

Planning Proposal

Muswellbrook Brick Works - Removal of heritage listing

Prepared for Muswellbrook Coal Company Limited

November 2022

Planning Proposal

Muswellbrook Brick Works - Removal of heritage listing

Muswellbrook Coal Company Limited

E211267 RP#2

November 2022

Version	Date	Prepared by	Approved by	Comments
1	30 May 2022	Rachael Thelwell	Paul Freeman	Draft
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Approved by



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30 November 2022

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This report has been prepared in accordance with the brief provided by Muswellbrook Coal Company Limited and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of Muswellbrook Coal Company Limited and no responsibility will be taken for its use by other parties. Muswellbrook Coal Company Limited may, at its discretion, use the report to inform regulators and the public.

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1 Objectives and intended outcomes

This planning proposal details a proposed Local Environmental Plan (LEP) for the Muswellbrook Local Government Area (LGA). It has been prepared by EMM Consulting Pty Limited (EMM) in response to a request from Muswellbrook Shire Council and on behalf of Muswellbrook Coal Company Limited (MCC), the proponent.

The objective of the proposed Local Environmental Plan (LEP) is to remove Muswellbrook Brick Works (Item I112) from Schedule 5 of the Muswellbrook Local Environmental Plan 2009. The Muswellbrook Brick Works (hereafter referred to as 'the brickworks') commenced operations in 1957 and ceased operating in 1999. Consent for demolition of the brickworks was granted by Muswellbrook Shire Council in 2009 due to extant structures presenting a hazard (Muswellbrook History Society, 2010, p.7). Demolition of the brickworks occurred in May 2012. A historical heritage assessment of the former brickworks site has been undertaken by EMM (see Appendix A). This assessment concluded that the site no longer contains historical heritage significance.

Therefore, retaining the brickworks heritage listing has no heritage conservation benefits and removal of the item from the LEP heritage schedule is necessary to ensure appropriate land use decisions can be made with respect to the land.

This planning proposal has been prepared in accordance with the *Local Environmental Plan Making Guideline* (NSW Department of Planning, Industry and Environment September 2022).

2 Explanation of provisions

The proposed LEP includes the following minor changes to the Muswellbrook LEP 2009 written instrument and Heritage Map:

- Schedule 5 Environmental Heritage – remove item I112.
- Heritage Map – remove item I112.

3 Justification of strategic and site-specific merit

The *Local Environmental Plan Making Guideline* (NSW Department of Planning, Industry and Environment September 2022) identifies questions that should be considered when demonstrating the justification for the proposal. Consideration of these questions is given below in Table 3.1.

Table 3.1 Justification for the proposal

Question	Consideration
Section A – need for the planning proposal	
1. Is the planning proposal a result of an endorsed local strategic planning statement (LSPS), strategic study or report?	This proposal is not a result of an endorsed LSPS, strategic study or report. This proposal is in response to a request from Muswellbrook Shire Council and a historic heritage assessment that concluded that Item I112 no longer contains historical heritage significance. Removal of the item from the LEP heritage schedule is, therefore, necessary to ensure appropriate land use decisions can be made with respect to the land.
2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?	The proposal is the only means of achieving the stated objectives. The only alternative is to retain the item within the heritage schedule and map, which would potentially have an adverse impact on land use decisions within the Muswellbrook Shire.
Section B – relationship to the strategic planning framework	
3. Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (including any exhibited draft plans or strategies)?	The objectives and actions of the applicable regional, or district plan or strategy are not relevant to the proposal.
4. Is the planning proposal consistent with a council's local strategic planning statement that has been endorsed by the Planning Secretary or GSC, or another endorsed local strategy or strategic plan?	There is no endorsed local strategic planning statement, or another endorsed local strategy or strategic plan relevant to the proposal.
5. Is the planning proposal consistent with any other applicable State and regional studies or strategies?	There are no State and regional studies or strategies applicable to the proposal.
6. Is the planning proposal consistent with applicable State Environmental Planning Policies (SEPPs)?	The proposal is consistent with applicable SEPPs – see Table 3.2.
7. Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?	The proposal is consistent with applicable Ministerial Directions – see Table 3.2.
Section C – environmental, social and economic impact	
8. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected because of the proposal?	The proposal is administrative and does not involve works that would impact habitat or threatened species, populations or ecological communities.
9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?	The proposal is administrative. The item has been demolished and the area contains no heritage significance (refer Appendix A). Therefore, removal of the item from the Heritage Schedule would have no environmental effects.
10. Has the planning proposal adequately addressed any social and economic effects?	There are no anticipated social or economic effects of removing the item from the Heritage Schedule.

Table 3.1 Justification for the proposal

Question	Consideration
Section D – Infrastructure (Local, State and Commonwealth)	
11. Is there adequate public infrastructure for the planning proposal?	The planning proposal is administrative and does not require public infrastructure.
Section E – State and Commonwealth Interests	
12. What are the views of state and federal public authorities and government agencies consulted in order to inform the Gateway determination?	Muswellbrook Shire Council has requested that this proposal be prepared and is, therefore, considered to be supportive of the proposed LEP. See section 5 for details of relevant community consultation undertaken.

The planning proposal's consistency with applicable State Environmental Planning Policies (SEPPs) and Ministerial Directions (s.9.1 directions) is detailed in Table 3.2.

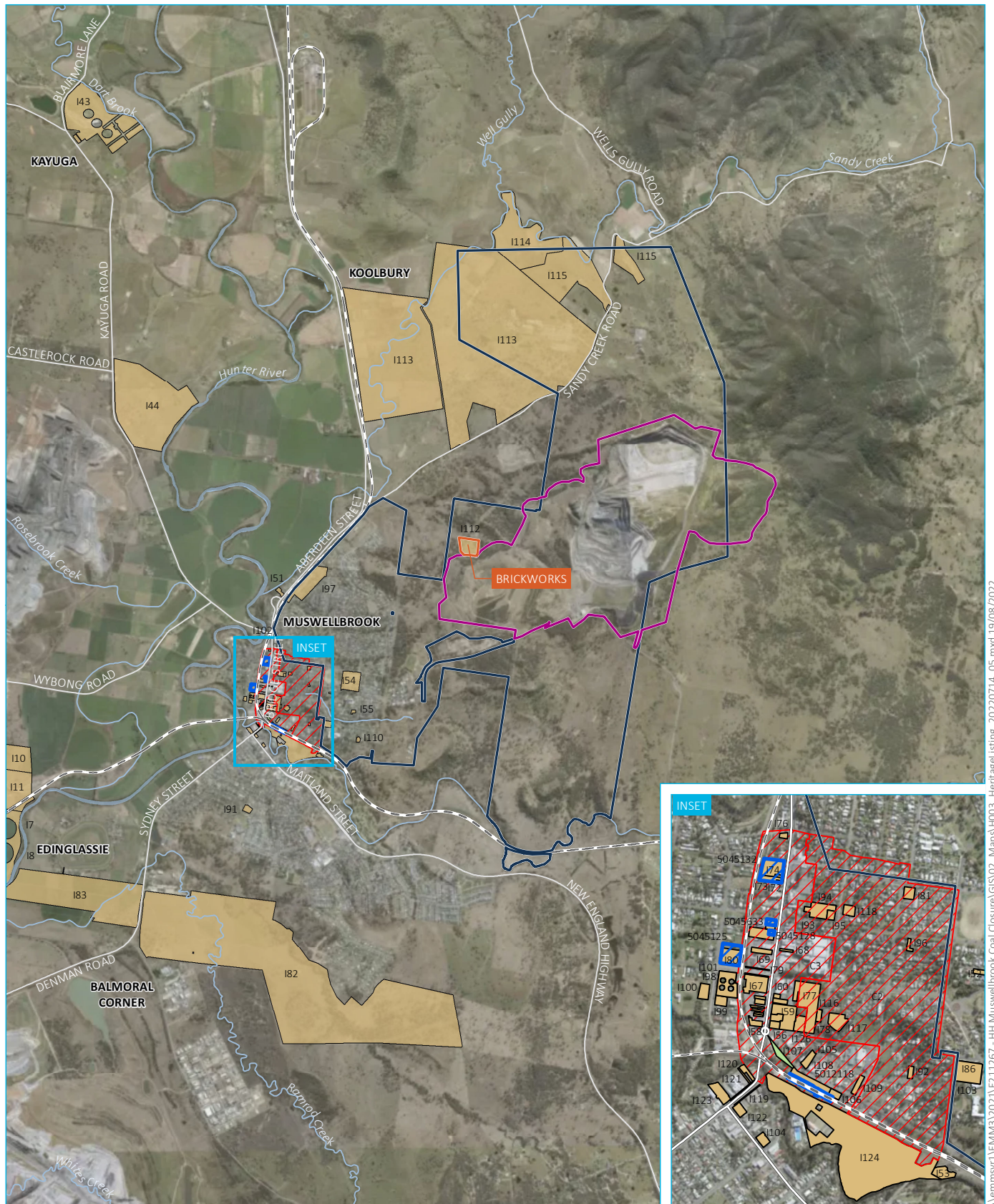
Table 3.2 Consistency with applicable SEPPs and Ministerial Directions

Instrument	Applicability	Consistency
State Environmental Planning Policies		
Exempt and Complying Development Codes 2008	The SEPP provides exempt and complying development codes for types of development that are of minimal environmental impact that may be carried out without the need for development consent or in accordance with a complying development certificate.	This proposal would allow the applicability of this SEPP as land that contains heritage items are excluded from exempt and complying development codes. Therefore, removal of the I112 from the LEP heritage schedule would allow for more efficient use of land.
Primary Production 2021	Aims of the SEPP include to facilitate the orderly economic use and development of lands for primary production.	The subject land is zoned RU1. The proposal will facilitate the orderly and economic use and development of the land for primary production.
Ministerial Directions		
1.3 Approval and referral requirements	The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.	The proposal allows for efficient and appropriate assessment of development by removing an item from the heritage schedule that no longer has heritage significance (see Appendix A).
3.2 Heritage Conservation	The objective of this direction is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.	The proposal relates to an item that no longer has heritage significance (see Appendix A).
9.2 Rural Lands	Objectives of this direction include to facilitate the orderly and economic use and development of rural lands for rural and related purposes.	The subject land is zoned RU1. The proposal will facilitate the orderly and economic use and development of rural lands for rural and related purposes.

4 Maps

The brickworks were located at Coal Road Muswellbrook within Lot 4/-/DP1220491. It is noted that Schedule 5 contains incorrect location information (likely outdated) with its location being Muswellbrook Common, Lot 101 DP 578075. The location of Item I112 is shown in Figure 4.1, in the context of other local heritage items.

MCC is the owner of the subject land.



Source: EMM (2022); ABS (2021); DFSI (2020, 2021); Metromap (2022); MCC (2022); DAWE (2022)

KEY

- Development Consent Boundary DA205 - 2002
- Muswellbrook Coal title boundary
- Brickworks LEP boundary
- Heritage Act
- ▨ State Heritage Act
- Muswellbrook LEP (2009)
- ▨ Conservation Area - general
- ▨ Heritage item - general
- ▨ Heritage item - landscape
- Existing environment
- Rail line
- Major road
- Named watercourse
- ▨ Named waterbody

Local area & Heritage listings

Muswellbrook Brickworks
Planning Proposal
Figure 4.1

5 Community consultation

This Planning Proposal was prepared in response to a request from Muswellbrook Shire Council to remove Item I112 from the Muswellbrook Local Environmental Plan 2009. Further consultation with Muswellbrook Shire Council will be undertaken post submission and during the assessment and determination process. Consultation with Muswellbrook Shire Council has also historically been undertaken in relation to demolition of the brickworks.

The local community and government agencies will be able to provide submissions on the proposed LEP during public exhibition.

6 Project timeline

The anticipated timeline for the LEP making process is below (see Table 6.1) and, given its administrative nature, is in accordance with the basic timeframe benchmarks in the *Local Environmental Plan Making Guideline* (NSW Department of Planning, Industry and Environment September 2022). The timeframe assumes that the proposal will proceed to a Gateway determination and that a rezoning review (after the Gateway determination) will not be required.

However, it is anticipated that the proposed LEP (as detailed above) will be able to be expedited under Section 3.22 of the *Environmental Planning and Assessment Act 1979*. This is because the provisions are minor in nature and will not have any significant adverse impact on the environment or adjoining land. If the Minister (or delegate) permits parts of the process to be dispensed, then this would reduce the project timeline.

Table 6.1 Indicative project timeline

Stage	Estimated timeframe
Consideration by council	1-2 months
Council decision	
Gateway determination	25 days
Pre-exhibition	20 days
Commencement and completion of public exhibition period	70 days
–Consideration of submissions	
Post-exhibition review and additional studies	
Submission to the Department for finalisation (where applicable)	25 days
Gazettal of LEP amendment	

References

Muswellbrook Shire Local & Family History Society Inc. (2010). *Archival Recording and Photographic Record of Muswellbrook Brickworks*.

Appendix A

Historical heritage assessment

Historical Heritage Assessment

Proposed Muswellbrook Local Environmental Plan

Prepared for Muswellbrook Coal Company Limited

August 2022

Historical Heritage Assessment

Proposed Muswellbrook Local Environmental Plan

Muswellbrook Coal Company Limited

E11267 RP3

August 2022

Version	Date	Prepared by	Approved by	Comments
1	15 July 2022	Rachael Thelwell	Pamela Kottaras	Draft to Client
2	19 August 2022	Rachael Thelwell	Pamela Kottaras	Final

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1 Introduction

1.1 Overview

Muswellbrook Coal Company Limited (MCC), a wholly owned subsidiary of Idemitsu Australia Pty Ltd (Idemitsu), is the owner of Lot 4/-/DP1220491, the location of the former Muswellbrook Brick Works (brickworks). The brickworks were listed in 1996 on the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP) as *Muswellbrook Brick Works* (Item I112) and remain an item of environmental heritage on Schedule 5 of the LEP despite having been demolished in 2012. MCC proposes to submit a planning proposal to remove the Muswellbrook Brick Works from the LEP. This report was prepared by EMM Consulting Pty Limited (EMM) and provides an assessment of historical heritage values for the planning proposal.

1.2 Assessment objectives and scope

This historical heritage assessment has been prepared to assess the historical heritage values of the former brickworks site. The assessment is to draw a reasonable conclusion as the heritage status of the former brickworks site and its suitability as an LEP-listed heritage item.

The brickworks has been assessed a number of times, and this report has based its conclusions on the information in those reports.

The scope of works to achieve the objectives is as follows:

- assess the cultural (historical) significance of the former brickworks site;
- make a determination on the significance of the archaeological resources associated with the now demolished brickworks; and
- make a recommendation as to the suitability of the heritage listing for the brickworks.

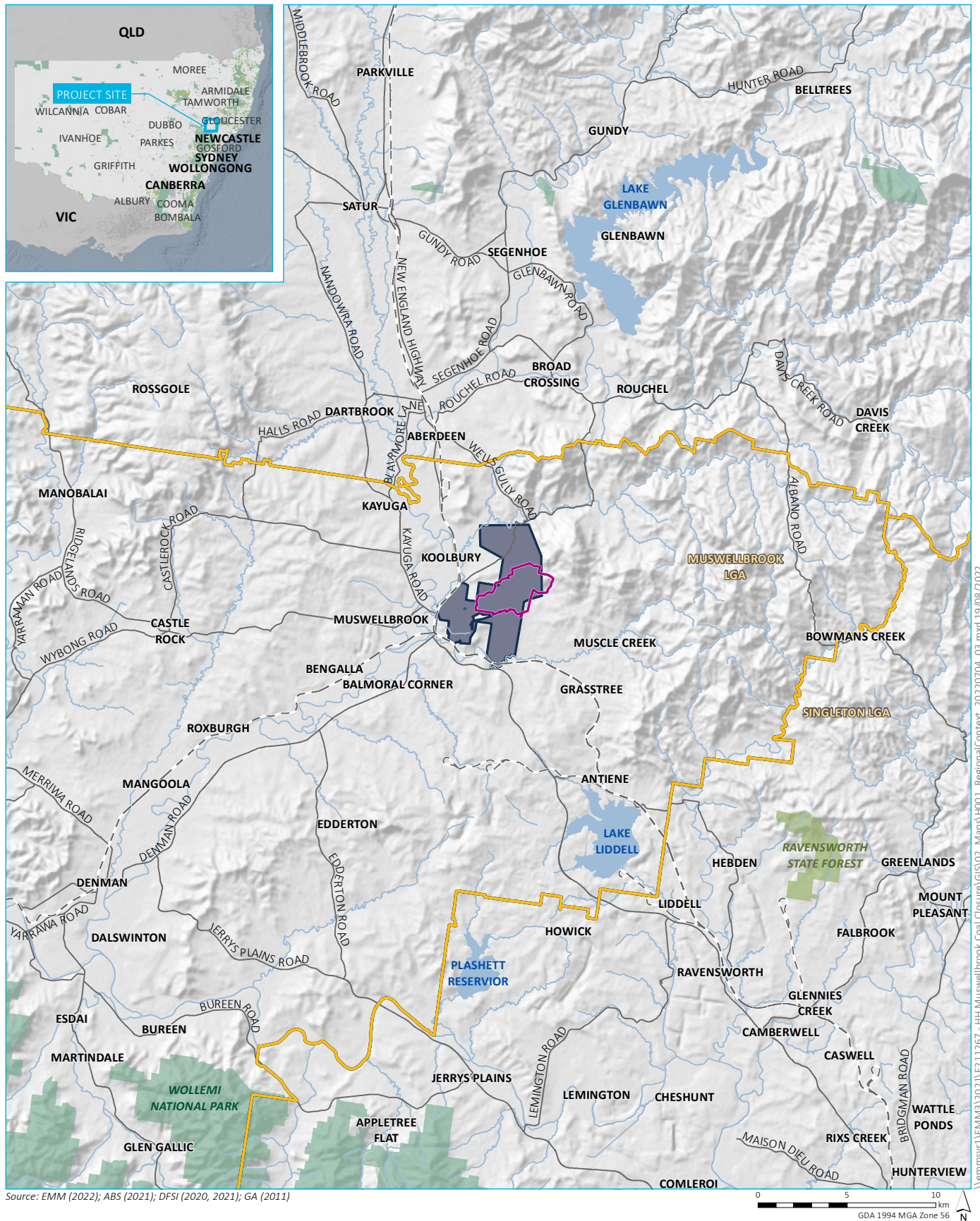
The objectives summarised above were achieved with the scope, which includes:

- review of heritage reports relevant to the brickworks;
- review of heritage registers; and
- assessments of significance of known or potential heritage items identified through documentary research or the site inspection.

1.3 Site description

The former brickworks site is situated in the Upper Hunter Valley of NSW (Figure 1.1), in the Muswellbrook Shire local government area (LGA). Surrounding land uses include coal mining, Muswellbrook Shire Council's (MSC) Waste Management Facility, agricultural activities such as grazing of beef cattle, a light industrial estate, rural-residential areas, the Muswellbrook urban area and St Heliers Correctional Centre.

The boundary of Item I112 as mapped under the Muswellbrook LEP is referred to in this report as 'the project area'.



KEY

- Development Consent Boundary DA205 - 2002
- Muswellbrook Coal title boundary
- Rail line
- Major road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

Muswellbrook Coal Closure
Historic Heritage Assessment
Figure 1.1

1.4 Report assessment methods

1.4.1 Assessment guidelines and requirements

This report has been prepared in accordance with the relevant government assessment requirements, guidelines and policies. The report and field survey were undertaken using the principles of *The Australian International Council on Monuments and Sites, Charter for Places of Cultural Significance* (also known as the *Burra Charter*, Australia ICOMOS 2013) and the New South Wales (NSW) *Heritage Manual* (Heritage Office 1996 with regular additions).

The Burra Charter: The Australian ICOMOS charter for places of cultural significance (ICOMOS (Australia), 2013) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The *Burra Charter* defines the concept of cultural significance as ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Australia ICOMOS 2013, Article 1.2). It identifies that conservation of an item of cultural significance should be guided by the item’s level of significance. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places. A copy of the charter can be accessed online at <http://icomos.org/australia>.

The Burra Charter consists of 34 articles, arranged into five sections: definitions, conservation principles, processes and practice. The principal articles of the Burra Charter are:

- conservation is based on significance;
- a cautious approach is required – changing as much as necessary, but as little as possible; and
- maintenance is fundamental to conservation.

Further articles relate to preservation (maintaining fabric in its current state), restoration and reconstruction, adaptation and the introduction of new structures or extensions.

The Heritage Manual comprises the following guidance documents:

- *Statements of Heritage Impact Guidelines* (Heritage Office 2006);
- *Investigating Heritage Significance* (Heritage Office 2004);
- *Assessing Heritage Significance* (Heritage Office 2001); and
- *Assessing Significance for Historical Archaeological Sites and ‘Relics’* (Heritage Branch Department of Planning 2009).

These documents have been used to guide the historical heritage assessment and SoHI.

1.4.2 Research sources

Research for this report was conducted using primary and secondary sources. Previous heritage reports prepared for MCC were reviewed (Section 1.4.3). Where detailed contextual information was needed, primary sources including online archives (ie Trove), the Historic Lands Records Viewer, and historical aerial photographs were consulted.

The list of references can be found at the end of this report.

1.4.3 Previous studies

Previous studies covering the project area were consulted in the preparation of this report and the results in those external reports informed the outcomes here.

External reports that informed this study are:

- *Archival Recording and Photographic Record of Muswellbrook Brickworks*, 2010, prepared by Muswellbrook Shire Local & Family History Society Inc. for Muswellbrook Coal Co. (May). The Muswellbrook brickworks is a listed site within the project area. The report assessed and recorded the brickworks site prior to demolition.
- *Muswellbrook Brick Works [sic] Heritage Study Inventory*, 1996. The Muswellbrook brickworks is a known heritage site within the project area. The brickworks were assessed to be of local significance.

1.5 Authorship

This report was researched by Amelia O'Donnell (EMM) and written by Pamela Kottaras (EMM). Quality assurance was completed by Luke Kirkwood (EMM) and Pamela Kottaras.

1.6 Acknowledgements

This report was prepared with the assistance of Julie Thomas (MCC) and Jill Johnson (IEMA) and Rachael Thelwell (EMM).

The figures were prepared by Danielle Robinson (EMM).

2 Statutory framework

2.1 Legislation

In NSW, heritage items and relics, that is archaeological sites assessed to be of local or State significance, are protected by two main pieces of legislation: the EP&A Act and the NSW *Heritage Act 1977*. An additional layer of protection is added, in certain circumstances, by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The EPBC Act provides a legal framework to protect the environment. The EPBC Act definition of environment includes places of natural, Indigenous and historic heritage value. Under the EPBC Act, heritage places can be listed on:

- World Heritage List (WHL) – places inscribed on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List;
- National Heritage List (NHL) -places of significance to the nation; and
- Commonwealth Heritage List (CHL) - items belonging to the Commonwealth or its agencies.

2.1.2 Heritage Act 1977 (NSW)

The *Heritage Act 1977* (Heritage Act) serves to conserve the heritage places, items and objects of NSW. The Heritage Council of NSW is constituted under the Heritage Act to advise the Minister with responsibility for heritage on matters relating to the conservation of the State's heritage. In practice, this power is largely delegated to Heritage NSW.

i STATE HERITAGE REGISTER

Under the Heritage Act, items of significance to the State can be recognised on the State Heritage Register (SHR). Items on the SHR cannot be demolished, damaged, developed, altered or excavation undertake without approval from the Heritage Council of NSW (or its delegate) under Section 59 of the Act.

ii ARCHAEOLOGY AND RELICS

Relics, defined as “any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and is of State or local significance”, are protected under Section 139 of the Heritage Act. A person cannot knowingly disturb or excavate land when they suspect a relic to be present without holding an excavation permit or an exemption. Section 139 applies to all land in NSW not listed on the SHR. Section 146 requires persons to notify the Heritage Council of NSW within a reasonable time if an unanticipated relic is discovered. The Heritage Act identifies the category of ‘works’, which refers to historical infrastructure, and is viewed as separate to that of archaeological ‘relics’ under the Heritage Act. ‘Works’ may be buried, and are therefore archaeological in nature, but exposing a ‘work’ does not trigger reporting obligations under the Heritage Act unless it is of demonstrable significance.

iii STATE GOVERNMENT HERITAGE AND CONSERVATION (S170) REGISTERS

Section 170 of the Heritage Act requires State government agencies establish and maintain a register of heritage items, to be known as a Heritage and Conservation Register. State agencies are required to undertake due

diligence with regard to the care, control and management of items listed on their Section 170 Heritage and Conservation Register. Additionally, State agencies must notify the Heritage Council of NSW 14 days in advance if they intend to remove an item from their register, transfer ownership, cease occupation, demolish. Section 170 does not place statutory requirements on individuals or non-State government entities.

2.1.3 Environmental Planning and Assessment Act 1979 (NSW)

The EP&A Act establishes the framework for development assessment within NSW, with one of the objects of the Act being to promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage. The EP&A Act sets a framework for applications that are approved by local council, by the Department of Planning and Environment (DPE), or by the government agency undertaking the works.

Demolition of the brickworks was granted under the EP&A Act by Muswellbrook Shire Council on 9 October 2009 (Muswellbrook History Society, 2010, p.7).

2.1.4 Muswellbrook Local Environmental Plan 2009

Part 5, Section 5.10 addresses the conservation of heritage significance within the LGA. The objectives of the Muswellbrook LEP in relation to heritage are:

- a) to conserve the environmental heritage of Muswellbrook;
- b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views;
- c) to conserve archaeological sites; and
- d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

To achieve these objectives, development consent is required to demolish, move, alter, disturb or excavate a heritage item, an Aboriginal object or a building, work, relic or tree within a heritage conservation area. Schedule 5 of the LEP provides a list of heritage items, conservation areas and archaeological sites within the LGA.

2.2 Identifying listed heritage items

Listing on statutory registers provides a basis under which the item or place is protected, and change is managed through project approval. Statutory listings provide legal protection for heritage items under the legislation outlined above.

Statutory registers reviewed as a part of this assessment include:

- World Heritage List (WHL) – the register is managed under the EPBC Act;
- National Heritage List (NHL) – the register is made under the EPBC Act;
- Commonwealth Heritage List (CHL) – the register is made under the EPBC Act;
- State Heritage Register (SHR) – this register is made under Part 3A of the Heritage Act;
- s170 register – this register is made under Section 170 of the Heritage Act;
- Schedule 5 of the Muswellbrook LEP; and

- State Heritage Inventory (SHI), which was cross-checked with Schedule 5 of the Muswellbrook LEP and the s170 register. The SHI is not a single statutory register, but a central collection of locally listed statutory heritage items maintained by Heritage NSW.

Non-statutory listing is an acknowledgment of a site's, or place's, importance to sections of the community. Listings on such registers do not place legal requirements on development, but nevertheless influence the future of such listed items. Non-statutory registers reviewed as a part of this assessment include:

- National Trust of Australia, NSW (NT) – the NT is made up of autonomous state chapters. Each chapter is a community-based and non-government organisation, with a mandate to conserve and promote Australia's natural and cultural heritage. Classification by NT is a strong acknowledgment of heritage significance and while statutory constraints are not applicable, classification offers protection through visibility and community action.
- Register of the National Estate (RNE) – the RNE is an archived list of heritage items that were protected under the now repealed Commonwealth *Heritage Commission Act 1975*, which was replaced by the EPBC Act. While many items were transferred from the RNE to the NHL or CHL, those that were not remain on the RNE as an indication of their heritage value.

The "Muswellbrook Brick Works", Item I112, is listed as a heritage item under the Muswellbrook LEP. This item was demolished and may have left archaeological resources, which are assessed in this report.

3 Existing environment

3.1 Introduction

The environmental characteristics of any area influenced the way people used the landscape. In the past, the availability of resources such as water, flora, fauna, stone material and topography played a substantial role in the choice of camping, transitory movement and ceremonial areas used by Aboriginal people.

Migrants to the early colony looked for the same landscape characteristics but manipulated their environment in ways that left more obvious marks. Water, level or gently sloping ground, and suitable soils to grow crops and animals was sought after. Therefore, understanding environmental factors assists with predicting where sites are likely to occur. Additionally, natural and cultural (human-made) site formation processes that occur after the deposition of archaeological material influence the way archaeological material is distributed and preserved across a landscape.

3.2 Landscape overview

To the east of brickworks, the existing landscape is a combination of continued open cut mining, areas that were formerly mined underground, rehabilitated land, and a small amount of land that has been avoided by major mining activities. These avoided areas are open paddocks, with areas of native vegetation, unsealed tracks and dams. Some grazing occurs in the paddocks but other than that, no other activities are undertaken in the project area. The town of Muswellbrook is located to the south-west of brickworks.

The landscape of the former brickworks is generally open paddock with a gentle slope to the north. Directly to the south of the site, the landform rises steeply to form low hills. These slopes were formed from a combination of natural and cultural processes, and display modifications and land disturbance associated with the construction of a road to the south, water management trenches to the north-west and south, and two dams to the east. Clumps of native forest survive in the general location and encircle the brickworks site.

3.3 Listed heritage sites

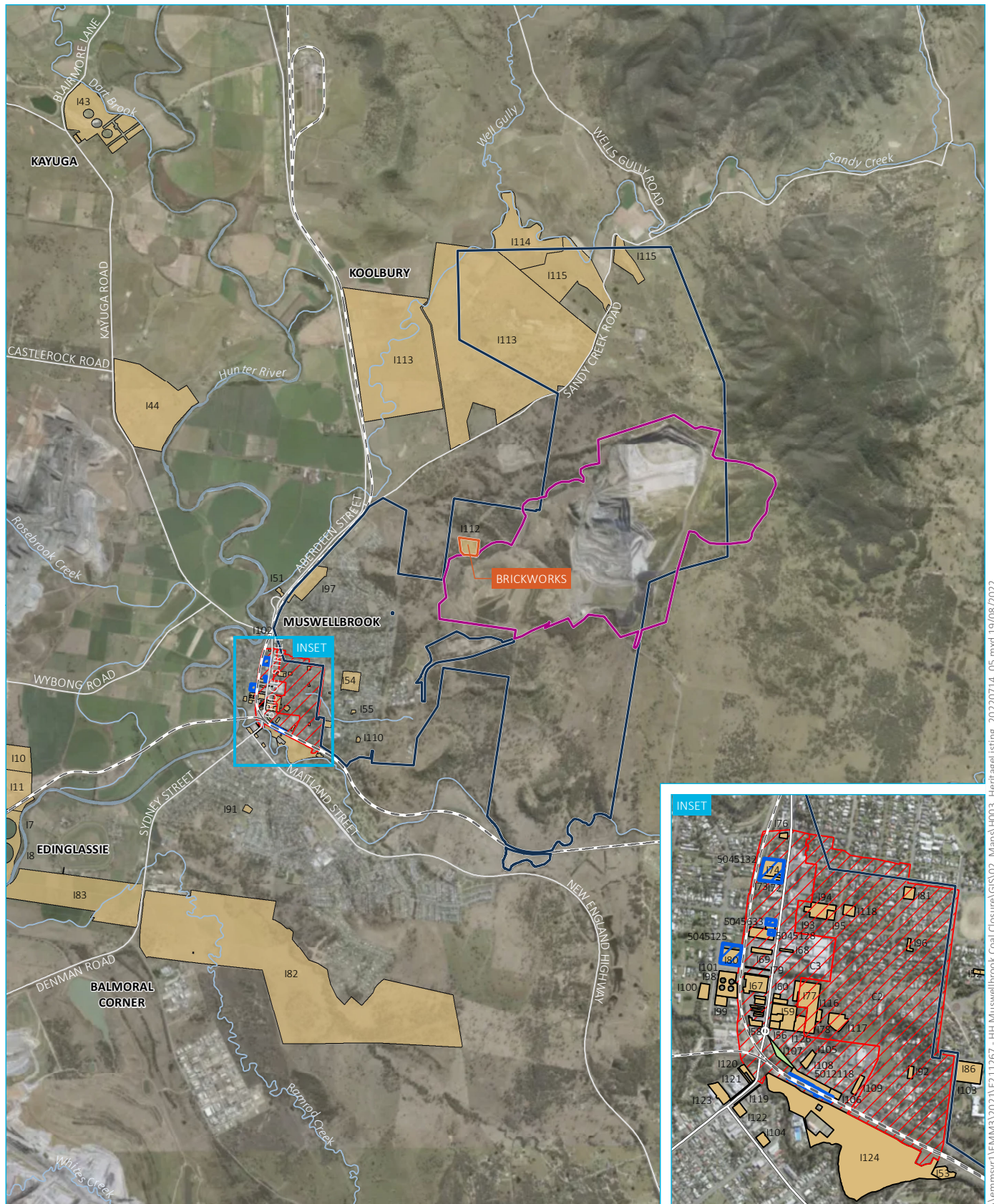
One heritage item, the brickworks (LEP Item I112), exists in the project area.

Muswellbrook has a number of heritage items that are listed on the SHR and the LEP situated either greater than 2 km to the east of the project area in the Muswellbrook urban area or approximately 3 km north (refer Figure 3.1).

The brickworks were listed in 1996 for values attributed to 'rare regional historic', 'rare local aesthetic' and 'rare regional scientific' criteria and its significance lay largely in the built form.

3.4 Unlisted sites

No unlisted historical sites of built or archaeological value are known to exist in the project area.



Source: EMM (2022); ABS (2021); DFSI (2020, 2021); Metromap (2022); MCC (2022); DAWE (2022)

KEY

- | | |
|--|---|
| Development Consent Boundary DA205 - 2002 | Existing environment |
| Muswellbrook Coal title boundary | Rail line |
| Brickworks LEP boundary | Major road |
| Heritage Act | Named watercourse |
| State Heritage Act | Named waterbody |
| Muswellbrook LEP (2009) | |
| Conservation Area - general | |
| Heritage item - general | |
| Heritage item - landscape | |

Heritage listings

Muswellbrook Coal Closure
Historic Heritage Assessment
Figure 3.1

4 Historical summary

4.1 Historical summary

4.1.1 Development of Muswellbrook and the Upper Hunter

The project area is the traditional country of the Wonnarua people (also Wanarruwa). Tindale (1974) records Wonnarua country extending from the Upper Hunter River near Maitland to the Great Dividing Range in the west. Wonnarua dreaming stories state that the Hunter Valley was created by Baime (Byamee), the Great Spirit (Wonnarua Nation Aboriginal Corporation, 2014). Baime created all living things and made the spirit of Kawal, who takes the form of a wedge tailed eagle, to watch over the Wonnarua (Wonnarua Nation Aboriginal Corporation, 2014). The Wonnarua had close trading and social connections with the Gamilaraay groups (also Kamilaroi, Kamillaroi) who inhabited the Goulburn Valley to the south-west and the Geawegal to the north, around Scone (Turner, 1996, p.8). As Europeans moved into the region the Wonnarua people of Muswellbrook were permanently dislocated from their traditional lifeways.

The first official European party into the Hunter region was led by Lieutenant John Shortland in 1797 (McMartin, 1967). While in pursuit of escaped convicts Shortland's party sailed into the Hunter River estuary and once there, Shortland named the river, charted the harbour and collected samples of coal (McMartin, 1967). In 1801 Governor King established a convict settlement known as King's Town (later Newcastle) on the banks of the Hunter River to take advantage of the coal, timber and shell resources of the area (Turner, 1996, p.7). With a growing colony desperate for land Governor Macquarie closed the Kings Town settlement in 1819 and opened the Hunter Valley for free settlement (Turner, 1996, p.13).

In 1824 Assistant Surveyor Henry Dangar was charged with surveying future land grants in the unsettled Upper Hunter Districts (Gray, n.d.). On 2 August 1824 Dangar crossed Muscle Creek, after which Muswellbrook was named, on the route to the Hunter River near Aberdeen (Turner, 1996, p.14). In 1825 botanist Allan Cunningham led another exploration into the region around Jerrys Plains, south of the project area, but settlers had already begun to move into the region (Turner, 1996, p.15).

A few years prior to the settlement of Muswellbrook, Governor Bigge introduced the *New South Wales Act* (4 Geo. IV, c.96), which shifted the financial burden of the convict system from the government to wealthy settlers (Bennett, 1966). Bigge's scheme created a distinctive pattern of settlement in the Upper Hunter where wealthy settlers, often experienced agriculturalists and livestock breeders, were granted large tracts of land and large numbers of convict labourers to work the land (Turner, 1996, p.15). The large estates of the Upper Hunter primarily focused on wheat production and sheep-based pastoralism but viticulture and thoroughbred breeding also occurred (HLA-Envirosciences Pty Limited, 2002, p.41).

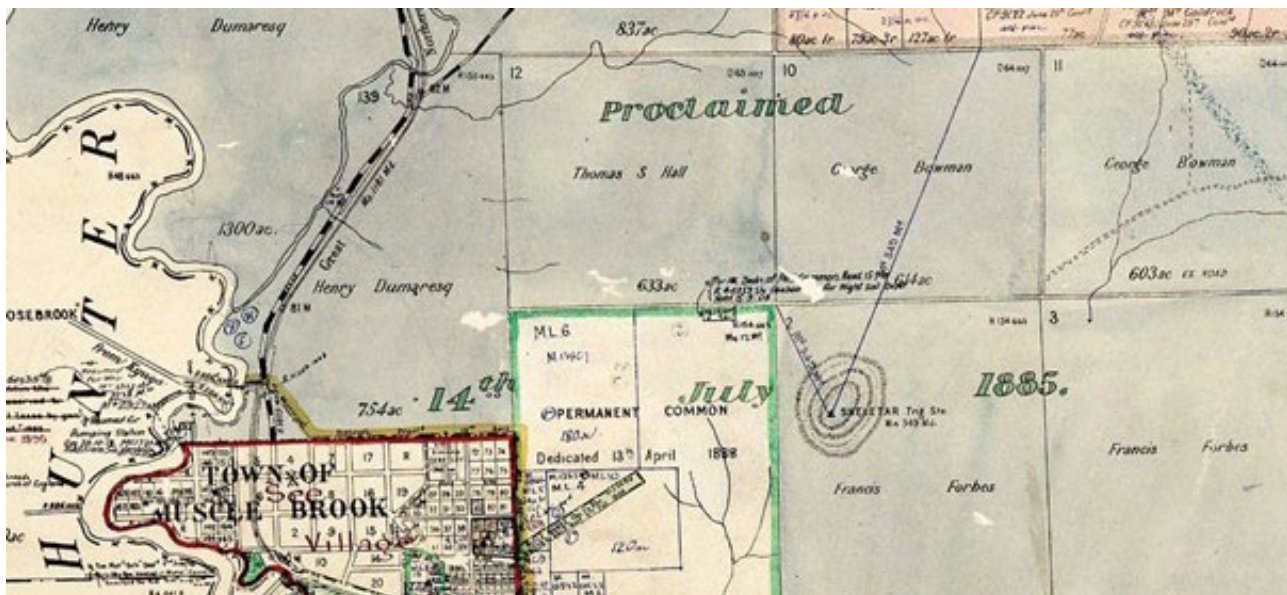


Plate 4.1 Detail, 1906 Parish of Rowan, County of Durham plan (Source: HLRV)

The site for the town of “Musclebrook” was surveyed by Robert Dixon in 1833 and the first buildings were constructed by 1834 (HLA, 2002, p. 40). The first brickworks was established in town by 1838 (Muswellbrook Shire Local & Family History Society Inc., 2010, p.12). The town grew steadily over the decades despite the decline in the wheat industry due to pervasive rust issue caused by the microclimate of the region (HLA, 2002, p. 41). In 1869 the Great Northern Railway was constructed through Muswellbrook township and a small seam of coal was discovered during the railway works (HLA, 2002, p. 41). Small tonnages of coal were mined but not to the levels seen elsewhere around the Hunter Valley at this time (HLA, 2002, p. 43).

At the end of the nineteenth century, the dairy industry rose to prominence in Muswellbrook (Turner, 1996, p.6). The first creameries opened in the 1890s and supporting businesses such as tanneries and meat freezing centres also moved into the area (HLA, 2002, p.41; Turner, 1996, p.6). Large estates were also subject to subdivision at this time (Turner, 1996, p.6). The 1900s brought the first serious exploitation of coal around the Muswellbrook township.

4.1.2 Development of the Muswellbrook Brickworks

The project area is located in historical Lot 12 in the Parish of Rowan, County of Durham, which was known historically as Kennedy’s Paddock (Plate 4.1) (Muswellbrook History Society, 2010, p.21). The 633-acre (256 ha) property was granted to Thomas Simpson Hall Esq around 1830 (Gray, 1972). The property was surrounded by large holdings belonging to the Dumaesq, Bowman and Forbes families, and as such, the property likely functioned as a holding station/rest stop between Hall’s Dartbrook and Gungal estates, located north west and south west of project area respectively (Gray, 1972).

The brickworks were associated with the Muswellbrook No. 1 Open Cut mine. Significant quantities of clay were produced by the mining activities and, recognising the value of the clay overburden, Chairman of MCC, Mr. H. C. McDonald announced plans to construct a brickworks on the Company’s holdings in 1954 (*The Muswellbrook Chronicle*, 1954, p.1).¹ The aim of the brickworks was to not only make use of the clay overburden being produced at the No. 1 Open Cut, but to produce competitively priced bricks to sell in the local area, which was experiencing a population boom, and to provide employment for the local people (*The Muswellbrook Chronicle*, 1954, p.1). Tests had proven the clay extracted from the mine made “excellent quality” bricks and the brickworks was

¹ The Muswellbrook heritage study inventory 1996 incorrectly states that the Muswellbrook Coal Mine Brickworks were established by Muswellbrook Industries c.1949.

expected to produce at least of 30,000 bricks per week (*The Muswellbrook Chronicle*, 1954, p.1). A budget of £20,000 was set aside for the construction of the brickworks (*The Muswellbrook Chronicle*, 1954, p.1).

Construction was well underway in May of 1955 (*The Muswellbrook Chronicle*, 1955, p.2) when the heavy machinery was transported to the site and the brickworks began operations as the Muswellbrook Brick and Tile Company Pty Ltd in January 1957 (Muswellbrook History Society, 2010, p.22;). MCC provided the brickworks with the shale and coal needed for brick production (Muswellbrook History Society, 2010, p.21; *The Muswellbrook Chronicle*, 1982, p.6). A temporary kiln was established in order to fire bricks for the construction of the permanent brickworks kilns (Muswellbrook History Society, 2010, p.21). The brickworks contained three downdraft brick kilns, two roll crushers, mixing bowls and brick presses. A fourth kiln fed by automatic stocking equipment had been constructed by 1969 (Muswellbrook History Society, 2010, p.22). The kilns were constructed of brick and ancillary buildings were timber framed with corrugated iron roofs (AECOM Australia Pty Ltd, 2010, p.29).

The brickworks were closed for a brief period in 1975 due to the cost of upkeep and the closure of the Mepco Power Station which had supplied the brickworks with free electricity (Muswellbrook Shire Local & Family History Society Inc., 2010, p.23-24). A month later the brickworks were re-opened under the ownership of C J O'Brien (EJE Group, 1996). In 1979 the brickworks were purchased by G Jackson and D Goodridge (Muswellbrook Shire Local & Family History Society Inc., 2010, p.23).

In 1996 the brickworks had three downdraft coal fired kilns producing bricks in a variety of "traditional colours" for heritage buildings (EJE Group, 1996). The brick kilns had a total firing capacity of 15,000 bricks per day and produced a variety of brick/ paver products for markets from Newcastle to Gosford (Muswellbrook History Society, 2010, p.21-23). Earlier brick-making machinery was also present on the site including several brick handpresses made in England in the 1860s which were under restoration in 1996. In 1999 the brickworks property was sold to MCC and all manufacturing equipment and scrap metal was auctioned (Muswellbrook History Society, 2010, p.23).

By 2009 only three of the four kilns remained standing and all ancillary buildings had been removed leaving only foundations (Muswellbrook History Society, 2010, p.7). The extant structures were cracking and considered a danger. Therefore, the brickworks were approved for demolition by Muswellbrook Shire Council on 9 October 2009 (Muswellbrook History Society, 2010, p.7). Archival recording of the site was undertaken by Muswellbrook Shire Local & Family History Society Inc in 2010 and the brickworks were demolished in May 2012 (Muswellbrook Coal Company Limited, 2017).

4.2 Key phases

Historical analysis has allowed for the division of region's development into phases. These phases and the themes below provide a framework for understanding the site and therefore its significance.

- Phase 1 – clearing the landscape.
- Phase 2 – building and operation of the brickworks (c1955).
- Phase 3 – demolition of the brickworks (2012).
- Phase 4 – undeveloped land.

4.3 Historic themes

The Australian and NSW heritage systems employ a series of historic themes to guide the understanding of history and historical investigation in the nation and state. As part of any historic heritage assessment, it is important to review the historic themes when undertaking research on an area or place to provide proper context. The state and national themes are complementary to enable the historian to present a unified understanding of how an

area fits into Australian history. The historic themes are also an important guide when assessing an item’s heritage significance. They provide information on how an item may be historically significant at the local, state or national level.

Finally, historic themes help to develop interpretation and management strategies for items of heritage significance. A full list of these themes can be found on the Heritage NSW website. Historic themes in the project area were identified based on the historical background (as described below) and the results of the site inspection (Section 5.3). The Australian and NSW historic themes relevant to the project area that have been used in this report are listed in Table 4.1.

Table 4.1 Historic themes

Australian historic themes	NSW historic themes
3. Developing local, regional and national economies	3. Agriculture; commerce; environment; cultural landscape; exploration; and pastoralism.
4. Building settlements, towns and cities	4. Land tenure
5. Working	5. Labour

5 Field evaluation of the project area

5.1 Key findings

The following key findings are made:

- evidence of the brickworks survives in the form of small piles of loose bricks and bonded bricks, as well as two dams that were utilised by the brickworks;
- the ground surface in the project area was not visible during the site inspection as dense vegetation covered the ground; as a result, if footings or other structural elements exist, they were not observed; and
- no items of historical heritage significance were noted during the site inspection.

5.2 Site visit

5.2.1 Introduction

A site inspection of the project area was undertaken by Pamela Kottaras (EMM) and Julie Thomas (MCC) on Wednesday 16 March 2022 over approximately 1.5 hours. The purpose of the inspection was to understand the context of the brickworks and the extent of the closure area and the landscape it sits in. Some built features were noted and recorded.

The focus of the site visit was the location of the former brickworks site (Area A, Figure 5.1) and an area of interest to the west (Area B, Figure 5.1). Area A was not extensively surveyed as vegetation cover was dense and high, resulting in nil ground surface visibility. It was decided that walking through the long grass would not enhance the understanding of the current ground surface. Observations were made of the adjacent track, but no evidence of the brickworks was seen.

Area B was surveyed and photographed, with the results recorded below.

5.2.2 Data collection methods

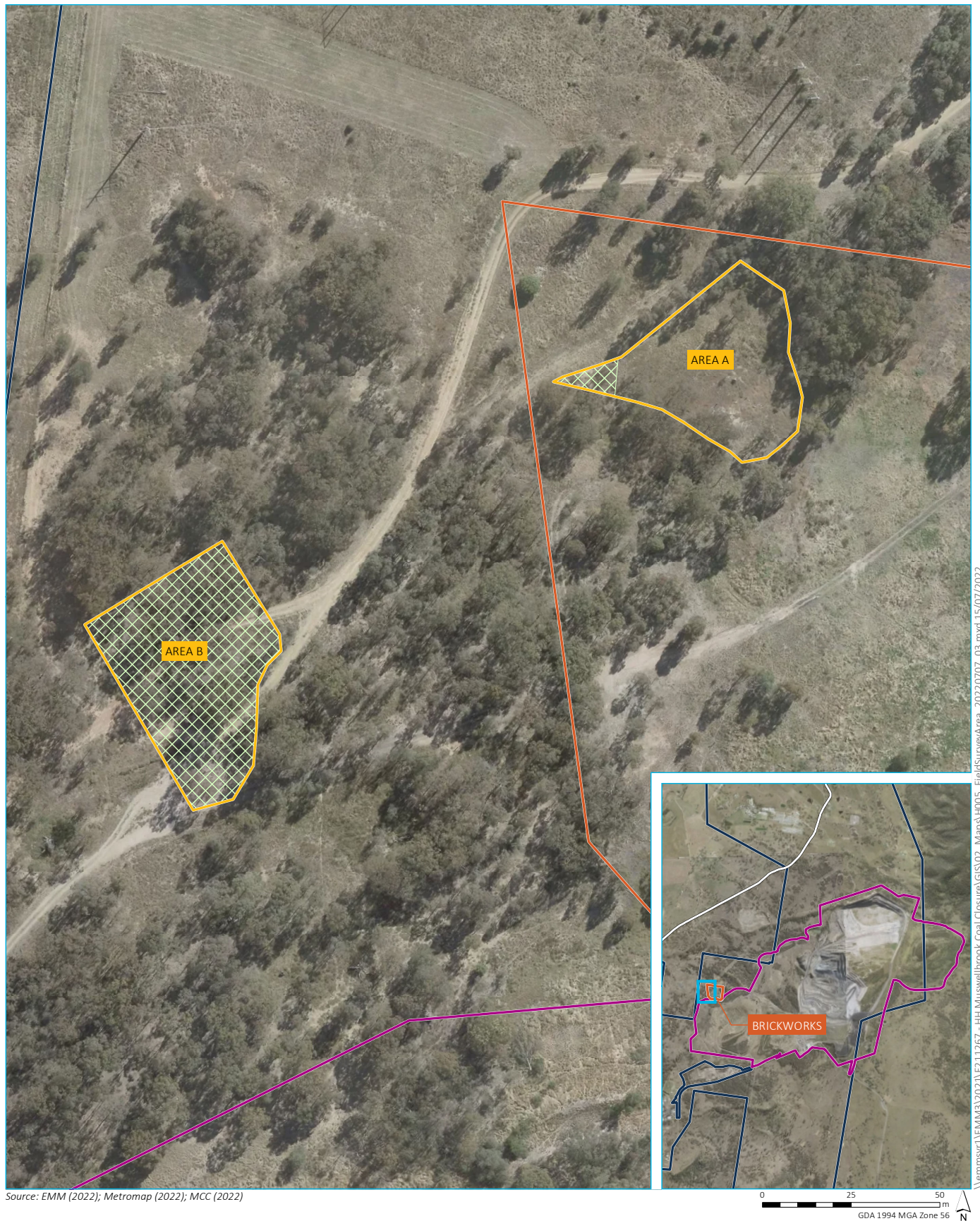
Photographs were taken of the landscape and visible features in high-resolution format (CR2/RAW) and in JPG. The existing conditions created difficulties in viewing the surface of the ground as recent prolonged rain has resulted in thick and tall vegetation; ground surface visibility was very poor away from the dirt roads and generally zero where tall grass cover now predominates.

The site inspection was undertaken on foot after arriving by car. Photographs and notes were taken in the relevant locations.

5.3 Results of the field assessment

i Brickworks dams

Two dams, originally constructed to supply water to the brickworks are located to the north-east of the project area (refer Plate 5.1 and Plate 5.2). The dams are separated by an unsealed road that connects the project area to the rest of the mine. These dams will be retained as they now provide water for other purposes.



KEY

- ▬ Brickworks LEP boundary
- ▬ Development Consent Boundary DA205 - 2002
- ▬ Muswellbrook Coal title boundary
- ▬ Investigation area
- ▬ Area covered in field visit

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Figure 5.1



Plate 5.2 **Brickworks Dam 1 (east). View south-west. The road to the project area is the ridge behind the dam**



Plate 5.3 **Brickworks Dam 2 (west). Photograph taken from the road that separates this from Dam 1**

ii Former brickworks site

Historical aerial imagery shows that the site of the former brick works is spread out over roughly 2 ha, with most of the infrastructure over roughly half a hectare. The project area, the current LEP listing for the Muswellbrook Brick Works, is approximately 4.9 ha in size.

The site inspection did not conclusively identify in-situ ruins associated with the brickworks (Area A) owing to poor ground surface visibility created by tall grasses and weeds in the project area.

Aerial photography of Area A, taken in the last five years, indicates that there are no structures or ruins relating to the brickworks left on the ground. Footings and by-products of the brickmaking process may survive underground. The demolition method was not recorded, thus the level of sub-surface disturbance to the brick works is not known.

Vegetation growth impeded any view of the ground and based on current aerial photography, it was decided that walking through the long grass would not enhance the understanding of the ground surface in its current form.

Area A is shown in Plate 5.3 to Plate 5.5. Plate 5.6 is an overlay of the 1958 aerial (Plate 5.7) with a current aerial photograph (Plate 5.8) and shows the general layout of the site today with the site in 1958.



Plate 5.4 Area A is between the unformed track and the trees in the distance. View east



Plate 5.5 **Vegetation cover over Area A. Scale = 1 m. View east**



Plate 5.6 **Area A: ground surface visibility. View south east**



Plate 5.7 Area A: overlay of a 2017 aerial photograph over one taken in 1958. The Muswellbrook Brick Works are circled. Overlay prepared by A Dakhoul



Plate 5.8 Area A: the 1958 aerial photograph showing the brickworks (circled)



Plate 5.9 Area A: the brickworks site (circled) in August 2021

Ex-situ brick features were recorded 300 m to the west of the brickworks site (Area B); this has the appearance of a dump site as all the features were sitting askew on the ground. In addition, discarded bricks and some land modifications were noted in the ex-situ location (Figure 5.1

The photographs in Plate 5.9 to Plate 5.15 are of the area west of the main brickworks' buildings, where bonded and loose bricks have been dumped. This area also yielded plastic, a galvanised tin rubbish bin (c. 1970s) and other irrelevant discards. Overall, this area is not overly littered, and it is not accessible to the public.



Plate 5.10 **Area B (left) relative to Area A (right), approximately 250 m apart**



Plate 5.11 **Area B: photograph taken from the track towards a brick pile and dumped brick structure. View north-east**



Plate 5.12 **Area B: brick pile. Despite the placement of the north arrow in the image, the view is to the north**



Plate 5.13 **Brick pile detail. Note the heart-shaped frog in a brick in the foreground and half a diamond frog in the background**



Plate 5.14 **Area B: a dumped structural fragment. View west**



Plate 5.15 **Area B: a dumped structural fragment. Some of these bricks display the diamond and the heart shaped frogs. View north-east**



Plate 5.16 **Area B: brick debris pushed into a pile. View south-east**



Plate 5.17 The disturbed landform to the south of Area B where coal chitters have been dumped. View north east

6 Assessments of significance

6.1 The significance framework

In NSW, historical value is ascribed to buildings, places, archaeological sites and landscapes modified in the Australian historical period for purposes other than traditional Aboriginal use. The assessment of heritage significance in NSW is based on the *Burra Charter* (Australia ICOMOS 2013) and further expanded upon in *Assessing Heritage Significance* in the NSW Heritage Manual (Heritage Office 2001). The heritage manual lists seven criteria to identify and assess heritage values that apply when considering if an item is of state or local heritage significance, which are set out in Table 6.1. The result of the assessments of significance may determine that an individual component does not meet the threshold for local or State significance as an individual item, but that it does contribute to the significance of the larger item.

The assessment of significance is formulated by a review of the information gathered during the research phase of the project and combines it with the field results to determine if significance is a factor. The resulting assessment of significance then guides the type of management that is necessary for the item. The criteria provide a platform on which to assess how important the item was to the historical development of the local area or the state, who was involved (was she an important figure in history); does the place demonstrate technical achievement or does it possess an outstanding visual quality; is it important to a group of people now (etc).

The criteria against which heritage significance has been assessed are reproduced in Table 6.1. Unless they are visible in the ground, the assessment of relics is hypothetical as their existence as intact and substantial sites is a prediction based on background research and site conditions.

Table 6.1 NSW heritage assessment criteria

Criterion	Explanation
a)	An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).
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 (or the local area's) cultural or natural history (Associative Significance).
c)	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) (Aesthetic Significance).
d)	An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).
e)	An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).
f)	An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).
g)	An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).

Source: *Assessing heritage significance* (NSW Heritage Office 2001, p.9).

6.2 Comparative analysis

6.2.1 Review of similar sites

Twenty-seven brickworks or items relating to brickworks sites of local significance and one site of state significance are listed on the SHI. The following comparative analysis reviews a sample of listed and unlisted brickworks sites that represent both standing and demolished brickworks. The information presented below was drawn from the SHI or, if the site was not listed, archaeological reports were referenced. A summary of the findings is provided in Table 6.2.

i *Lithgow Valley Colliery & Pottery Site (Lithgow Pottery and Brickworks)*

Bent Street, Lithgow, SHR 00075.

The Lithgow Valley Colliery pottery site contains both built heritage items and archaeological resources.

Lithgow Valley Colliery Co. Ltd. began exploiting coal seams in the Lithgow Valley in 1869 and in 1876 a brickmaker by the name of Aston established a clamp-kiln on the Company's holdings. A pipe-making kiln was added to the north of site in 1878 along with a pottery kiln to the south in 1879. Moreover, a continuous kiln was introduced to the clay works in 1901. The clay works manufactured pipes, chimneypots, tiles and bricks from local clays; domestic pottery was also produced until 1907. The pottery was closed in 1945, heavy plant was sold, and structures were demolished over time as areas of the site were developed for commercial purposes. Two stores, a powder magazine and square brick chimney survive on the site.

Archaeological investigations occurred in Lots 2 and 3 in the north of the clay works area in 1981. Excavations found the footings of two nineteenth century pipe kilns, the 1901 kiln and brick clamp kiln as well as evidence of a drying shed.

The Lithgow Valley Colliery pottery site is of state significance as a producer of building materials used to public works over the state as well as throughout the Lithgow region. The connection of the pottery to the long-lived Lithgow Valley Colliery works is considered rare and socially significant within the local community. Although much of the site has been destroyed by development, areas of the site still hold archaeological resources and have the potential to contribute further understanding into the evolution of clay-product technologies in New South Wales over the nineteenth and twentieth centuries.

ii *Potters Brewery- Nulkaba*

9 Fleming Street, Nulkaba, Cessnock Local Environmental Plan 2011 I155.

The brickworks established in the township of Nulkaba, once known as the Cessnock Potteries and now known as Potters Brewery, are a built heritage item. Four of the five original beehive kilns survive on the site with the demolished materials of the fifth remaining *in situ*.

Stephen Arthur Hennery and Mark Robinson established a brickworks on the clay rich site in 1880. The brickworks supplied local coalmines, houses and public works (Your Hunter Valley, 2019). Works expanded overtime to manufacture water and sewage pipes, terracotta pots and roof tiles and in 1929 the site was named Cessnock Potteries (Your Hunter Valley, 2019). In 1931 the pottery shifted focus to saltglaze pipes for public works and was considered an essential industry during the Second World War. By 1979 the pottery had expanded to contain two main production areas, seven down draught kilns and drying sheds were in one area and the beehive kilns and pipeworks were located in another. In 1989 the pottery was converted into a hotel and restaurant with accommodation constructed on the site in 2002.

Potters Brewery is of local historical significance and is considered a rare example of standing early twentieth century brickworks.

iii *Brickworks (Kalaru Brickworks building)*

564 Bega-Tathra Road, Kalaru, *Bega Valley Local Environmental Plan 2013* I746.

The Kalaru brickworks site is a built heritage item containing remnant standing structures from the original brickworks that have been subject to preservation/stabilisation.

William Stafford established the Kalaru brickworks in the 1930s using plans from the Goulbourn Brickworks. Stafford and his sons produced bricks in their five standing kilns using local clays. The Staffords supplied bricks to the Bega Valley shire and wider Eden Monaro districts over the mid twentieth century. The site was in the hands of the Stafford family at the time of listing (2006) and at present the property functions as a paver and building material suppliers.

The Kalaru brickworks are of local historical and technical significance as an example of a prominent industry in the Bega district which produced bricks for many buildings in the region.

iv *Former Brickworks - Glen Innes*

Thomas Street, Glen Innes, *Glen Innes Severn Local Environmental Plan 2012* I167.

The former Glen Innes brickworks are also a built heritage item. Buildings of brick, iron and timber in varying levels of disrepair are present on the site along with material stockpiles, pits and machinery which give the appearance of recent abandonment.

The Willis family founded the Glen Innes Brickworks in the 1870s and was operated by multiple owners over its history. For example, brickworks were purchased by the cooperative firm, the Glen Innes Brick and Tile Company Limited in 1922. In 1979 the brickworks were taken over by Glenn Innes Council, but operations ceased in 1985. Local clays produced the Glen Innes “blue” bricks, which were used throughout the town.

The former Glen Innes Brickworks are of local historical, associative, and social significance and are considered a landmark of the town. Additionally, the site is regarded as a rare example of a late nineteenth century brickworks which has the potential to expand understandings of spatial layouts of brickworks and the brickmaking process as well as the use of bricks in the local area. The former brickworks are representative of the practice of establishing of brickworks in country towns to meet construction needs and the struggles to compete with cheap extruded brick production over the twentieth century.

v *Maclean Pages Brickworks*

84 Farlows Lane, Maclean, *Clarence Valley Local Environmental Plan 2011* I214.

The Maclean Pages Brickworks is an archaeological site.

The brickworks, established by Robert Page c.1900, produced bricks for public buildings in the Maclean area including the public school, hotel and bank. The bricks produced by Robert Page were promoted to be the highest quality, formed of pure ironstone clay and fired at 1800 degrees. Production continued at the brickworks until 1946 when the site was abandoned.

In 1992 the Maclean Pages Brickworks site was subject to archaeological investigation. Evidence of at least one of the eight kilns was found along with a c.1942 workman’s cottage built of earlier materials. Indentations from the clay pug and scrapings were also observed.

The Maclean Pages Brickworks archaeological site is of local significance for its association with the operations of the Pages Brickworks and its contribution to structures in the local township. Previous investigations have shown the site has archaeological research potential and contains relics.

Brickworks Road, South Grafton, Clarence Valley Local Environmental Plan 2011 I878.

The South Grafton Brickworks are a built heritage item and are a working site which is still producing bricks on a small scale.

The South Grafton Brickworks were established as a tile and pipe manufacturer by the Clarence Earthenware and Tile Company in 1948. The site became the South Grafton Brickworks under the ownership of Reg Want of Want Constructions in 1958. The brickworks feature five brick down draft kilns, crusher, mould making equipment, office and storage units and storage areas. The brickworks sources clay from Nymboida to the south and coal from Ipswich in Queensland to produce cream coloured dry press bricks. The brickworks are a working site which is still producing bricks.

The South Grafton Brickworks are of local significance. They demonstrate the need for locally produced building materials on the north coast over the late twentieth century. The site reflects the labour of dry-press brick making using downdraft kilns. It was significant as one of only four dry press brick kilns in operation in New South Wales at the time of listing but is representative of its type.

vii *Former premises relating to Austral Brickworks***48A Consul Road, Brookvale, Warringah Local Environmental Plan 2011 I2.**

The former Austral Brickworks at Brookvale is a built heritage item that has been incorporated into a modern residential development.

The brickworks produced dry-press bricks using coal fired kilns from 1914 with the original machinery and methods used to manufacture bricks until the factory was closed in 1998. It is believed the site was the last dry-press brick factory in Sydney when it closed. At the time of listing the site featured a brick chimney stack, kilns, industrial buildings and equipment. The chimney and other structures remain within the modern development.

The former Austral Brickworks at Brookvale are of local significance. Evidence of the structures and technologies used in coal-fired kilns and dry-press brickmaking are retained on the site. The former brickworks are historically significant as a long running industry in the area and represent a rare industrial feature in Sydney.

viii *Mason Brothers' Brickworks***Captain's Flat Road, c.1.8km from turn off from Kings Highway, Carwoola, Queanbeyan Local Environmental Plan 2012, A1.**

The Mason Brothers' Brickworks are an archaeological site located in the curtilage of Cuumbeun nature reserve.

Queanbeyan builder and developer Walter Henry Mason constructed the brickworks in c.1924. Mason used the brickworks in his own developments, including the Queanbeyan Hotel, and it is also believed that he hoped to supply bricks to the federal public buildings under construction in Canberra however his products did not meet specifications. Mason was declared bankrupt in 1928 and the brickworks was sold. At the time of the sale the site contained three brick kilns, brick making equipment, steam engines, electrical lighting plant, generator and various buildings.

A survey of the Mason Brothers' site, which occurred prior to the site's listing in 2012, found extensive archaeological evidence of the brickworks. Clay mining pits, building and machinery footings, and landscaping associated with the short-lived brickworks were visible.

The Mason Brothers' Brickworks are a locally significant archaeological site. Although operational for fewer than five years the brickworks site represents important local industry which contributed to landmark buildings in Queanbeyan. Further, the site is demonstrative of builder-owned construction material factories.

Princes Highway, Oak Road & Flora Street, Kirrawee, N.S.W.

In 2007 the former brickworks at Kirrawee were an archaeological site. The site is now a multi-storey mixed residential/commercial development.

Kirrawee brickworks were constructed in 1912 and had numerous owners until it was demolished in the 1970s. The site was subject to desktop assessment and survey by Edward Higginbotham & Associates in 2007 which found the presence of at least three kilns— including both downdraught and continuous kilns – twin chimneys, moulding or drying shop and associated sheds and outbuildings. In 2007 only the brick pit and dry-press brick electrical substation remained from the former brickworks. Survey of the site found the footings of buildings suggesting subsurface archaeological evidence of other brickworks structures and technologies may have survived demolition.

The former brickwork at Kirrawee were not listed; nevertheless Edward Higginbotham & Associates produced a significance assessment of the site. In summary, the former brickworks were argued to have the potential to offer further understanding of brick and pipe making technologies and to represent principal characteristics of the industry. Moreover, the brickworks produced construction materials for the local area through the twentieth century and had strong association with the Punchbowl Brick and Tile Co Ltd. Thus, the site was assessed to be of local significance.

6.2.2 Analysis

Brickworks were established in towns following economic growth, during which materials to build were in short supply and expensive to obtain from urban centres. They were prominent industries, which contributed to the local area through employment and the production of bricks used in local constructions and to meet the material needs of growing townships - especially relevant in rural areas.

The examples in this report demonstrate, and demonstrated, various techniques in brick making including downdraught kilns, beehive kilns, clamp kilns and continuous kilns. All sites also feature a variety of ancillary buildings, and where the clays were locally sourced, evidence of clay mining. The Lithgow Pottery is the only example of a listed brickworks site with direct associations to a colliery.

The four archaeological sites are representative of both small (Mason Brothers' Brickworks, Maclean Pages Brickworks) and large scale (Lithgow Valley, Kirrawee brickworks) brick manufacturing activities. These brickworks were demolished prior to the 1980s and the sites were not subject to extensive development with the exception of portions of the Lithgow Valley Pottery. Archaeological materials were visible during survey at the Mason Brothers' and Maclean brickworks site and while minor structures from the Kirrawee and Lithgow brickworks survived significant evidence of the works were only exposed through excavation. Archaeological excavation contributed to the historical, technical and research significance of the Lithgow Pottery.

Early and technologically significant brickworks survive in NSW as working sites, as redundant and protected sites and as archaeological sites. At Kirrawee, the former brickworks were totally removed through archaeological excavation followed by development. The brickworks, the subject of this report, were demolished, which may have left an archaeological imprint, but its significance would have been in the built structures for their aesthetic appeal and not for its archaeological significance.

Table 6.2 **Comparative analysis table**

Site ID	Site name	Established	Closed/Abandoned	Demolished	Investigation
SHR 00075	Lithgow Valley Colliery & Pottery site	1876	1945	1945	Archaeological excavation
I155	Potters Brewery	1880	1980s	1980s (partial)	Local heritage study
I746	Brickworks (Kalaru Brickworks building)	1930s	Not recorded	-	Local heritage study
I167	Former Brickworks - Glen Innes	1870s	1985	-	Local heritage study
I214	Maclean Pages Brickworks	c.1900	1946	Not recorded	Archaeological excavation
I878	South Grafton Brickworks	1948	-	-	Local heritage study
I2	Former premises relating to Austral Brickworks	1914	1998	after 2011	Local heritage study
A1	Mason Brothers' Brickworks	c.1924	1928	1928	Archaeological survey
-	Former brickworks at Kirrawee	1912	1970s	1970s	Archaeological excavation

6.3 Archaeological sensitivity

6.3.1 Introduction

The purpose of this report is to assess the significance of the brickworks to determine if what may survive sub-surface is significant enough to retain on the LEP as a relic, or if sufficient information supporting its removal from the LEP exists.

The brickworks were listed in 1996, fell out of use in 1999 and approval to demolish was given in December 2009 by Muswellbrook Shire Council. The item was demolished in 2012 (MCC, 2012, p.72).

6.3.2 Phases of the site

The four phases of the site that were identified in the historical summary

- Phase 1 – clearing the landscape.
- Phase 2 – building and operation of the brickworks.
- Phase 3 – demolition of the brickworks.
- Phase 4 – undeveloped land.

6.3.3 Archaeological potential

The archaeological potential of the project area is unknown as the site was overgrown and the ground surface was not visible. Some evidence may survive depending on the demolition process.

6.3.4 Research potential

The research potential of the project area is low to nil. Sufficient information on the construction, operations and demolition of the brickworks exists and is accessible. Further, a comprehensive archival record of the brickworks was prepared prior to its demolition. This record contains detailed photographs, historical information and plans. Archaeological excavation will not contribute to an understanding of the brickworks' operations and significance that these sources cannot.

As no other historical heritage sites have been discovered in the project area through previous assessment and field survey, the research potential of historical heritage values associated with the project area is low to nil.

6.4 Assessment of sites in the project area

Only one listed heritage site is known to exist in the project area, being the brickworks. The brickworks were demolished in 2012, the process of which may have left *in situ* archaeological fabric and deposits; however, it is the significance of the archaeological material that will determine if it is a 'relic' as defined by the Heritage Act and is therefore protected, or if that material has little to no heritage significance.

The assessment of significance is presented in Table 6.3.

Table 6.3 Assessment of significance: Former Muswellbrook Brickworks

Criterion	Explanation
a)	<p><i>An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).</i></p> <p>The brickworks were established in the early 1950s to take advantage of the economic boom brought on by mining related to open cut no. 1 mine.</p> <p>The brickworks took advantage of waste material from the mine and the cost-effective use of locally extracted coal to power the down-draft kilns.</p> <p>As the town grew, so too did the construction industry, and local manufacture meant jobs and cheaper bricks, bringing more people to the town.</p> <p>The brickworks were an item of local historical significance when standing.</p> <p>As an archaeological site the brickworks do not fulfil this criterion.</p>
b)	<p><i>An item has strong or special association with the life or works of a person, or group of persons of importance in NSW's (or the local area's) cultural or natural history (Associative Significance).</i></p> <p>The archaeology of the former brickworks do not fulfill this criterion.</p>
c)	<p><i>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) (Aesthetic Significance).</i></p> <p>The brickworks were of aesthetic significance when standing, for their ability to demonstrate mid-century regional brickmaking processes.</p> <p>As an archaeological site, if substantial evidence survives intact, the brickworks may have aesthetic appeal if included in publicly accessible interpretation.</p> <p>From a technological standpoint, the archaeological aesthetic significance does not fulfill this criterion.</p>
d)	<p><i>An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).</i></p> <p>The brickworks were listed on the LEP in 1996, indicating that the local community held them with some regard. Their demolition in 2012, with approval from Muswellbrook Shire Council suggests that knowledge and regard for the brickworks had diminished over time, possibly as a result of the inaccessible location of the complex.</p> <p>If the brickworks survive archaeologically, evidence that the community or any other cultural group holds the site in high esteem, has not been found.</p> <p>The archaeology of the former brickworks does not fulfill this criterion.</p>
e)	<p><i>An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).</i></p> <p>Archaeologically, the site of the former brickworks possesses potential to retain kiln footings, and evidence of other buildings in the complex. The value of archaeological excavation of the brickworks; however, is low, given the late establishment date of the complex and surviving documents related to it. Specifically, the photographic archival record that was prepared in 2010 before the complex was demolished provides information about the configuration of the structures. The understanding of how the different types of kilns and mid-twentieth century brickmaking in general is well understood and the complex was not proximally associated with any other site that would have left an archaeological fingerprint.</p> <p>Further research into which buildings, in Muswellbrook and the surrounding area, the bricks went into could be achieved as representative examples of the bricks from the site survive.</p> <p>Thus, while historically significant, the archaeological resources of the now demolished brickworks, do not fulfil this criterion.</p>

Table 6.3 Assessment of significance: Former Muswellbrook Brickworks

Criterion	Explanation
f)	<p><i>An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).</i></p> <p>Downdraft kiln sites are not rare as built items and as archaeological sites. As NSW urban centres expand and are developed, examples of the earliest kilns, as with any early industry or residential site, become rarer. The brickworks, however, are not early, and did not use unusual manufacturing techniques.</p> <p>The brickworks do not fulfill this criterion.</p>
g)	<p><i>An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).</i></p> <p>The brickworks were representative of the types of industry that grew with their regional town, and like many of these industries, was an opportunistic response to available materials that met the needs of growth. Their existence represents the economic contribution made to Muswellbrook and the employment it generated as well as the locally sourced building material it produced. This process is one that is seen in the historical record across NSW.</p> <p>As standing structures, the complex was representative as a mid-century, rural brickworks in material, function and operations.</p> <p>The brickworks were of local significance when standing.</p> <p>The brickworks would be of local archaeological significance if substantial and intact archaeological evidence survives.</p>

i Statement of significance

The former brickworks were an item of local significance for their role in the history of mining in the region. They represented the opportunistic growth of industry arising from the by-products of a different industry and feeding the benefits into the local economy. As a potential archaeological site, the former brickworks site does not possess research potential, being of a recent age, from an industry that is represented well elsewhere, and is therefore considered to not be a site of significance. Aesthetically, the former brickworks site does not demonstrate technology that was ground-breaking or rare. There are no other historical sites with significance in the project area.

The LEP listing of the Muswellbrook Brick Works is no longer valid as the structures have been demolished and any remaining sub-surface evidence does not meet the threshold to be protected by the Heritage Act; that is, archaeology related to the brickworks that may survive, does not meet the relics threshold and therefore does not require approval to impact.

7 Conclusion

The purpose of this report has been to review the project area to assess the listing for the Muswellbrook Brick Works and determine if the site warrants retention on Schedule 5 of the Muswellbrook LEP.

The method employed to achieve this aim was to review previous reports focused on the project area, including impact assessments and the archival record prepared for the brickworks. A site inspection of the brickworks site was also undertaken.

The brickworks were established in the mid-1950s to supply bricks to the greater area while making use of the local clay. The brickworks were listed on the LEP in 1996 and closed permanently in 1999. In the following years, the site fell into disrepair and was demolished in 2012, with permission from MSC. While the establishment of the brickworks follows a pattern seen across the state of NSW, the technology was not rare and therefore, the former brickworks site was assessed to have low research potential. As a result, if material evidence of the former brickworks survives archaeologically, there is no justification for archaeological excavation.

This report has found that there is sufficient evidence to show that what remains of the former brickworks does not justify its retention as a heritage item on the Muswellbrook LEP.

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