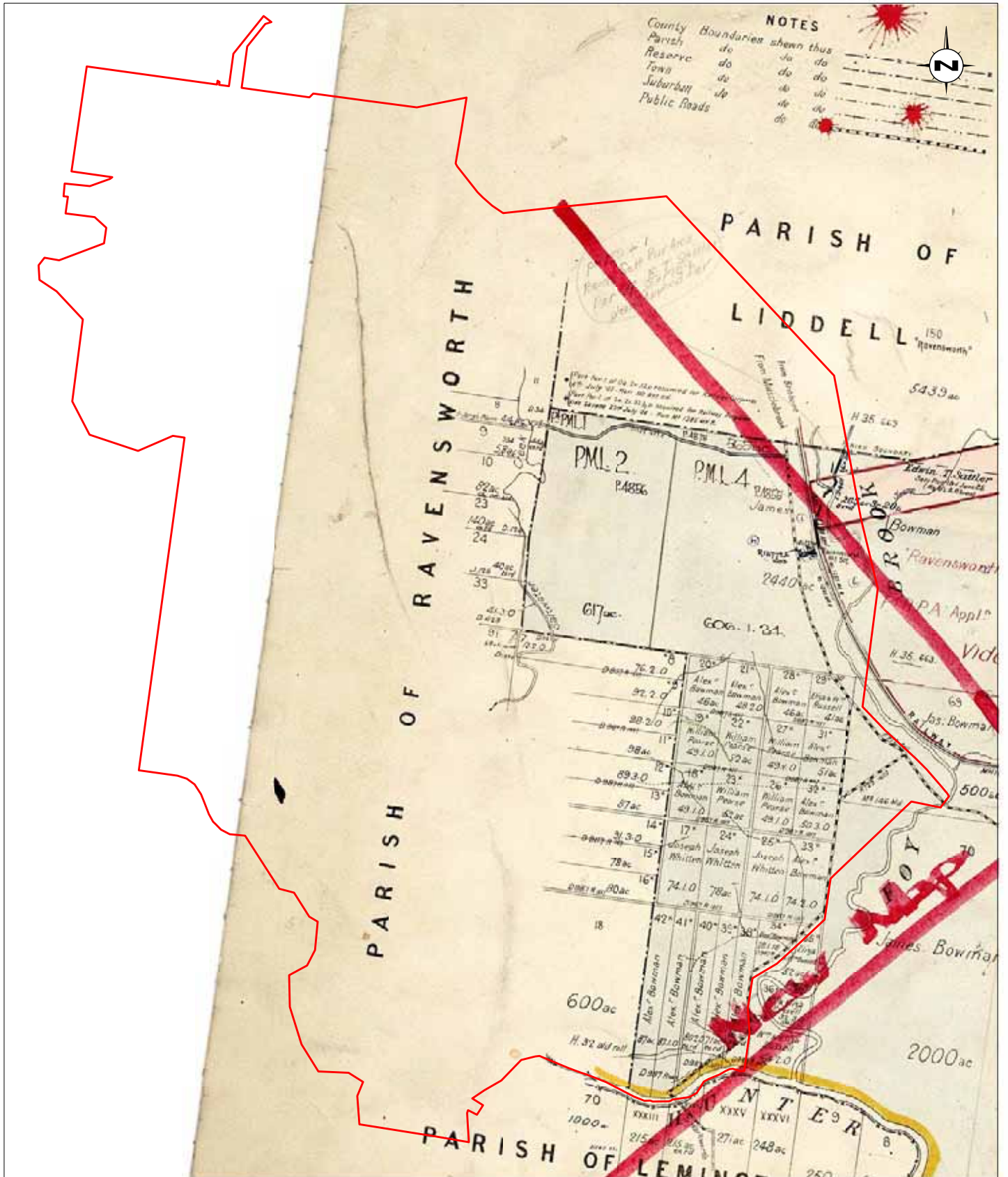


Source: LPI NSW, 1999



Legend
 Ravensworth Operations Project Area

FIGURE 3.2
 1942 Parish Map of Ravensworth
 indicating location of Ravensworth Operations Project Area



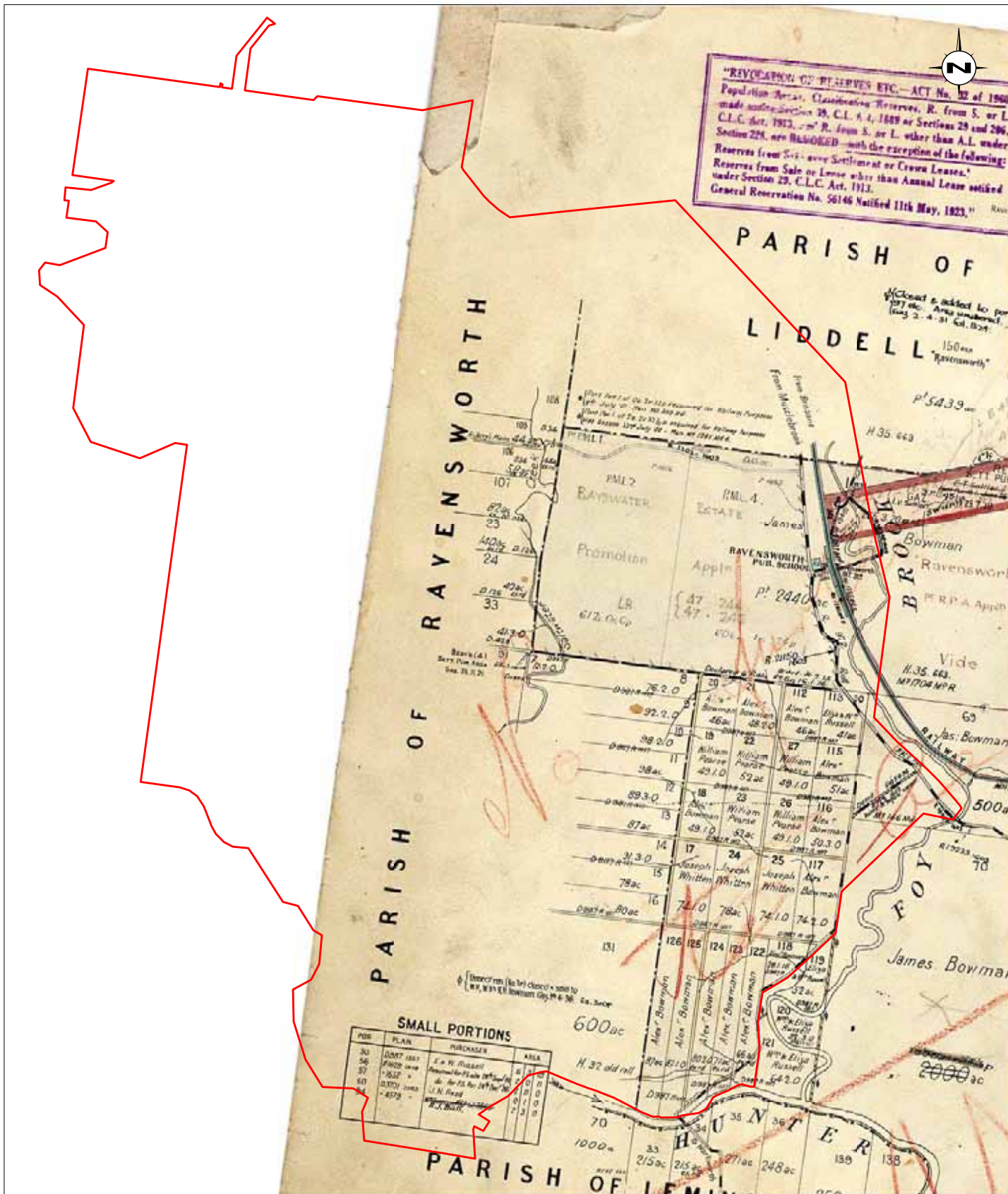
Source: LPI NSW, 1999

Legend

Ravensworth Operations Project Area

FIGURE 3.3

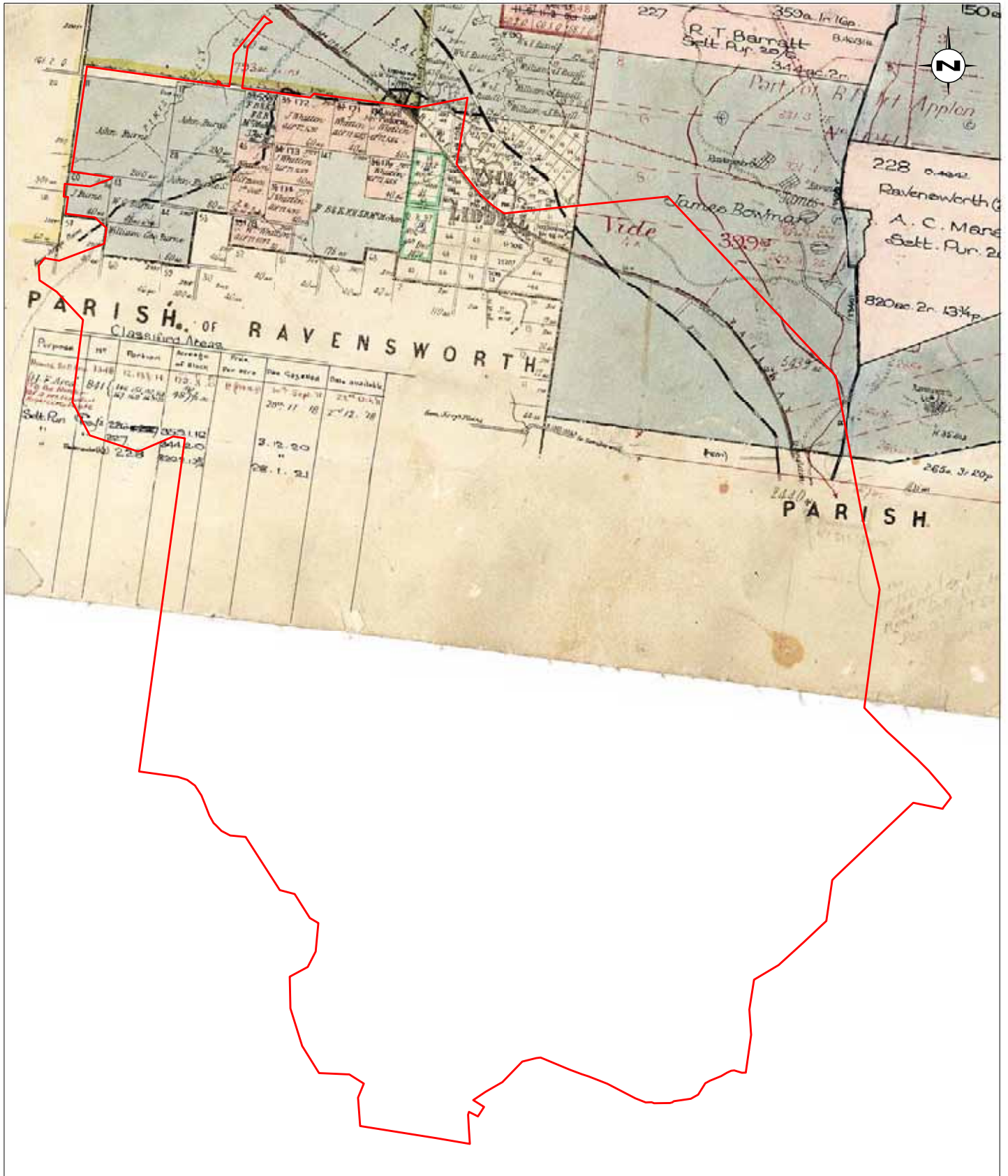
1912 Parish Map of Vane indicating location of Ravensworth Operations Project Area



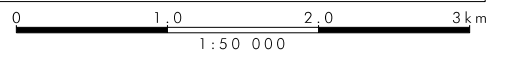
Source: LPI NSW, 1999

Legend
 Ravensworth Operations Project Area

FIGURE 3.4
 1923 Parish Map of Vane indicating location of Ravensworth Operations Project Area



Source: LPI NSW, 1999

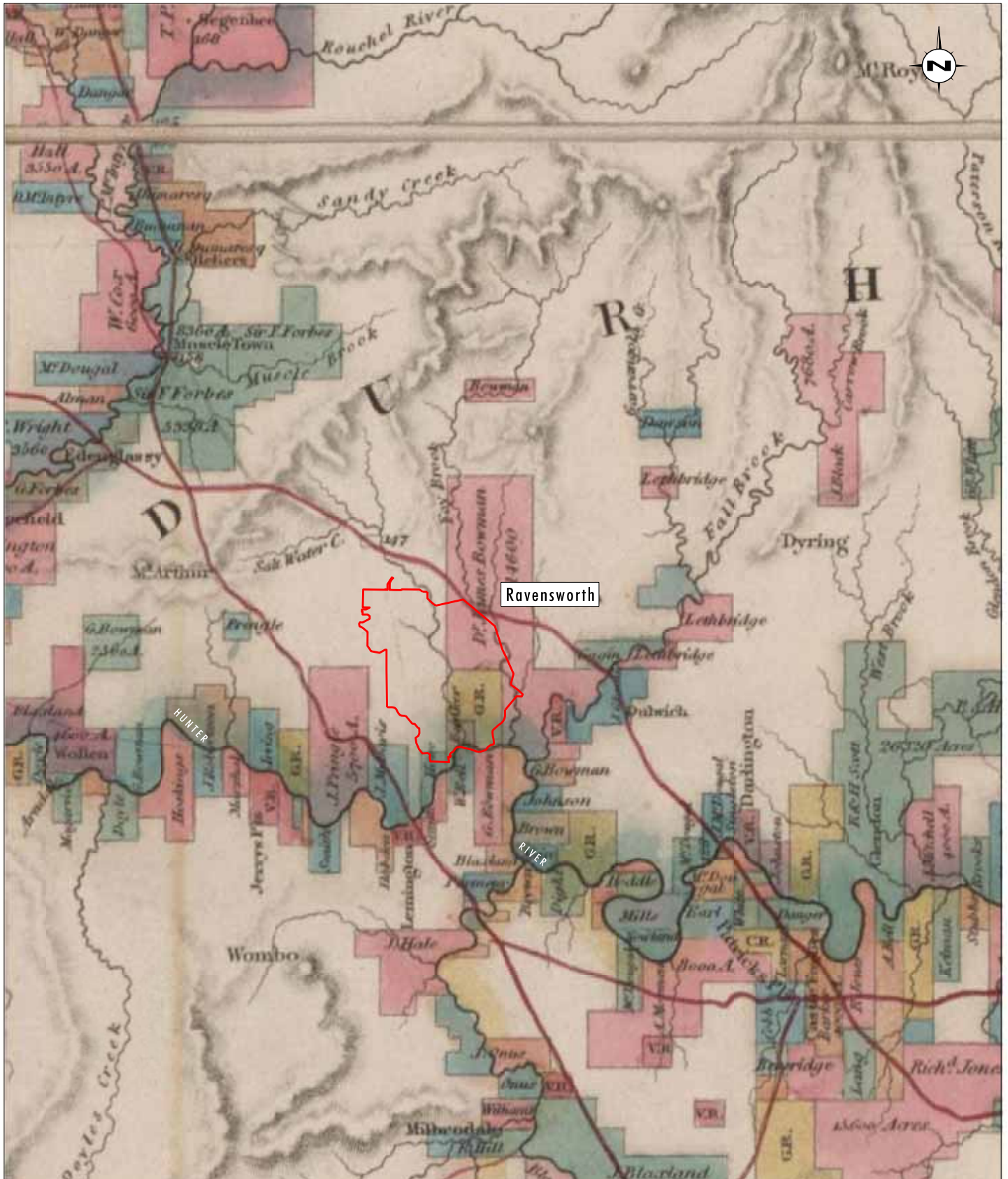


Legend

Ravensworth Operations Project Area

FIGURE 3.5

1906 Parish Map of Liddell indicating location of Ravensworth Operations Project Area



Source: National Library of Australia

Legend

Approximate location of Ravensworth Operations Project Area

FIGURE 3.6

Robert Dixon's 1837 Map of the Colony of NSW

Captain William Russell

Ravensthorpe remained in the possession of Captain William Russell and his family until 1882. Russell arrived in NSW in approximately 1837, following his retirement from his regiment, and became a pastoralist and agriculturalist. Originally a squatter or pastoral leaseholder in the Gwydir district, his first land purchase may have been from Benjamin Singleton in 1842 on the lower Macintyre River in the Gwydir district. It was in this area that his primary pastoral activities were focused, complemented by the purchase of upper Hunter Valley properties as holding places for the fattening and marketing of livestock. His Hunter Valley properties included Ravensthorpe and Glenridding near Singleton, Waverley and Chestnut Park, in addition to purchasing several blocks of land from the Crown. He is reported to have held over 30,000 acres of freehold land in the Hunter Valley (Hunter 1997:9-10).

William Russell died in England in 1866. In 1882 a subdivided Ravensthorpe and other properties were advertised for sale from the Russell estate (Hunter 1997:11). The preliminary notice of sale noted:

GRIFFITHS & WEAVER are instructed by the Executors of the late Captain Russell, to sell by auction...The Most Magnificent Fattening and Grazing Property, RAVENSTHORPE, situated on the Great Northern Railway Line, about 60 miles north of Newcastle...This property is thoroughly improved, has extensive STONE BUILDINGS, in all perfect order; is fenced and divided into some 70 paddocks by upwards of 250 miles of substantial fencing, is thoroughly and permanently watered by the Hunter River, Foybrook, Falbrook, and numerous creeks and dams. The land is of the best fattening description, well suited for agriculture, and turns out the best class of fat stock for Sydney and Maitland markets. The estate also possesses a great prospective and vantage in its large deposits of coal and other minerals, which are visible in many places. The whole estate is well secured, and offers a rare chance to a capitalist of acquiring one of the finest grazing properties in the noted valley of the Hunter... (The Maitland Mercury & Hunter River General Advertiser 1882).

The sale included all of the stock including cattle, sheep and horses.

Duncan Forbes Mackay

In 1882 Duncan Forbes Mackay purchased part of the original Ravensthorpe estate, including the homestead. During the later part of the nineteenth century the Mackay family became one of the principal grazing and cattle breeding families in NSW. In the 1870s Duncan purchased land near Singleton, called Minimbah, and built a mansion there. Following his purchase of Ravensthorpe Mackay remained living at Minimbah, however improved the Ravensthorpe estate, including clearing to increase the land available for grazing, to make it a first class sheep raising property. In 1883 approximately 40 men are reported to have been employed at Ravensthorpe (Hunter 1997:13).

In 1886 an attempt to mine coal on the Ravensthorpe estate was reported in the Maitland Mercury:

Since Messrs Nowland opened up their mine, sinking for coal has been actively prosecuted on the Ravensthorpe estate and we learn that the perseverance of the promoters has been successful to such a degree that they intend to float the undertaking shortly into a company (Maitland Mercury 1886)

Duncan Forbes Mackay died at Singleton in 1887.

The Land Company of Australasia was established to develop innovative schemes for irrigation and to promote the government's policies of closed settlement in order to stop 'vast areas of NSW' being 'tied up in the hands of pastoralists who were making little use of it' (Noble 1997:13). The Company bought the Ravensworth Estate from Mackay at 2 pounds an acre and introduced the Lincoln breed of sheep to the area. However, the Lincolns suffered from parasitic infections; a problem which influenced Upper Hunter graziers in general to turn from sheep to cattle raising and dairy farming (Hunter 1997:13-14). The Land Company failed in 1892, which resulted in the Ravensworth title reverting to Duncan Forbes Mackay's estate. Mackay's estate was run by his nephew William Mackay who during 1894 to 1895 attempted to sell the property advertised as being of 62, 651 acres (Hunter 1997:14).

F.J.L. Measures

F.J.L. Measures was an American entrepreneur who purchased several large estates on the central coast and in the Hunter Valley region and subdivided them for resale. Ravensworth was one of these estates. In approximately 1910 Measures advertised 30,000 acres of Ravensworth divided into 100 blocks for dairy farms, vineyards, orchards and grass blocks. The homestead lot was 1100 acres. An advertisement in *The Singleton Argus*, Saturday 21 March 1911 details a clearing out sale of all furniture, fixtures and animals (horse, cattle and pigs) from the Ravensworth Homestead under instruction from R. A. Hill Esquire. A later advertisement in *The Singleton Argus*, Saturday 25 March 1911 offers the lands within the project area including adjoining lands that were part of the Ravensworth Estate to prospective 'lucerne growers, general farmers, dairy men and fruit growers' to 'investigate the great advantages the farms offer' (refer to **Figure 3.7**). The advertisement is for the private sale of 56 farms ranging from 30 acres to 2000 acres. The advertisement also indicates that much of the land 'has been cleared for many years'. A similar advertisement was re-advertised in *The Singleton Argus*, 1 April 1911. Measures improved the lots by erecting houses, dairies and farm buildings on a number of the blocks in order to encourage buyers to the new farms. Measures appeared to have failed financially and the venture was kept going by the solicitor F.H. King. Many of the subdivided lots were eventually sold to graziers and farmers.

Soldier Settlement

Following the First World War the government initiated programs to enable returned soldiers to settle on their own farms or secure their own homes (under the War Service Homes Act of 1918 and soldier settlement schemes). While most land made available to returning soldiers was former Crown land, some freehold land was purchased by the Crown and then made available to returned soldiers. Returned servicemen from First World War secured portions of the Ravensworth Estate surrendered to the Crown under the Act. Such blocks were known as Settlement Purchase Areas (SPA). Such areas can be identified on the Parish Maps of Ravensworth and Vane. **Figures 3.1** and **3.4** show land known as Bests (4) within the Parish of Ravensworth as being set apart for Settle Purchase. Prior to being set apart this land would most likely have been in the ownership of either Alexander Bowman or his father George Bowman, or Joseph Clift who all owned adjoining land (refer to **Section 3.3.2**).

Following First World War, Mr A.C. Marshall, his wife and child Enid, and Campbell Marshall lived at Ravensworth until their death in 1983 and 1993. After the Second World War, grazing shifted to small mixed and dairy farms. In the 1940s, Marshall converted the Settlement Purchase blocks into a Settlement Lease which continued until the late 1970s.

In the 1970s, Ravensworth was subdivided into two portions. Mr Marshall purchased the portion retaining the Ravensworth homestead outright and received title to Ravensworth from the Crown (Noble 1997:16). The remaining 230 hectares was sold to the Electricity Commission of NSW. The Crown transferred their title for the remaining 230 hectares to the Electricity Commission of NSW.

Lucerne Growers. ————— General Farmers.

————— Dairymen. ————— Fruit Growers.

Why not Farm where Conditions are All in Your Favor?

Investigate the great advantages that the Ravensworth Farms offers—

- (1) Four Railway Stations on the estate, all Dairy Farms being within 2 miles of a railway station.
- (2) Heavy rainfall never makes the rivers impassable or the access to railway stations any more difficult.
- (3) Farmers on Ravensworth can never be tied up with stock or cream for weeks at a time on account of swollen creeks.
- (4) Special Terms can be arranged if the ordinary ones do not suit you. These are the ordinary ones: 2/- in £ deposit, 2/- in £ on March 15th, 1912, 2/- in £ on March 15th, 1913, and balance in 14 Half-yearly payments with interest at 6d. in £ every half-year; right to pay off at any time without notice or penalty.
- (5) Possession given 1st April, 1911, but buyers can start ploughing and fencing and building right away.

If you are interested, come and inspect the 36 Farms now for Private Sale, from 50 acres to 2000 acres. We meet you at Ravensworth Railway Station and show you just the spot you are seeking. Flat land or rolling-down, grass land, or orchard country. Quick at the location. Four Railway Stations, and 4 Post Offices, and 5 Public Schools on the estate, and the Market Towns and Butter Factories of Singleton and Muswellbrook only 8 or 9 miles away by good roads. This estate is all basalt and limestone country, and abundantly watered. Rainfall 23 inches. All sweet, cleared for many years and proved. Just waiting for you to get to work on it. Some of the blocks are partly fenced, and some are under cultivation.

Now isn't it better to buy here, than go away back, and wait for the roads, and wait for the train, and have to fence and clear, and "put up with things." You're getting older every day. Time is money. On Ravensworth you can make a start now! Look at the Prices—Dairy Farms from £4 10s. to £7 per acre; Grass country from £3 10s. to £4 10s. Knowing the prices are particularly low, and that good value is being offered, the vendor does not hesitate to publicly announce his prices which are as follows:—

| SECTION A | | SECTION B | | SECTION C | |
|-----------|----------------|-----------|----------------|-----------|----------------|
| Acres | Price per Acre | Acres | Price per Acre | Acres | Price per Acre |
| 1 | £ 10 0 0 | 1 | £ 10 0 0 | 1 | £ 10 0 0 |
| 2 | 10 0 0 | 2 | 10 0 0 | 2 | 10 0 0 |
| 3 | 10 0 0 | 3 | 10 0 0 | 3 | 10 0 0 |
| 4 | 10 0 0 | 4 | 10 0 0 | 4 | 10 0 0 |
| 5 | 10 0 0 | 5 | 10 0 0 | 5 | 10 0 0 |
| 6 | 10 0 0 | 6 | 10 0 0 | 6 | 10 0 0 |
| 7 | 10 0 0 | 7 | 10 0 0 | 7 | 10 0 0 |
| 8 | 10 0 0 | 8 | 10 0 0 | 8 | 10 0 0 |
| 9 | 10 0 0 | 9 | 10 0 0 | 9 | 10 0 0 |
| 10 | 10 0 0 | 10 | 10 0 0 | 10 | 10 0 0 |
| 11 | 10 0 0 | 11 | 10 0 0 | 11 | 10 0 0 |
| 12 | 10 0 0 | 12 | 10 0 0 | 12 | 10 0 0 |
| 13 | 10 0 0 | 13 | 10 0 0 | 13 | 10 0 0 |
| 14 | 10 0 0 | 14 | 10 0 0 | 14 | 10 0 0 |
| 15 | 10 0 0 | 15 | 10 0 0 | 15 | 10 0 0 |
| 16 | 10 0 0 | 16 | 10 0 0 | 16 | 10 0 0 |
| 17 | 10 0 0 | 17 | 10 0 0 | 17 | 10 0 0 |
| 18 | 10 0 0 | 18 | 10 0 0 | 18 | 10 0 0 |
| 19 | 10 0 0 | 19 | 10 0 0 | 19 | 10 0 0 |
| 20 | 10 0 0 | 20 | 10 0 0 | 20 | 10 0 0 |
| 21 | 10 0 0 | 21 | 10 0 0 | 21 | 10 0 0 |
| 22 | 10 0 0 | 22 | 10 0 0 | 22 | 10 0 0 |
| 23 | 10 0 0 | 23 | 10 0 0 | 23 | 10 0 0 |
| 24 | 10 0 0 | 24 | 10 0 0 | 24 | 10 0 0 |
| 25 | 10 0 0 | 25 | 10 0 0 | 25 | 10 0 0 |
| 26 | 10 0 0 | 26 | 10 0 0 | 26 | 10 0 0 |
| 27 | 10 0 0 | 27 | 10 0 0 | 27 | 10 0 0 |
| 28 | 10 0 0 | 28 | 10 0 0 | 28 | 10 0 0 |
| 29 | 10 0 0 | 29 | 10 0 0 | 29 | 10 0 0 |
| 30 | 10 0 0 | 30 | 10 0 0 | 30 | 10 0 0 |
| 31 | 10 0 0 | 31 | 10 0 0 | 31 | 10 0 0 |
| 32 | 10 0 0 | 32 | 10 0 0 | 32 | 10 0 0 |
| 33 | 10 0 0 | 33 | 10 0 0 | 33 | 10 0 0 |
| 34 | 10 0 0 | 34 | 10 0 0 | 34 | 10 0 0 |
| 35 | 10 0 0 | 35 | 10 0 0 | 35 | 10 0 0 |
| 36 | 10 0 0 | 36 | 10 0 0 | 36 | 10 0 0 |

Title will be Torrens. No Survey Fees. No Residential Restrictions.
No Governmental Oversight. This is the Place for You!

Send for a Plan and Price-list to the owner, F. J. L. Mearns, at Niagara Park, N. S. W., or clip out this Coupon and post it to his Detach-General Manager, H. K. Scott, Ravensworth.

Mr. H. K. SCOTT,
Ravensworth, N. S. W.
Please send me Plan and Price List.
Name _____
Address _____

FIGURE 3.7

Advertisement in The Singleton Argus Saturday 25 March, 1911

Photographs of the Ravensworth Homestead, which is outside the project area, before its restoration, are shown on **Figure 3.8**. Ravensworth Homestead was in existence in 1842 and as noted by EJE Architecture:

...substantial historical evidence suggests that it is possible that John Verge, Macarthur's architectural consultant from 1833, may have designed Bowman's simple veranda stone-built residence and the other buildings that form the large, stockade-like complex. Verge may have executed drawings for Ravensworth; however, no documented evidence of these exists. Similarities also said to exist between an unbuilt Verge plan for stables at Camden Park and those at Ravensworth (1997:13).

Although some alterations were made, namely, timber veranda posts replaced by those of cast iron and roof ventilators and the addition of several rooms, Ravensworth remains relatively intact and has escaped any significant alterations to Mary and James Bowman's mid nineteenth century design' (EJE Architecture 1997:3).

Xstrata Coal, EJE Architecture and Australian Heritage Restorations have recently undertaken the conservation and restoration of the Ravensworth Homestead.

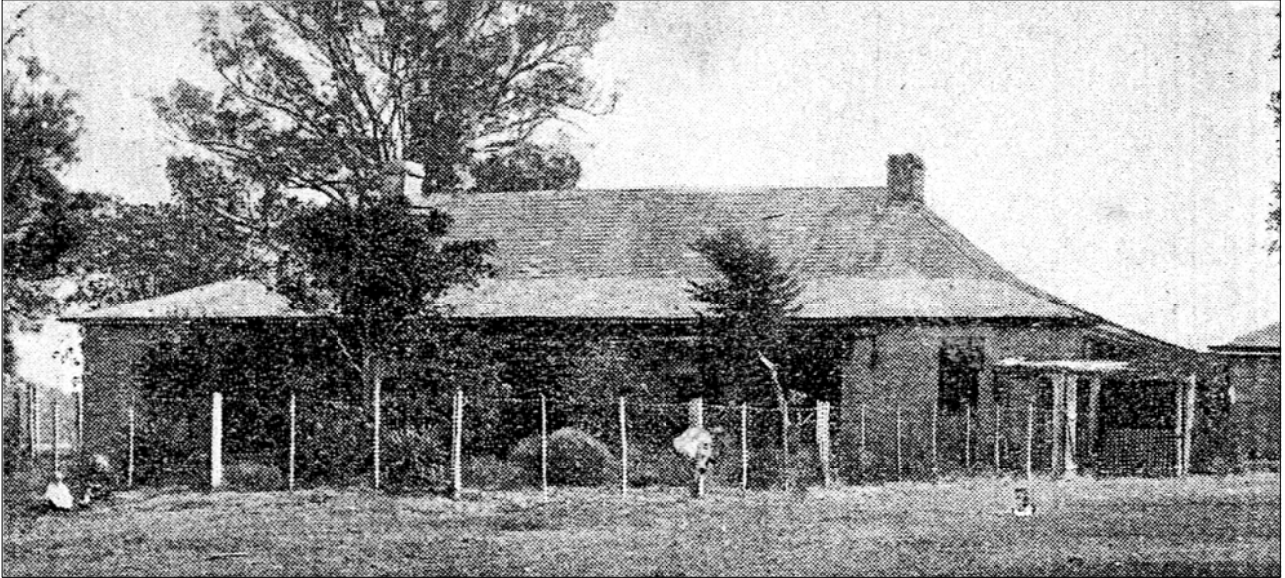
3.3.2 Alexander Bowman

The project area is located predominantly within land owned by Alexander Bowman (refer to **Figures 3.1** and **3.2**). Alexander Bowman was the seventh son of George and Eliza Bowman and unrelated to Dr James Bowman of Ravensworth. Part of the Bowman's property was originally promised to Ebeneza Bunker by Governor Macquarie however, the land was conveyed to George Bowman in 1832 for 150 pounds (Bowman 1999:101). Bunker also had land on the north side of the Hunter River adjacent to the Ravensworth Estate

Bunker originally visited New South Wales as master of the *William and Ann* in 1791 and again in 1799-1800 on the *Albion*. He accompanied the *Lady Nelson* in the *Albion* to establish the Derwent settlement in 1803 and brought his family to the Colony in the *Elizabeth* in August 1806. He was a member of the Vice Admiralty Court and a landholder in the Hunter Valley, Bulanaming and Bankstown (State records NSW).

George Bowman arrived to Australia in 1798 with his parents on the *Barwell*. His father John settled on the Hawkesbury River. In 1821 George Bowman was granted 600 acres of land by Governor Macquarie although this grant was not located when Macquarie departed the colony. In 1824 George Bowman requested a grant of land on which to run 1200 sheep, 60 head of cattle and 12 horses. Bowman was granted 1130 acres which was taken up in the Parish of Ravensworth on the northern bank of the Hunter River. This property became known as Arrowfield. In 1825, Bowman sought permission to purchase a further 2000 acres of land adjoining his present holding. His request was approved and 2560 acres was taken up on the southern bank of the Hunter (refer to **Figure 3.6**). This property became known as Archerfield (Umwelt 2005). The Bowman family soon owned several properties in the Hunter Valley, including Oaklands on the north side of the Hunter River, to the west of Archerfield (Bowman 1999:101).

George Bowman's son Alexander also acquired large tracts of land in the Ravensworth area of the Hunter Valley, much of which adjoined his father's land. Alexander Bowman settled at Oaklands within the southern boundary of the project Area. Politically prominent and interested in local affairs, he was an alderman for 13 years and elected mayor of Singleton seven times (Bowman 1999:101). He was elected to the Legislative Assembly for the Hawkesbury, serving in 1877-82 and from 1885 until his death. Although he claimed to have no party affiliations and was infrequently heard in debate, he was appreciated by his electorate and regarded as the unofficial representative of the Upper Hunter landowners (Gray 1969).



Source Unknown: Newcastle Regional Library - Local Histories Section

Ravensworth Homestead
said to be the oldest house on the Hunter



Source: Echoes and Images Singleton Shire Council

Ravensworth Homestead
Convict built in 1840

FIGURE 3.8

Photographs of Ravensworth Homestead

Alexander Bowman lived at Oaklands until he sold the property in 1881 and moved to Glebe in Sydney. While at Oaklands Alexander Bowman bred a number of race horses including Bulginar, who won the Tattersalls Cup at Randwick in 1868. He died in 1892 at his home on Pymont Bridge Road, Glebe (Bowman 1999:101-102).

3.3.3 The Clift Family, William Sims Bell and John Howe

Other early settlers within and surrounding the project area included the Clift family, William Sims Bell and John Howe.

Samuel Clift first purchased land beside Wallis Creek in 1826 and soon acquired additional parcels of land within the project area (Umwelt 2005). The 1920 Parish Map of Ravensworth illustrates the large tracts of land still owned by the Clift family (Joseph Clift) at that time (refer to **Figure 3.1**).

William Sims Bell was the only son of Archibald Bell (a soldier and magistrate living in Windsor). William Bell explored part of the Hunter Valley in 1820 and settled there soon after at Cheshunt on the southern side of the Hunter River where he was granted 700 acres of land (refer to **Figure 3.6**). In 1845 notices were placed in the Maitland Mercury advertising that Bell's belongings and 5126 sheep and 800 head of cattle were to be sold by public auction at Cheshunt by order of trustees. Cheshunt was later owned by William Russell (refer to **Section 3.3.1**)

John Howe arrived in NSW in June 1802 on the Coromandel I with his wife Frances and daughter Mary. He received a grant of 100 acres (40 hectares) at Mulgrave Place on the Hawkesbury River. Although retaining his grant until 1813, Howe showed little interest in farming. He became a licensed auctioneer at Windsor and in 1813 was contracted to complete and repair the road from Sydney to Windsor. In 1819 he attempted to discover a trafficable route from the Hawkesbury to the Hunter River from Windsor. Part of the route had been traversed in 1817 by William Parr and in 1818 by Benjamin Singleton, both of whom set out from the Hawkesbury. Howe succeeded in reaching the Hunter near Doyle's Creek on 5 November 1819, discovering much fine grazing land, but returned dissatisfied with the route. A second expedition left Windsor in February 1820 and Howe mapped a route which is now the Bulga Road. Macquarie rewarded him with a licence to graze his flocks on the land he had discovered at St Patrick's Plains, and with a grant of 700 acres (283 hectares) later named Redbourneberry which Howe selected near the present site of Singleton on the north side of the Hunter River (refer to **Figure 3.6**). An additional 500-acre (202 hectares) grant was made in 1824. Howe left Windsor in 1839 and retired to a small farm, Raworth, near Morpeth, where he remained until his death on 19 December 1852 (Gray 1966).

3.4 Pastoralism

The pastoral industry was the earliest established industry within the project area. Benjamin Singleton placed a notice in the Sydney Gazette as early as December 1821 advertising agistment at St Patrick's Plains at 10 shillings a head per annum for not less than three years. In 1823, John Howe was granted permission to graze his stock at Patrick's Plains, agisting 1000 sheep and 1200 cattle. Horse breeding also became a thriving industry. The Scotts of Glendon were importing stud horses in 1822 and Alexander Bowman bred a number of race horses at Oaklands, within the project area. In the 1820s, Dr James Bowman ran 2000 merino sheep and 200 head of cattle on his Ravensworth Estate. Bowman's sheep were said to rank among the first crossbreeds in the colony.

During the nineteenth century the area of Ravensworth Estate was central to local and regional wool production. There was a shift from wool production in the nineteenth century to mixed farming, dairying and to a lesser degree grazing became more important in the twentieth century.

3.5 Dairying

Dairying was one of the initial impetuses for the division of large estates in the Upper Hunter. By the early twentieth century the Upper Hunter was mostly occupied by dairy farms of up to 500 acres in size (Heritage Office & DUAP, 1996:49). The 1828 census indicates that, of the 191 large (+ 1000 acre) estates occupying the Upper Hunter Valley, 'only one third were sheep grazing enterprises with cattle raising being much more common' (Turner 1995: 18).

By the 1890s dairying became an important industry in the Upper Hunter. This importance coincided with the 'development of the mechanical separation of milk and refrigeration causing a re-shaping of the pattern of farming' in the Singleton and Muswellbrook Local Government Area, due to the increased demand for dairy products in Australia and overseas (Turner 1995:19). Dairying increased after the First World War as soldiers were given small holdings and government assistance to establish small agricultural businesses, such as dairy farms (Heritage Office & DUAP 1996:49). The effect of soldier settlement increased after the Second World War in Singleton when the 'country was cut up into wheat-sheep farms' (Heritage Office & DUAP 1996:49). The importance of dairying as a land use is reflected in the history of the project area. Dairy farming became an important land use after sheep/wool production began to wane in the late nineteenth century due to parasitic infections in sheep.

3.6 Agriculture

The Singleton locality contained several thousand acres clear of timber and covered with rich alluvial soil which produced heavy crops of wheat, maize, barley, oats, rye, potatoes and natural grasses.

A correspondent of the Australian in 1827 reported the Castle Forbes properties yielded thirty-six bushels (1 bushel = 8 gallons/36.37 litres) to the acre of wheat. He goes on to say there were two stack yards within a mile of each other containing together 10,000 bushels of wheat. Tobacco was another crop grown in the area and a few properties also experimented with cotton which ultimately failed.

Historical records indicate the extent of cultivation in 1831. These records state that the Patrick's Plains district cultivated 1054 acres of wheat, 625 acres of maize, 54 of barley, 10 of oats, 15 of rye, 15 of potatoes, and 17 acres of tobacco. In 1836, the number of acres in the counties of Brisbane, Northumberland, Hunter and Durham under wheat was 27,424 and maize 7899 with 45 tons of tobacco harvested (JRAHS, 1953). **Table 3.2** shows the area under cultivation for wheat decline while the area under maize and tobacco increased between 1836 and 1844.

Table 3.2 - Area under Cultivation - Counties of Brisbane, Northumberland, Hunter and Durham (JRAHS, 1953)

| Crop | 1836 | 1839 | 1844 |
|---------|--------------|-----------------|-----------------|
| Wheat | 27,424 acres | 15,114 acres | 21,534 acres |
| Maize | 7899 acres | 10,112 acres | 14,226 acres |
| Tobacco | 45 tons | 1505 hundred wt | 4890 hundred wt |

Returns for 1860 show that there were 206 landholders at Patricks Plains which included the counties of Durham, Hunter and Northumberland and they held 161,310 acres. Of this area 155,508 acres were not cultivated. The crop yields were: wheat 22,000 bushels, maize 25,926 bushels, barley 400 bushels, rye 45 bushels, millet 15 tons, potatoes 49 tons, sorghum 243 hundredweights and hay 235 tons (JRAHS, 1953).

Wheat crops grown in the Hunter Valley were prone to the disease 'rust', which struck severely in 1857 (Turner, 1995). Disease together with the relatively dry conditions in the Upper Hunter made wheat a precarious crop and as a result its production declined. The decline in wheat cultivation saw an increase in barley production mainly for stock feed but as the dairy industry began to grow lucerne crops became a more viable option.

3.7 Communication, Roads and Railways

3.7.1 Travelling Stock Routes

Travelling stock routes and reserves in NSW (also known as the Long Paddock in Australian literature) originated from the need to move stock to pastures and markets. To assist with the stock movements the government established a network of watering points and wide corridors for stock routes. Stock routes evolved from the 1830s onwards, the early routes generally following rivers or roads. By the 1860s legislation was introduced to protect the rights of adjacent run-holders and drovers. The *Occupation Act 1861* and the *Pastures and Stock Protection Act 1880* attempted to regulate the use and administration of stock routes. By this time railway lines were also used as stock routes in some areas. During the 1880s and 1890s improvements were made to administration of the routes, culminating in the *Pastures Protection Act 1902* which established Pastures Protection Districts and Boards (AHMS 2008:39-40).

The stock routes are not used as often for droving as they were in the past as truck transport provides an alternative. However the use and growth of the routes peaked during the two world wars, and continued in the post-war period particularly during the droughts of the late 1950s. Since then there has been a decline in use of the routes except during drought periods when they are used mainly for grazing stock rather than transporting them. The *Rural Lands Protection Acts* of 1989 and 1998 transferred administration of the routes to Rural Lands Protection Boards. The Boards now manage almost 600,000 hectares of traveling stock routes on crown land throughout NSW (AHMS 2008:39-40). There has been a significant increase in the numbers of stock using traveling stock reserves and public roads since the onset of the drought in the early twenty-first century (Hale 2008). Following the renewed use of the routes, concerns have grown about soil erosion and weed control, and protection of wildlife and remnant native vegetation (AHMS 2008:40).

3.7.2 Main Northern Railway Line/Great Northern Railway

The Great Northern Railway or as it is now referred to, the Main Northern Railway, was built in part following the Great North Road in the 1860s to the 1870s. The Main Northern Railway's first section was built from Newcastle to Victoria Street, Maitland in 1857. It then extended to Singleton (1863), Muswellbrook (1869), Murrurundi in (1872), Werris Creek and west Tamworth (1878), Armidale (1883) and Wallangarra, Queensland in 1888. A railway station was opened at Ravensworth village on 1 June 1869 and closed on 11 January 1975 (Bozier nd). The railway line in part diverges through the Ravensworth Estate and is within the eastern boundary of the project area.

3.7.3 Great Northern Road

In the Upper Hunter area, roads were the most important means of transport until 1869 when the Great Northern Railway reached Muswellbrook (Turner 1995:32). The first overland route to the Hunter River was discovered, after several unsuccessful attempts, by John Howe, Benjamin Singleton and others, who travelled from Windsor to near Singleton in late 1819. The route they discovered was officially opened in 1823. It became known as the Bulga Road or The Parson's Road, but is now known as Putty Road. When first opened, travellers required a permit. The discovery of this route meant that stock could now be taken overland from the Cumberland Plains north to the Upper Hunter Region.

The origins of the New England Highway lie not in the work of early surveyors like Dangar but in that of explorer and botanist Allan Cunningham, who traversed the region in the period 1827 to 1829. Between January and August 1827, Cunningham travelled from the Hunter Valley northwards, crossing the Peel and Dumaresq Rivers, discovering the Darling Downs, before returning to the Hunter Valley and Bathurst. While exploring the Darling Downs, he discovered Spicer's Gap, through which there was access from Moreton Bay to the fine grazing offered by the Downs. Cunningham later found a second gap, Cunningham's Gap, in 1828-1829 (Perry 1966).

The roads leading north through the Hunter Valley were developed in the first part of the nineteenth century. Agitation for a shorter route north than the Putty Road had led Governor Brisbane to issue instructions for the surveying of a new route beginning at Castle Hill, which became known as the Great North Road. On the northern side of the Hawkesbury River, the road proceeded along the crest of the range to Wollombi and then to Singleton. Construction of the road commenced in 1826 and reached as far as Hawkesbury by 1829. When it reached Wollombi, the road branched, with one road leading to Singleton and the other to Maitland (O'Connor 1985). A second route to the Hawkesbury was developed along Peat's Ferry Road, now the Pacific Highway. By 1850 the main road to the north had extended from Muswellbrook to Murrurundi and onto Tamworth and Armidale. The road north of Murrurundi follows the track over the Liverpool Ranges discovered by William Nowland in 1827. The road forms the basis of the New England Highway of today.

3.8 Chain of Ponds Hotel

The Chain of Ponds Hotel (or Inn) is located outside and to the north-east of the project area (refer to **Figure 1.2**). The inn and its outbuildings are listed on the State Heritage Register (refer to **Section 1.2**) and have associations with the project area as a potential location for the stone used in the inn's construction. As such, the history of the inn is considered in detail in this section.

The building was built in the 1840s by Henry Nowland (or Nowlan). It has also been known as The Halfway House, standing halfway between Muswellbrook and Singleton on what was then the New England Highway. The hotel served as an inn for the coach and horse borne traffic in the mid nineteenth century between Morpeth and Tamworth.

Henry Nowland, a wheelwright by trade, was one of three brothers who settled in the Upper Hunter area. In 1824 he was initially granted 160 acres of land near Singleton, in the area of present day Camberwell and Hambledon Hill, but sold them for land around Liddell, Muswellbrook, the Liverpool Plains and Merriwa. By the 1850s he owned much of the land in the growing town of Muswellbrook. He established hotels there, including The Royal, formerly on Bridge Street, in addition to a blacksmiths and coach building business. The National Bank (46 to 48 Bridge Street) is now located on the former site of The Royal Hotel.

In 1842 the Government decided to create a village in the vicinity of the Western Salt Ponds, halfway between Singleton and Muswellbrook, on the main route north. The proposed village did not ever eventuate as Henry Nowland eventually purchased most of the allotments. He initially purchased Lot 1, consisting of 4 acres, 3 roods and 21 perches at the junction of the Chain of Ponds with Saltwater Creek, Liddell. This was an ideal location for the establishment of an inn and a stabling area for coaches and horses. In 1842 he built a sandstone building and lockup. Nowland informed the Muswellbrook Bench that the stone lockup had been built on the site which he offered to rent to the government as a half-way house for the confinement of prisoners in transit. After asking an annual rent of 30 pounds, Nowland eventually accepted 20 pounds to be paid in 5 pound quarterly instalments. However in 1846 Henry Nowland complained that he had received no compensation for police use of his lockup. He stated that:

...he had built a stone lock-up at Muswellbrook, which had been used as such by the police authorities for three years (Parliament of NSW, 1846).

The inn was constructed by convict stonemasons using blocks of stone 2 foot thick. In 1897 it was reported as having been constructed with:

...masonry being as solid as the pyramids (Mackenzie 1897).

A brick stables to the rear of the inn, and also a blacksmiths, are likely to have been constructed in the early 1840s to cater for the Nowland coaches. The stables may also have been used as a mounted police barracks (RNE listing 1400). In 1849 the Maitland Mercury (6 January 1849) announced that Henry Nowland had mail contracts for:

- Singleton-Muswellbrook-Scone by three horse carriage three times a week;
- from and to Scone and Murrurundi by two-horse cart twice a week; and
- from and to Tamworth, Warialda, Wee Waa, Armidale, Tenterfield, Warwick, Drayton, Brisbane (via Ipswich) once a week for 730 pounds.

James Watson rented the sandstone constructed inn building from Nowland and was licensed to keep the inn, initially called the Lady Gipps Inn (also referred to as Watson's Inn). The inn opened on the 23 December 1844. The 11 January 1845 edition of the Maitland Mercury records that James Watson (formerly innkeeper at the Shamrock Inn, Anvil Creek) had opened

...that commodious House built by Mr. Nowland, at the Chain of Ponds half way between Singleton and Muswellbrook and trusts by a strict attention to the comfort of travellers and moderate charges to merit a portion of their patronage. Splendid stabling and supply of horse provender.

Table 3.3 below lists the licensees of the inn.

Table 3.3 - Licensees of Chain of Ponds Hotel

| Licensee | License Type | License # | Date | Name of Inn |
|----------------------------------|--------------|-----------|------------|--------------------|
| James Watson | Publican | 534 | 25/11/1844 | The Lady Gipps Inn |
| James Watson | Publican | 227 | 25/11/1845 | The Lady Gipps Inn |
| James Watson | Publican | 403 | 29/06/1846 | The Lady Gipps Inn |
| James Watson | Publican | 207 | 25/06/1847 | Lady Mary Fitzroy |
| James Watson (or Richard Alcorn) | Publican | 617 | 26/04/1848 | Lady Mary Fitzroy |
| James Watson | Publican | MM | 01/07/1851 | Lady Mary Fitzroy |

Table 3.3 - Licensees of Chain of Ponds Hotel (cont)

| Licensee | License Type | License # | Date | Name of Inn |
|----------------|---|-----------|------------|----------------------|
| James Nowland | Publican | MM | 23/04/1852 | The Coach and Horses |
| W Hutchinson | Publican | MM | 23/04/1853 | Lady Mary Fitzroy |
| James Kirkwood | Publican | 219 | 29/06/1853 | The Coach and Horses |
| James Nowland | Publican | 1012 | 22/04/1854 | Star of the North |
| James Nowland | Publican | MM | 11/03/1855 | Star of the North |
| Henry Hewitt | Publican | 30 | 15/04/1856 | Star of the North |
| Pat Cullen | Publican | 281 | --/04/1857 | The Traveller's Inn |
| Pat Cullen | Publican | MM | --/04/1858 | The Traveller's Inn |
| Henry Hewitt | Publican | 715 | 20/04/1858 | Star of the North |
| Henry Hewitt | Publican | MM | 17/04/1859 | Star of the North |
| Pat Cullen | Publican | MM | 26/06/1860 | The Traveller's Inn |
| John Lumley | Publican | MM | 18/04/1861 | Star of the North |
| S Moore | Publican | | 16/04/1862 | Star of the North |
| Thomas Guest | Publican, Bagatelle, Music and Dancing | | 05/11/1863 | Star of the North |
| Thomas Guest | Publican, Music and Dancing | | 28/04/1864 | Star of the North |
| Thomas Guest | Publican | | 11/04/1865 | Star of the North |
| Thomas Guest | Publican | | 1866 | Star of the North |
| Thomas Guest | Publican | | 1867 | Star of the North |
| H.R.C McAlpin | Publican | | 1868 | Star of the North |
| Joseph Whitton | Wine | | 1872 | Star of the North |
| James Whitton | Wine | | 1873 | Star of the North |
| Mary Whitton | Wine | | 1876 | Star of the North |
| James Whitton | Wine | | 1880 | Star of the North |
| Joseph Whitton | Wine | | 1892 | Star of the North |
| Joseph Whitton | Wine | | 1893 | Star of the North |
| J Whitton | Wine | | 1896 | Star of the North |
| Mary Whitton | | | 1897 | Star of the North |

(Dawson et al:1990; Foggo: 1990)

Henry Nowland died on the 10 February 1863 (aged 66) leaving everything to his widow, Mrs Harriet Nowland. Harriet complained that no rent had been paid for the lock-up from 1 April 1862 to 30 June 1863. The coaching business fell apart and the coaches were purchased by Cobb and Co. This decline in the coach business occurred through the period from Henry's death to the introduction of rail in 1867.

Two possible sources of stone for the construction of the Chain of Ponds Hotel have been identified:

- Grass Tree Hill near Muswellbrook; and
- a creek named Davis's Creek (Dawson et al. 1990:11).

Part of Davis Creek runs through the project area and has outcrops of sandstone. Subsequent survey of the area has identified a former sandstone quarry on a tributary of Davis Creek which may have been the source for the sandstone used to construct the Chain

of Ponds Hotel (refer to **Section 4.4.14**). The bricks used to construct the stables at the rear of the inn are likely to have been made on the site of the inn (Dawson et al 1990: 11).

The Chain of Ponds Hotel and Outbuildings is assessed as being of State significance as an

.. inn complex which is historically significant as a rare survivor of such complexes which served the coach and horse borne traffic in the mid nineteenth century between Morpeth and Tamworth. The hotel is architecturally significant as a late example of the Georgian Regency style. The stone outbuilding, believed to be a farm house which predates the hotel, and the brick stables, possibly a former mounted police barracks, are also significant as examples of that style. Also of interest as part of the complex are the remains, including brick paving, of timber stables and a domed well in the hotel courtyard (RNE Place ID 1440).

3.9 Mining

The development of coal resources comprises an important part of the region's history of coal mining within the Hunter Valley began on a limited scale in the early 1900s, prior to a rapid expansion in the 1950s with the establishment of large open-cut mines (Dean-Jones and Mitchell 1993:2). The southern extent of the project area is marked as 'State Coal Mines' on the 1942 Parish Map of Ravensworth (refer to **Figure 3.2**).

Coal was known to exist in Singleton and its surrounding areas since early exploration. Coal was first mined in the Upper Hunter in the Rixs Creek area near Singleton in the 1860s (Rappoport 2006:24). On 23 September 1886, the 'Singleton News' in the Maitland Mercury reported that

Since Messrs Nowland opened up their mine, sinking for coal has been actively prosecuted on the Ravensworth estate and we learn that the perseverance of the promoters has been successful to such a degree that they intent to float the undertaking shortly into a company with equal capital of £50,000. A prospectus will be shortly issued.

Noble writes that no further information was found on this venture but it indicates that coal extraction was commencing during this time. According to the Heritage Office & DUAP (1996:4) 'coal was not commercially exploited until the 1890s in the Upper Hunter. Coal mining and electricity generation have become major industries in the Singleton area since the 1950s with the first wave of collieries built to meet export demand at Liddell, Foybrook and Liddell State. Since the mid-twentieth century, coal mining operations 'expanded from Cessnock/Maitland area to the triangle bounded by Singleton, Muswellbrook and Denman, using highly mechanised, open cut surface mining techniques in which all overburden is stripped from the surface' (Rappoport 2006:24).

In 1964 the State Electricity Commission commenced construction of the Liddell power station, which was commissioned in 1973. The Bayswater Power station was commissioned in 1980. These projects changed the lifestyle of the residents of Singleton and surrounding local government areas by affecting employment, population, housing, commerce and the character of the locality.

Coal mining commenced at Ravensworth No.2 Open Cut Mine in 1972 to supply coal under contract to Pacific Power (previously known as the Electricity Commission of NSW). Following completion of this contract in 1987, a second contract was awarded to mine the Ravensworth South area at a rate of 3.9 million tonnes per annum until the resource was exhausted in the year 2001.

A further coal contract was secured with Pacific Power in 1990 to provide two million tonnes per annum for 21 years from the Narama area. Mining at Narama began in 1991. This lease

lies immediately to the south of Ravensworth South and is managed from the Ravensworth operation.

Cumnock No. 1 Colliery is the former Liddell State Coal Mine established in the 1950's by the State Mines Control Authority. In 1973 control of the mine was given to the Electricity Commission of NSW. Cumnock No. 1 Colliery, now a wholly owned subsidiary of Xstrata, acquired the mine in 1991.

Ravensworth West Mine began operating in the late 1990's prior to the exhaustion of Ravensworth South. Ravensworth Underground Mine, formerly known as Newpac No. 1 Colliery and Nardell Colliery, received development approval in 1996. Xstrata acquired and assumed management control of the mine in 2008.

3.10 Summary

Historical research shows that from the 1820s to the 1970s, the project area has been predominantly used for grazing sheep and cattle. After this time, major coal mining operations commenced at Ravensworth. The development of coal resources also comprises an important part of the area's history

Pastoral grazing has been the dominant historical use of the project area, and although no longer the dominant land use, the areas pastoral history is evidenced by the history of clearance of native vegetation and construction of pastoral infrastructure such as dams and fences along with homesteads and other rural structures. There was a shift from wool production in the nineteenth century as mixed farming, dairying and to a lesser degree grazing became more important in the twentieth century. Dairying was one of the initial impetuses for the division of large estates in the Upper Hunter. By the 1890s dairying became an important industry in the Upper Hunter.

The south-east portion of the project was previously used for dairy farming and cropping. Currently, land use comprises grazing activities with cropping on the river flats south of the homestead and outside the Ravensworth West lease area.

3.11 Historical Themes

A historical theme is a research tool, which can be used at the national, state or local level to aid in the identification, assessment, interpretation and management of heritage places (AHC 2001:1). Nine national historical themes have been identified by the Australian Heritage Commission (now DEWHA). The Heritage Branch, Department of Planning has identified thirty-five historical themes for understanding the heritage of NSW. The development of the project area is broadly reflective of the history of the local region, and can be assessed in the context of the broader historic themes defined by the Heritage Branch, Department of Planning and DEWHA. In accordance with the Heritage Branch and DEWHA framework of historic themes, the themes in **Table 3.4** are relevant to the project area and locality.

Table 3.4 - Historical Themes Relevant to the Project Area and Locality

| National | National Sub Themes | State Themes | Local Themes/Application |
|--|--|---------------------------------|---|
| 1. Developing local, regional and national economies | Developing Primary Production | Pastoralism Mining | Pastoralism Development of coal mining |
| 2. Building settlements, towns and cities | Making settlements to serve rural Australia. Remembering significant phases in the development of settlements, towns and cities | Land Tenure Early Settlement | Land Tenure and Early Settlement including the history of selection |
| 3. Working | Working on the land Organising workers and workplaces | Pastoralism Railways | Other industries – timber clearing and rabbiting Development of coal mining Gold Mining Railways |
| 4. Educating | Establishing schools | Religion Education | Religion and Education |
| 5. Developing Australia's Cultural Life | Worshipping | Religion Education Death | Religion and Education Death |

4.0 Physical Context

This section discusses the potential heritage items present within the project area, identified through a search of relevant heritage registers, historical research and archaeological survey. This information, in conjunction with the historical context (refer to **Section 3.0**), forms the basis of the significance assessment, refer to (**Section 5.0**) and management strategy, refer to (**Section 6.0**).

The historical site survey of the project area was undertaken in tandem with the Aboriginal heritage investigation conducted by Umwelt and representatives of Aboriginal stakeholder groups. Further survey, targeting the potential historic heritage items identified during the Aboriginal survey and any other potential sites/items identified during historical research, was undertaken by Umwelt following the Aboriginal survey

The Aboriginal archaeological survey was conducted over 36 days between March 2009 to June 2009. Survey was conducted on foot by a team of Umwelt archaeologists and up to 6 Aboriginal stakeholders. A rotational roster system was utilised to ensure that all stakeholders wishing to participate in the survey were provided with the opportunity. Aboriginal stakeholder representatives involved in the survey included Aboriginal Native Title Consultants, Bullen Bullen Heritage Consultants, Cacatua Culture Consultants, Culturally Aware, Gidawaa Walang Cultural Heritage Consultancy, Giwiirr Consultants, HTO Environmental Management Services, Hunter Valley Aboriginal Corporation, Hunter Valley Cultural Consultants, Hunter Valley Cultural Surveying, Lower Hunter Wonnarua Council, Lower Wonnarua Tribal Consultancy, Mingga Consultants, Muswellbrook Cultural Consultants, Ungooroo Aboriginal Corporation, Ungooroo Cultural & Community Services, Upper Hunter Heritage Consultants, Upper Hunter Wonnarua Council, Valley Culture, Wanaruah Local Aboriginal Land Council, Wattaka Wonnarua Cultural Consultants Services, Wonn 1 Consulting, Wonnarua Culture Heritage, Wonnarua Nation Aboriginal Corporation, Yarrawalk and Yinarr Culture Services.

Due to the large size of the project area, 100 per cent survey coverage across the majority of the project area was not feasible; instead, an archaeological survey to address key issues and sample the project area was proposed. Prior to archaeological survey, the landscape of the project area was delineated into a series of landform elements and stream orders (Umwelt 2009b). All of these landforms within the project area were inspected during survey, including along streams, hillslopes, crests and flats. In addition potential sites/items identified during historical research were inspected.

For detailed methodologies and description of the survey strategy refer to draft Aboriginal Heritage Assessment Ravensworth EA (Umwelt 2009b).

4.1 Previous Relevant Historical Investigations

In 2003 Umwelt investigated a site identified within the construction footprint of the Ravensworth West haul road. Inspection identified the site as a homestead complex comprising a former homestead site, the sites of two former outbuildings, a corrugated iron shed and a timber yards complex. The former homestead site was considered likely to date to late nineteenth or early twentieth century. A comprehensive archival recording was undertaken of the site:

- *Investigation of Historic Archaeology and Archival Recording–Haul Road Footprint, Ravensworth West Mining Operations.* Prepared by Umwelt (2005a).

Following the archival recording, no further management of the former homestead site was recommended (Umwelt 2005). The construction of the haul road did not result in an impact to the homestead site; however the project will result in the removal of the site (refer to **Figure 4.1**).

Environmental Impact Statements prepared for Cumnock No.1 Colliery (HLA 2001), Ravensworth Mine (ERM 1997) and Narama Coal Mine (Envirosciences 1990) (refer to **Section 3.0**) identified no historical heritage items within or in the vicinity of the project area, with the exception of the listed items discussed in **Section 1.2**.

4.2 Physical Context of Project Area

The project area is situated in the central portion of the Hunter Valley, characterised by relatively gentle undulating hills, river valleys and floodplains (Peake 2006). To the south is the dissected sandstone plateaux of Wollemi and Yengo national parks, while to the north the foothills of the Barrington Tops and Mount Royal Range adjoin the Hunter Valley floor, which is bounded by the Hunter Thrust System (Peake 2006). The project area lies within the 22,000 km² Hunter catchment, which is drained by the Hunter and Goulburn rivers and their tributaries. The project area is situated approximately 100 kilometres from the coast and 140 kilometres from the western extremity of the Hunter catchment at the Great Dividing Range.

The project area is located within the catchment areas of Bowman's Creek, Bayswater Creek, Emu Creek, Davis Creek and Farrells Creek. Emu Creek, Davis Creek and Farrells Creek are all tributaries of Bayswater Creek. Bayswater Creek flows in a southerly direction through the central portion of the project area to its confluence with the Hunter River in the southern extremity of the project area and Bowman's Creek flows in a southerly direction to its confluence with the Hunter River along the eastern edge of the project area.

The project area is located within a large area of native vegetation on the central Hunter Valley floor, a landscape which has been heavily cleared and disturbed over a long period of time predominantly as a result of pastoral activities dating from the 1820s.

4.3 Archaeological Survey Results

The heritage items identified during the survey of the project area are listed in **Table 4.1** and described in the following sections. **Figure 4.1** illustrates the location of the heritage sites/items within the project area. These sites/items are further illustrated in **Plates 4.1** to **4.29**.

Table 4.1 – Potential Heritage Sites/Items Identified within Project Area

| Site/Item Name | Location | | Site Type/Description |
|----------------|-------------|--------------|--|
| | MGA Easting | MGA Northing | |
| HH1 | 0313827 | 6407142 | Old Lemington Road Bridge over Emu Creek |
| HH2 | 0312332 | 6406219 | Cut tree stump with board holes |
| HH3 | 312357 | 6406229 | Former timber getting site |
| HH4 | 312161 | 6406251 | Dam enclosed by timber fence |
| HH5 | 312197 | 6406206 | Fenced enclosure adjacent to dam |
| HH6 | 312454 | 6405871 | Remnant timber mortised fence line |
| HH7 | 312957 | 6405142 | Cut tree stump with board holes |



Source: Ravensworth Operations 2009

0 1.0 2.0 3km
1:60 000

Legend

- Project Area
- Ravensworth North Pit
- Out of Pit Overburden Emplacement
- Narama Extended (subject to separate approval)
- Existing 330kV Transmission Line
- Proposed 330kV Transmission Line
- Proposed Lemington Road Realignment
- Proposed Mine Access Road
- Existing Infrastructure
- Proposed Infrastructure
- Existing EnergyAustralia 66kV Powerline
- Proposed EnergyAustralia 66kV Powerline
- Ravensworth Operations 66kV Realignment
- Historic Heritage Sites

FIGURE 4.1

Historic Heritage Items



PLATE 4.1
View to southeast showing site HH1
Timber bridge over Emu Creek along former Lemington Road alignment



PLATE 4.2
View of site HH2
Cut tree stump with holes for planks



PLATE 4.3
View of site HH3 - former timber getting site



PLATE 4.4
View of site/item HH4 dam enclosed by mortise and tenon post and two-rail fence enclosure



PLATE 4.5
View of site HH4 showing potential fence line running through dam



PLATE 4.6
View of site HH4 showing narrow channel with timber posts



PLATE 4.7
View of site/item HH5 - mortise and tenon post and two-rail fence enclosure adjacent to dam



PLATE 4.8
View of site HH6 mortise and tenon post fence line



PLATE 4.9
View of site HH7 - cut tree stump with holes for planks



PLATE 4.10
View of site HH8 - corrugated iron tanks



PLATE 4.11

View to southeast of site/item HH9 concrete bridge over Farrells Creek



PLATE 4.12

View to southwest of site HH10 showing potential timber footings of former crossing/bridge over tributary of Farrells Creek



PLATE 4.13
View of site HH13 - concrete foundations alongside vehicle track



PLATE 4.14
View to northeast of site HH14 showing exposed Davis Creek quarry wall. Drill mark is at right of photograph



PLATE 4.15

View to east of site HH14 showing detail of drill mark in exposed Davis Creek quarry wall



PLATE 4.16

View to east of site HH14 showing rock pile at Davis Creek quarry



PLATE 4.17

View of site/item HH17 - mortise and tenon post and one-rail fence associated with the Travelling Stock Reserve



PLATE 4.18

View of site/item HH17 - mortise and tenon post and one-rail fence associated with the Travelling Stock Reserve/Route



PLATE 4.19
View of site/item HH17 - detail showing wire hooked through
drill hole/through mortise joint to attach wire fencing



PLATE 4.20
View of site HH18 - triangular timber enclosure
potentially associated with the Travelling Stock Reserve/Route



PLATE 4.21

View of site HH18 - assorted ceramic and glass fragments associated with the triangular timber enclosure (scale = 500mm)



PLATE 4.22

View to site HH19 - west of stock yards located alongside Lemington Road



PLATE 4.23
View to the south showing site HH20 - potential former location
of timber foundations of a shearing shed



PLATE 4.24
View to the north showing site HH21 - existing access track
in former location of potential hut site



PLATE 4.25

View to east showing site HH23 timber stockyards on east side of Main Northern Railway



PLATE 4.26

View to east showing site HH24 - shed on east side of New England Highway



PLATE 4.27
View to east showing site HH25 - shed adjacent to east side of New England Highway



PLATE 4.28
View to east showing site HH26 - shed adjacent to west side of New England Highway



PLATE 4.29
View showing site HH28 location of former hayshed

Table 4.1 – Potential Heritage Sites/Items Identified within Project Area (cont)

| Site/Item Name | Location | | Site Type/Description |
|----------------|-------------|--------------|--|
| | MGA Easting | MGA Northing | |
| HH8 | 0313327 | 6404563 | Metal tanks |
| HH9 | 313232 | 6404058 | Concrete bridge over Farrells Creek |
| HH10 | 313418 | 6403716 | Former timber bridge foundations over Farrells Creek tributary |
| HH11 | 313698 | 6403934 | Oaklands |
| HH12 | 313032 | 6403814 | Oakland's shed and yards |
| HH13 | 311531 | 6409975 | Concrete foundations |
| HH14 | 311869 | 6410175 | Former quarry on Davis Creek tributary |
| HH15 | 0313716 | 6409995 | Travelling Stock Reserve (TSR) entrance gate |
| HH16 | 0313854 | 6410006 | Dam associated with TSR |
| HH17 | 0313552 | 6410016 | Timber fencing associated with TSR |
| HH18 | 0313319 | 6410030 | Timber enclosure (camp site?) associated with TSR |
| HH19 | 0314204 | 6409578 | Stockyards alongside Lemington Road |
| HH20 | 314362 | 6409380 | Former shearing shed site |
| HH21 | 314467 | 6408906 | Former hut site |
| HH22 | 313572.996 | 6407429.466 | Homestead site |
| HH23 | 315736 | 6412165 | Timber stockyards east of main Northern Railway |
| HH24 | 0316910 | 6410420 | Timber shed and yards on east side of New England Highway |
| HH25 | 318221 | 6407172 | Timber shed on east side of New England Highway |
| HH26 | 0318083 | 6407040 | Timber shed on west side of New England Highway |
| HH27 | 0317978 | 6406966 | Yards associated with shed on west side of New England Highway |
| HH28 | 0316599 | 6404446 | Site of former hayshed |

4.4 Discussion of Historical Heritage Sites/Items

4.4.1 Site/item HH1: Old Lemington Road Bridge over Emu Creek

A timber bridge likely associated with a previous alignment of Lemington Road is located over Emu Creek (refer to **Figure 4.1** and **Plate 4.1**). The bridge consists of a timber deck which has no guard rail extending along either side. The timber superstructure of the bridge is supported by timber piers/piles driven into the creek bed and timber trusses. At either end of the bridge the timber trusses consist of horizontal beams spanning the bridge width. The central truss has an additional two diagonally crossing beams forming a lattice design across of the width of the bridge. The road approach ramp on either side of the bridge is supported by earthen embankments contained by timber beams/planks. The former asphalt road surface of Lemington Road survives in patches on the east and west bridge approaches. Bottles and other road side debris survive on the former road embankment and a timber and metal post wire fence line forms the edge of the former road reserve.

4.4.2 Site/item HH2: Cut tree stump with board holes

A cut tree stump with board holes provides evidence of the clearing and timber getting that would have occurred across the area since early settlement in the 1820s (refer to **Figure 4.1** and **Plate 4.2**). The tree stump has holes cut into it approximately one metre up the trunk. Timber cutters are likely to have inserted planks into these holes on which to balance while chopping down the tree. Using axes and/or a crosscut saw, a V-shaped undercut would have been made on one side of the tree followed by a back cut on the opposite side.

4.4.3 Site/item HH3: Former timber getting site

Further evidence of clearing and timber getting is provided by the remains of a former timber getting site. This site comprises a stockpile of remnant timber offcuts and bark located on either side of a track (refer to **Figure 4.1** and **Plate 4.3**).

4.4.4 Site/item HH4: Dam enclosed by timber fence

In the south-east of the project area there is an approximately circular dam enclosed by a mortise and tenon post and two-rail fence (refer to **Figure 4.1** and **Plate 4.4**). Some of the fence posts forming part of the enclosure comprise the base of a tree trunk, re-used to form part of fence line following the felling of the tree. Line wire has not been added to the fence line. Running through the centre of the dam there appears to be a row of smaller timber posts leading to a narrow channel off the south-west side of the dam which has several remnant timber posts arranged in a rectangular pattern (refer to **Plates 4.5** and **4.6**).

Farm dams are of some importance as sources of fresh water for cattle and their location relative to fences helps understand how the landscape has been managed. The function of the dam (site/item HH4) enclosed by a timber fence is unclear at the time of writing. The dam may have been used to wash animals as there is no apparent washing shed nearby. Farmers may have devised a sheep wash using the dam and its water; the channel leading off the south-west side of the dam may have been filled with water from the dam and used to manually wash sheep/cattle after they had been run through the centre of the dam. Chemicals may have been added to the dam water in which to wash animals. However, line wire has not been added to the timber fence line, as such the fence would not have successfully kept sheep either in or out of the dam area. The fence enclosing the dam may have simply functioned to keep cattle out of the dam.

4.4.5 Site/item HH5: Fenced enclosure adjacent to dam HH4

Adjacent to the south bank of dam HH4 there is a rectangular mortise and tenon post and two-rail fenced enclosure measuring approximately 35 metres by 15 metres (refer to **Figure 4.1** and **Plate 4.7**). A large triangular shaped enclosure constructed using a mortise and tenon post and two-rail fence abuts the rectangular enclosure along its eastern fence line. Timber post and rail fence lines continue to the south and south-east of the enclosures. Plain line wire has been run through the posts above and below the lower timber rail.

The enclosure/yards are likely to have originally been used for cattle as the timber rails are not low enough to contain sheep. The line wire may have been added later above and below the lower timber rail. By adding the line wire, the enclosures would have held sheep as well as cattle. A small gate, too narrow to allow truck access, provides access to the yards.

4.4.6 Site/item HH6: Remnant timber mortised fence line

Remnant fence lines can indicate the early enclosing of the landscape to make paddocks and can indicate the changing use of the landscape. A small number of remnant mortise and tenon timber posts, likely indicating the former location of a post and two-rail fence line, are located in the south-west portion of the project area (refer to **Figure 4.1** and **Plate 4.8**).

4.4.7 Site/item HH7: Cut tree stump with board holes

A second cut tree stump with board holes was identified to the south of Farrells Creek providing further evidence of the clearing and timber getting that would have occurred across the area since early settlement in the 1820s (refer to **Figure 4.1** and **Plate 4.9**). The tree stump has holes cut into it approximately one metre up the trunk. Lumberjacks are likely to have inserted planks into these holes on which to balance while chopping down the tree. Using axes and/or a crosscut saw, a V-shaped undercut would have been made on one side of the tree followed by a back cut on the opposite side.

4.4.8 Site/item HH8: Metal tanks

Four corrugated iron metal tanks are located alongside Farrells Creek in the south portion of the project area (refer to **Figure 4.1** and **Plate 4.10**). These tanks were likely dumped in this location and as such are considered to be out of context with the historical characteristics of the project area.

4.4.9 Site/item HH9: Concrete bridge over Farrells Creek

A small concrete slab road bridge crosses Farrells Creek in the south of the project area (refer to **Figure 4.1** and **Plate 4.11**). The bridge is two span with a central support pier. Raised kerbs line the concrete deck and its metal railings have partially collapsed. The bridge is a simple, economical and effective bridge form, a modest piece of public infrastructure suitable for motor traffic and less maintenance-intensive than a timber bridge.

4.4.10 Site/item HH10: Former timber bridge foundations over Farrells Creek tributary

Four timber posts are located in the south-west corner of the project area adjacent to a tributary of Farrells Creek (refer to **Figure 4.1** and **Plate 4.12**). These posts are likely to be the remains of a former bridge or crossing over the creek.

4.4.11 Site/item HH11: Oaklands

Oaklands is located in the southern portion of the project area (refer to **Figure 4.1**). The complex comprises a number of dwellings and buildings related to the occupation and use of Oaklands from the time of Alexander Bowman in the mid 1800s through to present day. The complex includes the homestead building and a number of intact timber outbuildings, including a shearing shed with well preserved and intact internal fixtures and fittings, including mechanised shearing apparatus and a wool press.

4.4.12 Site/item HH12: Oakland's shed and yards

Timber post and three-rail cattle yards and large timber post built shed clad with corrugated iron are located to the west of Oaklands on the south-west boundary of the project area (refer to **Figure 4.1**).

4.4.13 Site/item HH13: Concrete foundations

A small area of concrete foundations of uncertain function were identified near the proposed north-west boundary of the proposed mining area (refer to **Figure 4.1**). The footings comprised two parallel concrete strip footings alongside a vehicle track at the north-west corner of the proposed mining area (refer to **Plate 4.13**).

4.4.14 Site/item HH14: Former quarry on Davis Creek tributary

A former quarry was identified on a first order tributary of Davis Creek (refer to **Figure 4.1**). The main section of exposed quarry wall measures approximately 22 metres in length on an approximately east to west alignment, with a return to the north of approximately 6 metres (refer to **Plate 4.14**). Intermittent evidence of the quarry wall continues to the north and south of the main exposed section. The exposed quarry wall measures approximately 2 metres in height. Evidence of drill marks remain in the exposed quarry wall (refer to **Plate 4.15**). There are two large piles of assorted rocks within the area of the quarry (refer to **Plate 4.16**). These are likely to be the waste or offcuts left when a quarried block has bits hammered off it to give it its shape and textured surface before being transported to where the stone block was to be used.

As discussed in **Section 3.8**, research has identified two possible sources of stone for the construction of the Chain of Ponds Hotel:

- Grass Tree Hill near Muswellbrook; and
- a creek named Davis's Creek (Dawson et al. 1990:11).

Site/item HH14, located on a tributary of Davis Creek, may comprise a source of the stone for the Chain of Ponds Hotel.

4.4.15 Sites/items HH15 – HH18: Former Government Reserve entrance gate (HH15), associated dam (HH16), fencing (HH17) and potential camp site (HH18)

A sign on a metal and wire gate on the south side of Davis Creek outside of the proposed mining area, indicates the location of a Travelling Stock Reserve – site/item HH15 (refer to **Figure 4.1**). A dam (site/item HH16 - refer to **Figure 4.1**) is located to the east of the gate. The dam is likely associated with the reserve as a watering point for the stock. The dam appears to have been created from a pond within a former chain of ponds system by constructing and strengthening banks. A mortise and tenon post and one-rail fence (refer to **Figure 4.1**, site/item HH17, for identified line of the fence) likely forms the fence of the reserve and also potentially the line of a stock route (refer to **Figure 4.1** and **Plates 4.17** to **4.19**). The fence has two lines of lowa barbed wire run through the posts or attached to it using plain wire ties (refer to **Plate 4.19**). The fence may have first been built as a post and rail fence suitable for cattle, later modified with the addition of the line wire to make it secure for sheep, or originally built as a post and rail and wire fence.

lowa barbed wire is the most common type of steel barbed wire used in Australia. It is characterised by two line wires with a four-point barb wrapped around both wires (Pickard 2009:76). Although barbed wire was first patented in France in 1860, it was a US patent that became commercially available and successful from 1874 (Pickard 2009:18).

Although no Travelling Stock Reserve or Route (TSR) is identified in this area on Parish Maps (refer to **Figures 3.1** and **3.2**) Robert Dixon's 1837 Map of the Colony of NSW (refer to **Figure 3.6**) indicates a government reserve (GR) in the area. In addition, the 1942 Parish Map of Ravensworth (refer to **Figure 3.2**) indicates an area marked as 'Reserve' to the west

of the junction of Saltwater and Davis Creek. This reserve may indicate the area used as a TSR identified on site, potentially during a time of growth in the use of reserves and routes during and following the two world wars (refer to **Section 3.7.1**).

A small triangular shaped timber built enclosure (site/item HH18) is located at a return to the south of the east to west aligned mortise and tenon post one rail-fence and may be associated with the travelling stock route (refer to **Figure 4.1**, site/item HH18, and **Plate 4.20**). The enclosure was constructed using a double post and rail fence with rails roughly stacked between pairs of posts separated from each other by a gap of one rail width. The enclosure, located in the vicinity of the travelling stock reserve and associated dam, is potentially the site of a temporary camp on the travelling stock route. A row of timber posts extend from the mortise and tenon post and one-rail fence (HH17) associated with TSR to the small timber enclosure. The small timber enclosure may have been utilised to secure the drovers' horses during an overnight camp or to separate certain stock during an overnight stop. Assorted fragments of ceramic and glass are present around site/item HH18 (refer to **Plate 4.21**).

4.4.16 Site/item HH19: Stockyards alongside Lemington Road

An area of timber build stock yards is located alongside the present Lemington Road (refer to **Figure 4.1** and **Plate 4.22**). The stockyard has been constructed using a variety of timber gates, fence posts, rails and tree branches. These materials appear to have been recycled from other stockyards and fences to construct what is likely to have been a temporary stockyard area alongside Lemington Road.

Timber built stockyards are typical of rural infrastructure found throughout the Hunter region and common within the rural landscape of the area. The yards appear to form no part of any significant grouping of farm buildings.

4.4.17 Sites/items HH20 and HH21: Former shearing shed (HH20) and hut site (HH21)

Historical research provided by Rob Tickle of the Muswellbrook Local and Family History Society indicated the potential locations of a former shearing shed (site/item HH20) and early hut site and stockyards (site/item HH21) near the convergence of Davis and Bayswater Creeks (refer to **Figure 4.1**). The potential sites were first identified in the 1980s. At the time of identification in the 1980s, the sites comprised timber foundations (site/item HH20 - likely to have been the former location of a shearing shed), a small area of stone foundations (site/item HH21 - likely the fireplace for a small hut or dwelling) and remnant mortise and tenon posts (site/item HH21 - likely to have been former stockyards adjacent to the former hut site). Survey of the area undertaken by Umwelt and Rob Tickle in May 2009 indicated that the sites are likely to have been removed during infrastructure works undertaken since the 1980s.

The timber foundations of the former shearing shed (HH21) are likely to have been removed during the installation of a transmission line (refer to **Plate 4.23**). The area has a light scatter of assorted glass and ceramic fragments on the present highly disturbed ground surface.

The stone foundations are likely to have been for a fireplace for a small hut or dwelling (HH22), and are likely to have been removed during the construction of an existing access track (refer to **Plate 4.24**). No evidence remains for the timber posts of former stock yards. These are likely to have been removed for re-use elsewhere.

4.4.18 Site/item HH22: Homestead site

A former homestead complex comprising a former homestead site, the sites of two former outbuildings, a corrugated iron shed and a timber yards complex is located adjacent to the current Ravensworth West Mine haul road (refer to **Figure 4.1**). A comprehensive archival recording was undertaken of the site in June 2003 and recorded in *Investigation of Historic Archaeology and Archival Recording—Haul Road Footprint, Ravensworth West Mining Operations* prepared by Umwelt (2005a).

4.4.19 Site/item HH23: Timber stockyards east of Main Northern Railway

An area of timber built post and three-rail stockyards is located on the east side of the Main Northern Railway close to the north-east boundary of the project area (refer to **Figure 4.1** and **Plate 4.25**). These stockyards are typical of the rural infrastructure throughout the Hunter region and common within the rural landscape of the area. The yards appear to form no part of any significant grouping of farm buildings.

4.4.20 Site/item HH24: Timber shed and yards on eastern side of New England Highway

A timber shed and associated stockyards are located on the eastern side of the New England Highway, close to the east boundary of the project area (refer to **Figure 4.1** and **Plate 4.26**). The shed is of timber frame construction, clad with weatherboard and with a corrugated iron gable roof. The adjacent area of yards are timber built post and three-rail stockyards. The timber shed is not a listed heritage item, comprises a standing ruin and does not form part of any identified significant grouping of rural farm buildings.

4.4.21 Site/item HH25: Timber shed on eastern side of New England Highway

A timber shed and small associated enclosure is located on the eastern side of the New England Highway, close to the east boundary of the project area and in the vicinity of the proposed intersection of Lemington Road and the New England Highway (refers to **Figure 4.1** and **Plate 4.27**). The shed is a standing ruin comprising a timber post built corrugated iron clad shed with a dirt floor and a small post and rail built enclosure attached. The structure does not form part of any identified significant grouping of rural farm buildings and is not a listed heritage item, however may be associated with the sites/items HH26 and 27 on the western side of the Highway.

4.4.22 Sites/items HH26 and HH27: Timber shed (HH26) and yard area (HH27) on western side of New England Highway

A timber shed and associated area of yards is located on the western side of the New England Highway, close to the boundary of the project area, in the vicinity of the proposed intersection of Lemington Road and the New England Highway (refer to **Figure 4.1** and **Plate 4.28**). The shed is a standing ruin comprising a concrete slab, timber frame constructed shed clad with weatherboard, a corrugated iron gable roof and associated adjacent corrugated iron water tanks. The yard area comprises a small timber post and wire fence constructed enclosure. The shed and yard area do not form part of any identified significant grouping of rural farm buildings and are not listed heritage items, however may be associated with the site/item HH25 on the eastern side of the Highway.

4.4.23 Site/item HH28: Site of former hayshed

The site of a former shed is located in the south-east corner of the project area (refer to **Figure 4.1** and **Plate 4.29**). This is likely to be the site of a former hay shed and comprises the ruin of a collapsed timber post built corrugated iron clad shed. The ruin of the former hay shed does not form part of any identified significant grouping of rural farm buildings.

4.4.24 Fence lines and dams

Rural fences have been built by landholders in NSW since first settlement in 1788. Fences were constructed to mark boundaries, exclude or enclose stock and to facilitate management. They can provide insights into the sequence of land settlement, the development of technology and legislation, environmental changes and the hopes and aspirations of settlers in the Hunter region (Pickard 2009:3). Nineteenth century land legislation in NSW required the fencing of conditional purchase and conditional leases. The post and rail fence is the most iconic of rural NSW fences, however it was expensive and required skill to construct. The use of wire in fencing came about as a way of saving costs (longer panels could be used resulting in fewer posts), as well as being a simpler and faster method of construction.

In addition to the post and rail fences associated with the TSR and the fenced dam (refer to **Sections 4.4.4 to 4.4.6** and **4.4.15**) other fence lines are located across the project area. These fence lines are predominantly post and wire fences constructed using metal posts with line wire or a combination of timber and metal posts with line wire and occasional timber top rails. The fence lines indicate the enclosing of the landscape to make paddocks and are typical of fences found throughout the Hunter Valley and rural NSW.

In addition to the timber fenced enclosed dam and the dam associated with the TSR, other farm dams are located across the project area. Farm dams are of some importance as sources of fresh water for cattle and their location relative to fences helps understand how the landscape was used. However, their physical form has likely been altered over time as they have been enlarged and altered through maintenance as part of ongoing use.

4.5 Known Heritage Sites

The review of heritage listings identified the following listed heritage items within the project area (refer to **Section 1.2**):

- Ravensworth Public School, New England Highway.

In addition, there are several heritage items in the vicinity of the project area with relevance to the history of the immediate area (refer to **Section 1.2**). These include:

- Chain of Ponds Hotel and Outbuildings, Old Singleton Rd, Liddell NSW.
- Ravensworth Homestead, Hebden Road, Ravensworth, NSW.
- St. Clements Anglican Church, Camberwell, NSW.
- Community Hall (C.I.), Camberwell, NSW.

4.6 Summary of Historical, Archaeological and Physical Contexts

The potential heritage resource of the project area generally reflects the documented history of the surrounding region (discussed in **Section 3.0**) which indicates that the land has predominantly been utilised by graziers, agriculturalists, timber getters and in recent times the mining industry. The potential historical heritage resource of the area generally reflects its history as cleared agricultural and pastoral land and is typical of the surrounding region.

The historical heritage evidence of the project area demonstrates the documented pattern of settlement and use from the early to mid nineteenth century, including its settlement by Europeans and subsequent use of the land for pastoral and agricultural activities. Sheep and cattle grazing were undertaken across the project area supplemented by agricultural activities with the cultivation of crops. The areas of timber clearing, cut tree stumps and timber getting sites identified across the project area reflect both the early land clearing activities and timber getting likely undertaken for building materials, fence posts, mine props and sleepers. Evidence of extant homesteads (Oaklands), sheds and other rural structures demonstrate the pattern of land use and historical development of the area. Extant fence lines indicate the enclosing of the landscape to make paddocks and are typical of fences found throughout the Hunter Valley and rural NSW. Farm dams are of some importance as sources of fresh water for dairy cattle and their location relative to fences helps understand how the landscape was used for dairying. Other rural infrastructure, such as bridges, are typical of the development of the area from native bushland and forest into usable pastoral land. The identified quarry site (H14) on the tributary of Davis Creek may have been used as a source for stone used during the construction of the Chain of Ponds Hotel, or as a source of local building materials for road and building construction.

On the basis of the historical context and the history of land ownership, any improvements to the project area would likely have been effected from the early to mid nineteenth century. These improvements were likely initially for sheep management with modifications to provide for cattle management. The general unsuitability of the Hunter for intensive sheep-raising, by comparison with large animals, was being recognised in the early twentieth century although sheep continued to be raised in the vicinity for perhaps another fifty years.

Any additional, as yet unidentified, heritage items that may be present within the project area are likely to be similar to those items identified within the project and described in this section.

The significance of the potential heritage sites/items identified within the project area and described in this section, is assessed in **Section 5.0** of this report. The impact of the project on these items and recommended management strategies to address any heritage impacts is discussed in **Section 6.0**.

5.0 Significance

5.1 Introduction

An assessment of significance is undertaken to explain why a particular place and/or order is important and to enable appropriate site management to be determined.

The Australian ICOMOS *Burra Charter* 1999 (the *Burra Charter*) defines cultural significance as meaning 'aesthetic, historic, scientific or social value for past, present or future generations' (Article 1.2). The *Burra Charter* was written to explain the basic principles and procedures that should be followed in looking after important places. Cultural significance is defined as being present in the 'fabric, setting, use, associations, meanings, records, related places and related objects'. The fabric of a place refers to its physical material and can include built elements, sub-surface remains and natural material (Australian ICOMOS *Burra Charter* 1999).

5.2 Basis of Assessment

The *NSW Heritage Manual (1996)*, published by the NSW Heritage Office and Department of Urban Affairs and Planning, sets out a detailed process for conducting assessments of heritage significance. The manual provides a set of specific criteria for assessing the significance of an item, including guidelines for inclusion and exclusion of relevant criteria.

The seven criteria defined by the Heritage Branch, Department of Planning, and used by the NSW Heritage Council as an assessment format within NSW are outlined below:

Criterion (a) an item is important in the course, or pattern, of NSW's cultural or natural history;

Criterion (b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history;

Criterion (c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW;

Criterion (d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons;

Criterion (e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history;

Criterion (f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history; and

Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments.

The following significance assessment is based upon the above seven criteria.

As a component of the holistic concept of significance, archaeological significance has been described as a measure by which a site may contribute knowledge, not available from other sources, to current research themes in historical archaeology and related disciplines (Bickford & Sullivan, 1984 19-26). Archaeology is concerned with material evidence and the

archaeological record may provide information not available from other sources. An archaeological study focuses on the identification and interpretation of material evidence to explain how and where people lived, what they did and the events that influenced their lives.

Considerations material to the study of the archaeology include:

- whether a site, or the fabric contained within a site, contributes knowledge or has the potential to do so. If it does, the availability of comparative sites and the extent of the historical record should be considered in assessing the strategies that are appropriate for the management of the site; and
- the degree and level at which material evidence contributes knowledge in terms of 'current research themes in historical archaeology and related disciplines'.

Following Bickford and Sullivan's work on archaeological significance (1984, 19-26) the following questions can be used as a guide to assessing the significance of an archaeological site:

- Can the site contribute knowledge that no other resource can?
- Can the site contribute knowledge that no other site can?
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

The Heritage Council of NSW recognises four levels of significance for heritage in NSW: Local, State, National and World. An item has local heritage significance when it is important to the local area. An item has state heritage significance when it is important in NSW. Most heritage in NSW is of local significance.

5.3 Significance of the Heritage Sites within the Project Area

5.3.1 Potential Heritage Sites/Items

The potential heritage sites/items of the project area (refer to **Section 4.0**) are assessed in **Table 5.1** below.

Table 5.1 - Statement of Significance

| Heritage Branch Standard Criteria | Statement of Significance |
|--------------------------------------|---|
| <p>Criterion (a) Historical</p> | <p>While the project area has the potential to demonstrate the pattern of land use and development from its early exploration and settlement from the early to mid nineteenth century (including its settlement by Europeans and the subsequent use of the land for pastoral and agricultural activities through to its exploitation for timber and coal resources) the area is unlikely to contain historical archaeological remains associated with this development history.</p> <p>Any archaeological evidence associated with the use and development of the area (such as for grazing, agriculture and timber felling/land clearing) is likely to be patchy at best, and it would be impossible to specify what such remains may entail and where they would be located.</p> <p>The presence of a quarry on a tributary of Davis Creek potentially confirms the documented historical record of the source of the stone for the construction of the Chain of Ponds Hotel, however is unlikely to provide any further information with regards to the inn. While forming part of the historical development of the area and potentially having associations with the history of the Chain of Ponds Hotel, the quarry would not share the hotel's state significance, which is derived mainly from its architectural style and intactness as an example of a nineteenth century inn and staging post for coach travel (refer to Section 3.8).</p> <p>Evidence of extant fencing, dams, quarries, bridges, tree stumps, and rural buildings/structures demonstrate the pattern of land use and historical development of the area. The timber built structures with concrete slab floors located alongside the New England Highway are likely associated with former dairy farms. By the late nineteenth century dairy farming had become an important industry in the Upper Hunter.</p> <p>Further analysis and investigation of the fenced dam (HH4 and HH5) may provide information regarding local cattle and/or sheep husbandry, however in general the potential heritage items/sites present within the project area are unlikely to provide information not already known from the historical record.</p> |
| <p>Criterion (b) Associative</p> | <p>The project area has associations with several prominent personalities and families in the region (including Dr James Bowman, Captain William Russell, F.J.L. Measures and Alexander Bowman) (refer to Section 3.0).</p> <p>However, while the project area has this associative significance due to its land tenure history, the potential heritage items/sites identified within the project area are unlikely to provide evidence of these associations, with the potential exception of Oaklands and its associations with Alexander Bowman and family.</p> <p>The project area is not known to have any other associations of particular significance.</p> |
| <p>Criterion (c) Aesthetic</p> | <p>The potential heritage sites/items identified within the project area do not generally demonstrate distinctive aesthetic qualities or technical innovations, other than those typical of buildings and features found in rural areas characterised by rural landholdings, native bushland and primary industries including agriculture, forestry and extractive industries.</p> <p>The project area may demonstrate some aesthetic significance as a rural landscape through the creation of a pastoral landscape via the clearing of the native vegetation and construction of fences.</p> <p>The timber bridge and other rural infrastructure portray a common construction technique in the Hunter Region from a limited range of materials, principally timber and it may have some aesthetic significance in the context of the surrounding landscape, however there are other similar examples of timber truss bridges and other rural infrastructure in the Hunter area.</p> <p>Any buildings extant on the project area are representative of a range of farm and residential buildings potentially dating from the mid nineteenth century. They may have some local aesthetic significance arising from their simple unadorned construction from a limited palette of materials, principally timber.</p> |

Table 5.1 - Statement of Significance (cont)

| Heritage Branch Standard Criteria | Statement of Significance |
|--|--|
| Criterion (d) Social | <p>The project area demonstrates the pattern of settlement and development in the area from the early to mid nineteenth century, and is typical of a large rural landscape within the wider regional area. It would be considered unlikely that the area would have a strong association with any previous or contemporary community or group. Accordingly, the potential heritage sites/items identified within the project area do not meet this criterion.</p> |
| Criterion (e) Scientific | <p>There are unlikely to be any intact archaeological remains associated with the nineteenth and twentieth century development and occupation of the project area. A high degree of intactness in the archaeological resource is necessary before a substantive contribution can be made to the research potential and hence, the ability of the archaeological resource to answer research questions for the site. Generally any archaeological remains that may be present would be unlikely to have any research potential and would at best provide only a minor contribution to the significance of the area.</p> <p>Evidence of clearing/timber getting support the known history of timber getting in the area and is unlikely to provide any additional information to that already known for the area.</p> <p>The quarry on a tributary of Davis Creek potentially confirms the information provided in the documented historical resource. Analysis of the stone at the quarry and the Chain of Ponds Hotel could further confirm the quarry as the source of stone, however other than confirming what is suggested in documented information, no further information would be provided.</p> <p>Further analysis, investigation and recording of the fenced dam and enclosure (HH4 and HH5) may provide information regarding local cattle and/or sheep husbandry.</p> <p>Further analysis, investigation and recording of the TSR fence lines, watering point/dam and potential camp site may provide information regarding the history, form and development of TSRs in rural NSW.</p> <p>The timber bridge crossing Emu Creek is typical of bridges constructed in the area from local materials, principally timber, between the mid nineteenth to early twentieth centuries and as such may have a low level of local significance.</p> <p>The concrete bridge is an example of a typical simple, economical and effective bridge form in the wider area.</p> <p>General evidence of rural fences and dams may provide information about how the landscape was used and changed during its use as pastoral land. However, in general as individual items they have little research potential beyond the immediate physical presence of their type.</p> <p>In general, the known and potential historical heritage items extant on site are typical of the area as a large rural landscape and are unlikely to provide further unknown information regarding the history and development of the area.</p> |
| Criterion (f) Rarity | <p>The potential heritage sites/items identified within the project area, including any standing structures and bridges, are typical of structures and other sites/items typically found within rural landscapes such as that of the project area and are unlikely to meet this criteria.</p> <p>The potential heritage resources associated with the project area are not associated with an unusual or remarkable aspect of the region's history. Although any heritage resource within the project area is part of an ever decreasing resource, the resource does not meet this criteria.</p> |

Table 5.1 - Statement of Significance (cont)

| Heritage Branch Standard Criteria | Statement of Significance |
|--|--|
| Criterion (g) Representativeness | The potential heritage sites/items identified within the project area are representative of the structures items/sites typically found in a rural landscape with a history of pastoral and agricultural activities and the exploitation of timber and mineral resources. |

No potential historical archaeological resource has been identified within the project area. As a result, the three questions derived from Bickford and Sullivan's work on archaeological significance (discussed in **Section 5.2**) have not been further considered as part of this significance assessment.

5.4 Listed Heritage Items within and in Vicinity of the Project Area

As discussed in **Section 1.2** there are several listed heritage items within and in the vicinity of the project area. These are summarised in **Table 5.2** below:

Table 5.2 - Listed Heritage Items

| Name | Location | Significance |
|--|---|---------------------|
| Chain of Ponds Hotel | Outside Project Area | State |
| Ravensworth Homestead | Outside Project Area | Regional |
| Ravensworth Public School | Within Project Area (outside proposed disturbance area) | Local |
| St. Clements Anglican Church, Camberwell | Outside Project Area | Local |
| Community Hall, Camberwell | Outside Project Area | Local |

5.5 Condition and Integrity

This section addresses matters that combine with the assessment of significance to allow a formal Heritage Impact Statement to be appropriately validated. The heritage significance of the sites/items within the project area is assessed on the basis of their condition and integrity. *Condition* considers the physical state of the fabric of the resource and its potential for survival. *Integrity* observes the degree to which the residual material evidence is an appropriate representation of the site/relic/object in its original form.

5.5.1 Condition

The condition of potential and known heritage site/items that have been identified above is assessed on a five-stage scale, that is to say:

- (i) *intact*, where the material evidence allows a complete recording of the resource without archaeological hypothesis;
- (ii) *substantially intact*, where the material evidence is incomplete but the recording of material evidence will be sufficient to allow an accurate archaeological reconstruction, with hypotheses based on the archaeological record only;

- (iii) *standing ruin*, where the material evidence is incomplete and the recording of material evidence will be sufficient to define the footprint of the site/item and some of its elevations and features but will be insufficient to allow an accurate archaeological reconstruction of the site/object/place without hypotheses based on the archaeological record and on a range of outside sources;
- (iv) *ruin*, where the material evidence is incomplete and the recording of material evidence may be sufficient to define part, or the whole, of the footprint of the site/item but will be insufficient to allow an archaeological reconstruction of its features, perhaps spatially and certainly vertically, without hypotheses based on the archaeological record and on a range of outside sources, and in circumstances where the validation of the reconstruction cannot be assured; and
- (v) *archaeological site*, implying a mostly sub-surface residue, where the material evidence suggests the former presence of an archaeological site that cannot be defined without sub-surface investigation.

5.5.2 Integrity

The integrity of potential and known heritage site/items that have been identified above is assessed on a five-stage scale, that is to say:

- (i) *Intact*, where the site/item has remained virtually unchanged in its form and/or design and/or function can be totally discerned from the material evidence;
- (ii) *Minor Modification*, where the site/item has been modified or deteriorated cosmetically and/or in a manner that does not inhibit the discernment of its form and/or design and/or function by archaeological interpretation of the material evidence;
- (iii) *Material Modification*, where the site/item has been modified so that its form and/or design and/or function cannot be discerned only by archaeological interpretation and without reference to external sources;
- (iv) *Major Modification*, where the site/item has been so modified that attempted discernment of its form and/or design and/or function cannot be achieved by archaeological interpretation of the material evidence and requires a heavy reliance on external sources and in circumstances where discernment of one or more elements may be equivocal; and
- (v) *None*, where the integrity of the site/item has been completely destroyed and the evidence for its form and/or design and/or function is totally external.

5.5.3 Condition and Integrity of Assessed Items

The condition and integrity of the known and potential heritage sites/items within the project area is summarised in **Table 5.3**. The significance of each site/item is also indicated in **Table 5.3** following consideration of the assessment criteria listed in **Section 5.2** and the statement of significance in **Section 5.3**.

Table 5.3 - Summary of Condition of Known and Potential Heritage Sites/Items in the Project Area

| Site/item | Site/item description | Significance | Condition | Integrity |
|-----------|--|--------------|----------------------|--------------------|
| HH1 | Old Lemington Road bridge over Emu Creek | Local | Substantially intact | Minor modification |
| HH2 | Cut tree stump with board holes | Nil-local | Substantially intact | Minor modification |
| HH3 | Former timber getting site | Nil-Local | Substantially intact | Minor modification |
| HH4 | Dam enclosed by timber fence | Local | Substantially intact | Minor modification |
| HH5 | Fenced enclosure adjacent to dam | Local | Substantially intact | Minor modification |
| HH6 | Remnant timber mortised fence line | Nil-local | Standing ruin | Major modification |
| HH7 | Cut tree stump with board holes | Nil-local | Substantially intact | Minor modification |
| HH8 | Metal tanks | Nil | Substantially intact | Minor modification |
| HH9 | Concrete bridge over Farrells Creek | Nil-local | Intact | Minor modification |
| HH10 | Former timber bridge foundations over Farrells Creek tributary | Nil-local | Standing ruin | Major modification |
| HH11 | Oaklands | Local | Intact | Intact |
| HH12 | Oakland's shed and yards | Nil-local | Intact | Intact |
| HH13 | Concrete foundations | Nil-local | Ruin | Major modification |
| HH14 | Former quarry on Davis Creek tributary | Local | Substantially intact | Minor modification |
| HH15 | TSR entrance gate | Local | Substantially intact | Minor modification |
| HH16 | Dam associated with TSR | Local | Substantially intact | Minor modification |
| HH17 | Timber fence associated with TSR | Local | Substantially intact | Minor modification |
| HH18 | Timber enclosure (camp?) associated with TSR | Local | Substantially intact | Minor modification |
| HH19 | Cattle yards alongside Lemington Road | Nil-local | Substantially intact | Minor modification |
| HH20 | Former shearing shed site | Nil | Archaeological site | None |
| HH21 | Former hut site | Nil | Archaeological site | None |
| HH22 | Homestead site | Local | Standing ruin | Minor modification |
| HH23 | Timber stockyards east of main Northern Railway | Nil-local | Substantially intact | Minor modification |
| HH24 | Timber shed and yards on east side of New England Highway | Nil-local | Substantially intact | Minor modification |
| HH25 | Timber shed on east side of New England Highway | Nil-local | Substantially intact | Minor modification |

Table 5.3 - Summary of Condition of Known and Potential Heritage Sites/Items in the Project Area (cont)

| Site/item | Site/item description | Significance | Condition | Integrity |
|------------------------------|---|--------------|---------------|--------------------|
| HH26 | Timber shed on west side of New England Highway | Nil-local | Standing ruin | Major modification |
| HH27 | Yards associated with HH26 | Nil-local | Standing ruin | Major modification |
| HH28 | Site of former hayshed | Nil-local | Ruin | Major modification |
| Chain of Ponds Hotel | Chain of Ponds Hotel and Outbuildings, Liddell | State | Intact | Intact |
| Ravensthorpe Homestead | Ravensthorpe Homestead, Hebden Road, Ravensthorpe | Regional | Intact | Intact |
| Ravensthorpe Public School | Ravensthorpe Public School, New England Highway | Local | Intact | Intact |
| St. Clements Anglican Church | St. Clements Anglican Church, Camberwell | Local | Intact | Intact |
| Community Hall | Community Hall, Camberwell | Local | Intact | Intact |

5.6 Summary Statement of Significance

The project area is typical of a rural landscape within the Central Tablelands of NSW. The history of the area from the early to mid nineteenth century, including its settlement by Europeans and subsequent use as cleared pastoral and agricultural land through to its exploitation for timber and mineral resources is reflected in the low potential of the archaeological resource and in the evidence of houses and other rural structures, timber clearing/getting sites, and rural infrastructure.

In general terms, the identified and potential heritage components of the project area are of low local significance with no to low research potential.

6.0 Heritage Impact Statement and Management Strategy

This section provides a heritage impact statement and management strategy for the potential heritage sites/items within the project area and also considers items in the vicinity of the project area. The heritage impact statement identifies the potential impact of the project (including open cut mining and construction of surface infrastructure) on all known and potential heritage sites/items identified within the project area. The impacts are assessed against the significance of the respective elements.

Figure 4.1 shows the conceptual mine plan (including locations of proposed open cut extension and infrastructure corridors) in relation to the locations of the known and potential heritage sites/items.

6.1 Ravensworth Operations Project

As outlined in **Section 2.0** and illustrated on **Figures 2.1** and **4.1**, the Ravensworth Operations Project involves extending open cut mining within its existing mine leases, and expanding operations by accessing additional mining areas as part of the project.

6.1.1 Open Cut Mining

As outlined in **Section 2.0** and illustrated on **Figures 2.1** and **4.1**, the project involves an area of open cut mine mining comprising the extension of existing operations and additional open cut mine and out-of-pit dump areas. Following the preparation of the proposed open cut area (clearing of vegetation and topsoil) the overburden will require drilling and blasting to enable it to be removed as part of mining operations.

Operations will undertake blasting in accordance with a detailed design process that considers operational, geological and environmental constraints. However, indirect impacts such as vibration from blasting have the potential to damage/destroy/disturb historical heritage items. An assessment of potential blasting impacts associated with the project has been undertaken (Heggies 2009).

The approach of this assessment was to determine the limiting factors to the blast design for the project with the aim of achieving the relevant impact criteria, in relation to both airblast and vibration, within areas surrounding the project. This assessment included the consideration of listed heritage sites/items surrounding the project (refer to **Section 4.5**) to ensure that the proposed blasting practices will not impact on these listed items/sites. For the majority the listed sites/items, relevant blasting criteria have been derived as part of the assessment and approval processes for surrounding mining operations. These criteria have been adopted for the assessment of potential blasting impacts associated with the project.

British Standard 7385: Part 2 -1993 *Evaluation and measurement for vibration in buildings Part 2* provides criteria against which the likelihood of building damage from ground vibration can be assessed. Sources of vibration which are considered in the standard include blasting (carried out during mineral extractions or construction excavation), demolition, piling, ground treatments (compaction), construction equipment, tunnelling, road and rail traffic and industrial machinery.

The standard states that the guide values relate predominantly to transient vibration which does not give rise to resonant responses in structures, and to low-rise buildings. Where the dynamic loading caused by continuous vibration is such as to give rise to dynamic

magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values may need to be reduced by up to 50%. Since buildings close to the proposed Ravensworth West Mine pit extension could potentially experience resonance effects, a conservative level of continuous 'minimal risk of cosmetic damage' criterion of 10 mm/s for ground vibration and 133 dBL_{linear} for airblast has been adopted for the listed heritage sites/items within the vicinity of the project, where specific criteria have not been derived. .

6.1.2 Surface Infrastructure

As outlined in **Section 2.0** and illustrated on **Figures 2.1** and **4.1**, the project will require the construction of a number of surface infrastructure facilities. These include:

- Upgrade/expansion of existing Ravensworth Operations mine infrastructure area.
- New surface infrastructure facilities and workshop building north of Davis Creek (where required).
- New ROM coal conveyor system and raw coal stockpile.
- Expansion and upgrade of the Ravensworth Coal Terminal (RCT) to process up to 20 Mtpa ROM coal from Ravensworth Operations and Ravensworth Underground.
- Realignment of an existing 330 kV transmission line.
- Upgrade/expansion of Ravensworth Underground Mine surface infrastructure.

6.1.3 Road Diversions

As outlined in **Section 2.0** and illustrated on **Figures 2.1** and **4.1** it is proposed to realign the southern portion of Lemington Road prior to the commencement of open cut mining.

The proposed realignment of Lemington Road will include the relocation of the road to the southern extent of the project area (refer to **Figure 2.1**). The proposed location is consistent with the original alignment of Lemington Road prior to the commencement of the Narama mine operations. It is a requirement of the Narama development consent (DA 135/90) for Ravensworth Operations to reinstate Lemington Road to its original alignment after completion of mining. The proposed realignment will include the upgrade of the original intersection of Lemington Road and the New England Highway approximately 6 kilometres to the south of the existing intersection.

6.2 Potential Impact of the Project Area and Management Strategies

This section addresses the potential impacts resulting from the project to each of the identified site/items and proposes a management strategy to mitigate any impacts.

6.2.1 Site/item HH1: Old Lemington Road Bridge over Emu Creek

Heritage Impact Statement

Site/item HH1 is located within the proposed mining area (refer to **Figure 4.1**).

This site has been assessed as having low local significance and no research potential. This site will be removed during the proposed open cut extension.

Recommendation

A detailed recording of the bridge to Heritage Branch, Department of Planning standards for archival recording should be completed by a qualified heritage consultant, prior to disturbance.

6.2.2 Site/item HH2: Cut tree stump with board holes

Heritage Impact Statement

Site/item HH2 is located approximately 50 metres to the south of the proposed alignment of Lemington Road (refer to **Figure 4.1**).

This site has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site or its heritage significance over the life of the project.

Recommendation

No further management of site HH2 is required during the project.

6.2.3 Site/item HH3: Former timber getting site

Heritage Impact Statement

Site/item HH3 is located immediately adjacent and to the south of the proposed alignment of Lemington Road (refer to **Figure 4.1**). The site may be impacted during the construction of the proposed road corridor.

The construction of Lemington Road in its current proposed alignment may impact the fabric and thus any heritage significance of this site/item. However, this site has been assessed as having nil to low local significance and no research potential.

Recommendation

No further management of site HH3 is required during the project.

6.2.4 Site/item HH4: Dam enclosed by timber fence

Heritage Impact Statement

Site/item HH4 is located approximately 250 metres to the south of the proposed mining area and approximately 120 metres to the south of the proposed alignment of Lemington Road (refer to **Figure 4.1**).

This site it has been assessed as having local significance and low research potential. There are unlikely to be any direct impacts to this site or its heritage significance over the life of the project.

This site/item may be potentially indirectly impacted by proposed blasting through vibration.

Recommendation

A detailed recording of the site/item HH4 to Heritage Branch, Department of Planning standards for archival recording should be completed by a qualified heritage consultant, prior to disturbance.

6.2.5 Site/item HH5: Fenced enclosure adjacent to dam

Heritage Impact Statement

Site/item HH5 is located approximately 250 metres to the south of the proposed mining area and approximately 150 metres to the south of the proposed alignment of Lemington Road (refer to **Figure 4.1**).

This site has been assessed as having local significance and low research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance during the proposed mining period.

This site/item may potentially be indirectly impacted by proposed blasting through vibration.

Recommendation

A detailed recording of site/item HH5 to Heritage Branch, Department of Planning standards for archival recording should be completed by a qualified heritage consultant, prior to disturbance.

6.2.6 Site/item HH6: Remnant timber mortised fence line

Heritage Impact Statement

Site/item HH6 is located approximately 270 metres to the south of the proposed mining area and approximately 180 metres to the south of the proposed alignment of Lemington Road (refer to **Figure 4.1**).

This site has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance over the life of the project.

Recommendation

No further management of site HH6 is required for the project.

6.2.7 Site/item HH7: Cut tree stump with board holes

Heritage Impact Statement

Site/item HH7 is located approximately 340 metres to the south of the proposed mining area (refer to **Figure 4.1**).

This site it has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance over the life of the project.

Recommendation

No further management of site HH7 is required for the project.

6.2.8 Site/item HH8: Metal tanks

Heritage Impact Statement

Site/item HH8 is located approximately 730 metres to the south of the proposed mining area and away from any proposed infrastructure or other works (refer to **Figure 4.1**).

This site has been assessed as having no significance and no research potential. There are unlikely to be any direct impacts to this site/item over the life of the project.

Recommendation

No further management of site HH8 is required for the project.

6.2.9 Site/item HH9: Concrete bridge over Farrells Creek

Heritage Impact Statement

Site/item HH9 is located approximately 1.3 kilometres to the south of the proposed mining area and away from any proposed infrastructure or other works (refer to **Figure 4.1**).

This site has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance over the life of the project.

Recommendation

No further management of site HH9 is required for the project.

6.2.10 Site/item HH10: Former timber bridge foundations over Farrells Creek tributary

Heritage Impact Statement

Site/item HH10 is located approximately 1.5 kilometres to the south of the proposed mining area and away from any proposed infrastructure or other works (refer to **Figure 4.1**).

This site has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance over the life of the project.

Recommendation

No further management of site HH10 is required for the project.

6.2.11 Site/item HH11: Oaklands

Heritage Impact Statement

Oaklands (site/item HH11) is located approximately 1.4 kilometres to the south of the proposed mining area and immediately adjacent and to the west of the proposed Lemington Road realignment and the proposed dam (refer to **Figure 4.1**).

Oaklands comprises a number of dwellings and buildings related to the occupation and use of Oaklands from the time of Alexander Bowman in the mid 1800s through to present day. The complex includes the homestead building and a number of intact and well preserved

timber outbuildings, including a shearing shed with well preserved and intact internal fixtures and fittings, including mechanised shearing apparatus and a wool press.

This site it has been assessed as having local significance and low research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance during the proposed mining period.

This site/item may potentially be indirectly impacted by proposed blasting through vibration.

Recommendation

A detailed heritage assessment and archival recording of the Oaklands complex of buildings to Heritage Branch, Department of Planning standards should be completed by a qualified heritage consultant, prior to commencement of mining in the Ravensworth North area.

6.2.12 Site/item HH12: Oakland's shed and yards

Heritage Impact Statement

Site/item HH12 is located approximately 1.5 kilometres to the south of the proposed mining area and away from any proposed infrastructure or other works (refer to **Figure 4.1**).

This site it has been assessed as having nil to low local significance and no research potential. There are unlikely to be any direct impacts to this site/item or its heritage significance during the proposed mining period.

Recommendation

Oaklands shed and yards should be considered as part of the detailed heritage assessment and archival recording of the Oaklands complex of buildings (refer to **Section 6.2.11**).

6.2.13 Site/item HH13: Concrete foundations

Heritage Impact Statement

Site/item HH13 is located on the northern boundary of the proposed mining area within the proposed out of pit dump (refer to **Figure 4.1**).

This site will likely be directly impacted/removed during the project. This site it has been assessed as having nil to low local significance and no research potential.

Recommendation

No further management of site/item HH13 is required for the project.

6.2.14 Site/item HH14: Former quarry on Davis Creek tributary

Heritage Impact Statement

Site/item HH14 is located within the proposed out of pit dump (refer to **Figure 4.1**).

This site it has been assessed as having local significance and low research potential. This site will be directly impacted during the proposed mine works.

Recommendation

A detailed recording of site/item HH14 to Heritage Branch, Department of Planning standards for archival recording should be completed by a qualified heritage consultant, prior to disturbance. During the archival recording the full extent of the quarry should be investigated, identified and recorded.

6.2.15 Sites/items HH15 to HH18: Former Government Reserve entrance gate (HH15), associated dam (HH16), fencing (HH17) and enclosure/camp site (HH18)

Heritage Impact Statement

Sites/items HH15 to HH18 are located within or in the vicinity of the proposed out of pit dump (refer to **Figure 4.1**).

These sites have been assessed as having local significance and low research potential. The sites appear to all be associated with an area of former Government Reserve. Sites HH17 and 18 will be directly impacted during the proposed mine works. As a result of their associations and context sites HH15 and HH16 will be indirectly impacted by the removal of sites HH17 and HH18.

Recommendation

A detailed recording of sites/items HH15 to HH18 to Heritage Branch, Department of Planning standards for archival recording should be completed by a qualified heritage consultant, prior to disturbance. During the archival recording the full extent of the system of fence lines potentially associated with the TSR should be investigated, identified and recorded.

6.2.16 Site/item HH19: Stockyards alongside Lemington Road

Heritage Impact Statement

Site/item HH19 is located alongside the current and proposed alignment of Lemington Road approximately 400 metres to the east of the boundary of the proposed mining area (refer to **Figure 4.1**).

The construction of Lemington Road in its current proposed alignment may impact the fabric of this site/item. This site it has been assessed as having nil to low local significance and no research potential.

Recommendation

No further management of site/item HH19 is required for the project.

6.2.17 Site/item HH20: Former shearing shed site

Heritage Impact Statement

Site/item HH20 was formerly located on the boundary of the out of pit dump (refer to **Figure 4.1**). As discussed in **Section 4.4.17**, any remains of the former shearing shed site have been impacted and removed previous to the current proposed works.

Recommendation

No further management of site/item HH20 is required for the project.

6.2.18 Site/item HH21: Former hut site

Heritage Impact Statement

Site/item HH21 was formerly located on the boundary of the proposed mining area (refer to **Figure 4.1**). As discussed in **Section 4.4.17**, any remains of the former hut site have been impacted and removed previous to the current proposed works.

Recommendation

No further management of site/item HH20 is required for the project.

6.2.19 Site/item HH22: Homestead site

Heritage Impact Statement

Site/item HH22 is located within the proposed mining area (refer to **Figure 4.1**).

This site has been assessed as having local significance and low research potential. This site will be removed during the project.

Recommendation

A comprehensive archival recording was undertaken of the site in June 2003 and recorded in *Investigation of Historic Archaeology and Archival Recording—Haul Road Footprint, Ravensworth West Mining Operations* prepared by Umwelt (2005a). As such, no further management of site/item HH20 is required during the proposed works.

6.2.20 Site/item HH23: Timber stockyards east of Main Northern Railway

Heritage Impact Statement

Site/item HH23 is located within the eastern boundary of the project area on the eastern side of the Main Northern Railway approximately 2.8 kilometres from the proposed mining area (refer to **Figure 4.1**) and approximately 250 metres from the proposed 330 kV transmission line realignment.

No direct impacts to the stockyards have been identified. This site has been assessed as having nil to low local significance and no research potential. Vibration is not expected to have any detrimental impact to the site.

Recommendation

No further management of site HH23 is required for the project.

6.2.21 Site/item HH24: Timber shed and yards on east side of New England Highway

Heritage Impact Statement

Site/item HH24 is a standing ruin located within the eastern extent of the project area on the eastern side of the New England Highway approximately 2.75 kilometres from the proposed mining area and away from any proposed infrastructure or other works (refer to **Figure 4.1**).

No direct impacts to this site have been identified. This site is a standing ruin and has been assessed as having nil to low local significance and no research potential. Vibration is not expected to have any further detrimental impact to sites that are already ruined.

Recommendation

No further management of site HH24 is required for the project.

6.2.22 Site/item HH25: Timber shed on east side of New England Highway

Heritage Impact Statement

Site/item HH25 is a standing ruin located within the eastern extent of the project area on the eastern side of the New England Highway approximately 4.3 kilometres from the proposed mining area and approximately 25 metres to the east of proposed works associated with the construction of the proposed upgrade of the intersection of Lemington Road and the New England Highway (refer to **Figure 4.1**).

No direct impacts to this site have been identified. This site is a standing ruin and has been assessed as having nil to low local significance and no research potential. Vibration is not expected to have any further detrimental impact to sites that are already ruined.

Recommendation

No further management of site HH24 is required for the project.

6.2.23 Sites/items HH26 and HH27: Timber shed (HH26) and associated yard area (HH27) on west side of New England Highway

Heritage Impact Statement

Sites/items HH26 and HH27 are standing ruins located within the eastern extent of the project area on the western side of the New England Highway approximately 4.15 kilometres from the proposed mining area and approximately between 75 and 100 metres to the north-west of proposed works associated with the construction of the proposed upgrade of the intersection of Lemington Road and the New England Highway (refer to **Figure 4.1**).

No direct impacts to this site have been identified. This site is a standing ruin and has been assessed as having nil to low local significance and no research potential. Vibration is not expected to have any further detrimental impact to sites that are already ruined.

Recommendation

No further management of site HH24 is required for the project.

6.2.24 Site/item HH28: Site of former hayshed

Heritage Impact Statement

Site/item HH28 is a ruin located within the south-eastern extent of the project area and is located approximately 4 kilometres from the proposed mining area and away from any proposed infrastructure or other works.

No direct impacts to this site have been identified. This site is a standing ruin and has been assessed as having nil to low local significance and no research potential. Vibration is not expected to have any further detrimental impact to sites that are already ruined.

Recommendation

No further management of site HH24 is required for the project.

6.2.25 Other general rural infrastructure including fence lines

Heritage Impact Statement

In addition to the timber post and rail fences and associated dams discussed above, other fence lines (generally metal post and wire fences) and general rural infrastructure are located across the project area. If present within the proposed mining area, out of pit dump area or in the vicinity of proposed infrastructure these are likely to be impacted as part of the project. However, these items are typical of the wider area as part of a large rural landscape and are unlikely to provide information regarding the area's history and development.

Recommendation

No further management of fence lines or dams, other than those identified above, is required for the project.

6.3 Listed Heritage Items within Project Area

This section addresses the potential impacts resulting from the proposed works to listed heritage items within the project area and proposes a management strategy to mitigate any impacts.

6.3.1 Ravensworth Public School, New England Highway

Heritage Impact Statement

Ravensworth Public School is listed in the Singleton 1996 (LEP) Schedule 3 Heritage Items, Part 3 Items classified as being of local significance. The school building is located within the eastern extent of the project area approximately 2.7 kilometres from the proposed mining area (refer to **Figure 4.1**).

As the school is located outside of the proposed disturbance area there are no direct impacts to the school building associated with the project. As outlined in **Section 6.1.1**, Ravensworth Operations will manage proposed blasting practices to meet relevant blast impact assessment criteria at listed heritage sites/items within the vicinity of the project, including the school site.

Recommendation

Ravensworth Operations should ensure that relevant blast criteria are met at the Ravensworth Public School site through management of blasting practices over the life of the project.

6.4 Potential Impacts outside the Project Area and Management Strategies

This section addresses the potential impacts resulting from the proposed works to listed heritage items in the vicinity of the project area and proposes a management strategy to mitigate any impacts.

6.4.1 Chain of Ponds Hotel and Outbuildings, Liddell NSW

Heritage Impact Statement

State Heritage Register listed Chain of Ponds Hotel and Outbuildings is located approximately 380 metres to the north-east of the Protect area, and approximately 3.1 kilometres to the north-east of the proposed mining area.

No direct impacts to the inn have been identified as it is located outside the project area, 3.1 kilometres from the proposed mining area. As outlined in **Section 6.1.1**, Ravensworth Operations will manage proposed blasting practices to meet relevant blast impact assessment criteria at listed heritage sites/items within the vicinity of the project, including the Chain of Ponds Hotel site.

Recommendation

Ravensworth Operations should ensure that relevant blast criteria are met at the Chain of Ponds Hotel site through management of blasting practices over the life of the project.

6.4.2 Ravensworth Homestead, Hebden Road, Ravensworth, NSW

Heritage Impact Statement

Ravensworth Homestead is listed in the Singleton 1996 (LEP) Schedule 3 Part 2 Items classified as being of regional significance. The homestead is located approximately 1.25 kilometres to the east of the project area and approximately 5 kilometres to the east of the proposed mining area. As indicated in **Section 3.3**, Xstrata Coal, EJE Architecture and Australian Heritage Restorations have recently undertaken the conservation and restoration of the Ravensworth Homestead.

No direct impacts to the homestead have been identified as it is located outside the project area, approximately 5 kilometres from the proposed mining area. As outlined in **Section 6.1.1**, Ravensworth Operations will manage proposed blasting practices to meet relevant blast impact assessment criteria at listed heritage sites/items within the vicinity of the project, including the Ravensworth Homestead site.

Recommendation

Ravensworth Operations should ensure that relevant blast criteria are met at the Ravensworth Homestead site through management of blasting practices over the life of the project.

6.4.3 St. Clements Anglican Church, Camberwell and Community Hall (C.I.), Camberwell

Heritage Impact Statement

St. Clements Anglican Church and the Community Hall are both listed in the Singleton 1996 (LEP) Schedule 3 Part 3 Items classified as being of local significance. The church is located approximately 1.8 kilometres to the south-east of the project area and approximately 6.2 kilometres to the south-east of the proposed mining area. The hall is located approximately 2.3 kilometres to the south-east of the project area and approximately 6.7 kilometres to the south-east of the proposed mining area.

No direct impacts to the church or hall have been identified as they are located outside the project area, approximately 6.2 kilometres and 6.7 kilometres respectively from the proposed mining area. As outlined in **Section 6.1.1**, Ravensworth Operations will manage proposed blasting practices to meet relevant blast impact assessment criteria at listed heritage sites/items within the vicinity of the project, including the St Clements Anglican Church and the Community Hall.

Recommendation

Ravensworth Operations should ensure that relevant blast criteria are met at the St Clements Anglican Church and Community Hall through management of blasting practices over the life of the project.

6.5 Unexpected Finds

In the unlikely event that unexpected archaeological remains or potential heritage items not identified as part of this report are discovered during the project (for example during works associated with the proposed mining activities or the construction of surface infrastructure), all works in the immediate area should cease, the remains and potential impacts should be assessed by a qualified archaeologist or heritage consultant and, if necessary, the Heritage Branch, Department of Planning notified.

7.0 References

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