

Our ref: SSD-10418-PA-26

Christian Lauritzen
General Manager Resource Development
Mach Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW, 2300
17/9/2024

Mount Pleasant Optimisation Project: Historic Heritage Management Plan

Dear Mr. Lauritzen

Thank you for submitting the Historic Heritage Management Plan in accordance with Condition B73, Schedule 2 of the consent for the Mount Pleasant Optimisation Project (SSD-10418). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Historic Heritage Management Plan has been prepared in consultation with Heritage NSW and Muswellbrook Shire Council, and contains the information required by the conditions of approval.

Accordingly, as nominee of the Planning Secretary, I approve the revised Historic Heritage Management Plan (Rev A, September 2024).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay 02 99955944.

Yours sincerely



Stephen O'Donoghue
Director Resource Assessments
As nominee of the Planning Secretary

MOUNT PLEASANT OPERATION HISTORIC HERITAGE MANAGEMENT PLAN

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MOUNT PLEASANT OPERATION HISTORIC HERITAGE MANAGEMENT PLAN	
Name of Mine:	Mount Pleasant Operation
Historic Heritage Management Plan Commencement Date:	17 September 2024
Historic Heritage Management Plan Revision Dates and Version Numbers	Version A – This version addresses consultation comments from Muswellbrook Shire Council and Heritage NSW.
Name of Mine Operator:	MACH Energy Australia Pty Ltd
Name of Lease Holder:	MACH Energy Australia Pty Ltd and J.C.D Australia Pty Ltd

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1 INTRODUCTION

The Mount Pleasant Operation (MPO) is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton (Figure 1). The village of Aberdeen and locality of Kayuga are also located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively (Figure 1). MACH Energy Australia Pty Ltd (MACH Energy) purchased the MPO from Coal & Allied Operations Pty Ltd (Coal & Allied) in 2016.

MACH Mount Pleasant Operations Pty Ltd is the manager of the MPO as agent for, and on behalf of, the unincorporated Mount Pleasant Joint Venture between MACH Energy (95 percent [%] owner) and J.C.D. Australia Pty Ltd (5% owner). This Historic Heritage Management Plan (HHMP) will be implemented at the MPO by MACH Energy.

The initial development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the “Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities” at the MPO. The consent allowed for operations 24 hours per day seven days per week and the extraction of 197 million tonnes (Mt) of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 Mt of ROM coal per year.

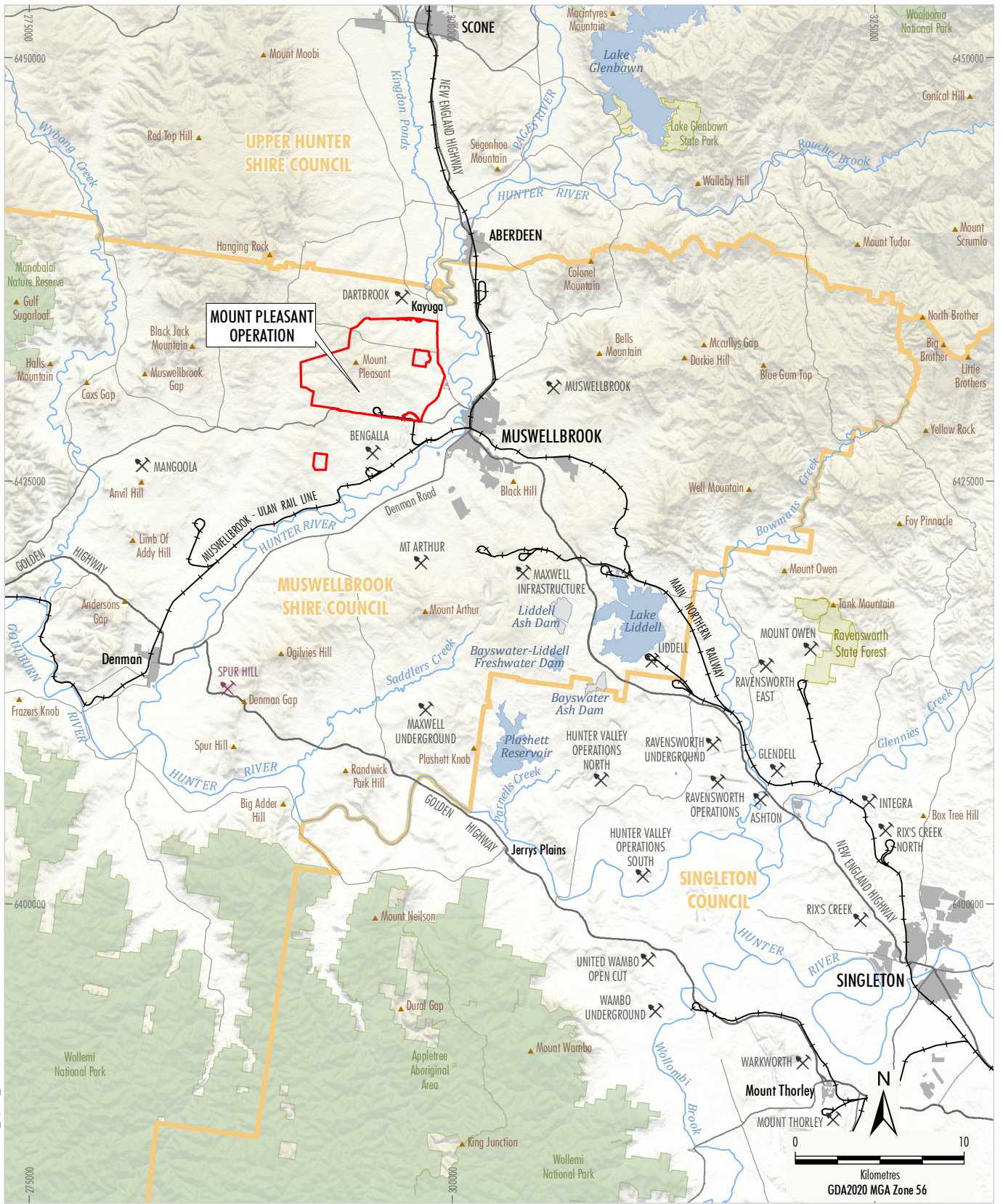
The Mount Pleasant Project Modification (MOD 1) was submitted on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010). MOD 1 included the provision of an infrastructure envelope for siting the mine infrastructure, the provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line and modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative changes. MOD 1 was approved on 19 September 2011.

The MPO South Pit Haul Road Modification (MOD 2) was submitted on 30 January 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017a). MOD 2 proposed to realign an internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

The MPO Mine Optimisation Modification (MOD 3) was submitted on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 comprised an extension to the time limit on mining operations (to 22 December 2026) and extensions to the South Pit Eastern Out of Pit Emplacement to facilitate development of an improved final landform. MOD 3 was approved on 24 August 2018.

The MPO Rail Modification (MOD 4) was submitted on 18 December 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017c). MOD 4 proposed the following changes:

- duplication of the approved rail spur, rail loop, conveyor and rail load-out facility and associated services;
- duplication of the Hunter River water supply pump station, water pipeline and associated electricity supply that followed the original rail spur alignment; and
- demolition and removal of the redundant approved infrastructure within the extent of the Bengalla Mine, once the new rail, product loading and water supply infrastructure has been commissioned and is fully operational.



MACH 18-03A_MP2023_Figure 1_Rev B

Source: NSW Spatial Services (2023)



- LEGEND**
- Mining Operation
 - Proposed Mining Operation (Application Lodged)
 - Railway
 - Local Government Boundary
 - State Forest/Reserve
 - National Parks and Wildlife Estate
 - Mining Lease Boundary (Mount Pleasant Operation)

MACH Energy
 MOUNT PLEASANT OPERATION
 Regional Location

Figure 1

MOD 4 was approved on 16 November 2018 by the Planning Secretary of the Department of Planning and Environment (DPE) (under Delegation). Appendix 2 of the modified Development Consent DA 92/97 illustrates the Conceptual Project Layout Plan of the approved MPO at 2021 and 2025, Approved Surface Disturbance Plan and Conceptual Final Landform incorporating the MOD 4 infrastructure relocations.

Modification 5 (MOD 5) was submitted to rectify an administrative error in Development Consent DA 92/97 and was approved by DPE (now the NSW Department of Planning, Housing and Infrastructure [DPHI]) on 29 June 2022.

Modification 6 (MOD 6) was submitted to modify Development Consent DA 92/97 and was approved on 6 November 2023. MOD 6 will allow for the construction and operation of a re-transmission facility including a tower or mast, shed and associated transmission infrastructure to re-transmit local digital television signals from the Broadcast Australia site at Rossgole Lookout. Appendix 2 of the modified Development Consent DA 92/97 illustrates the Revised Approved Surface Disturbance Plan incorporating the MOD 6 infrastructure.

On 22 January 2021, MACH Energy submitted the Mount Pleasant Optimisation Project (the Project) EIS in support of State Significant Development (SSD) 10418 under Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). Key aspects of the Project generally involve (among other things):

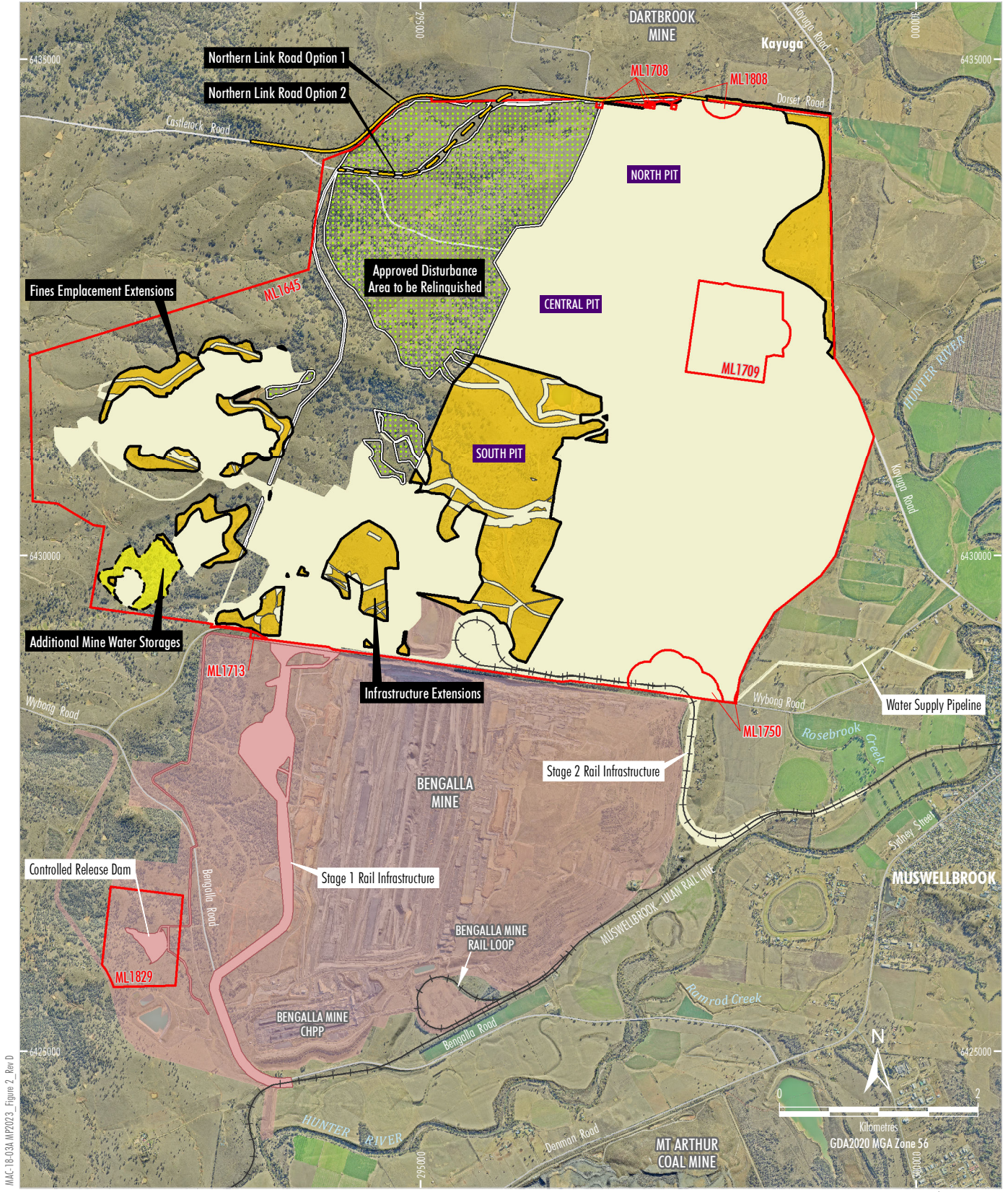
- increased open cut extraction within the MPO's existing Mining Leases (MLs);
- a staged increase in extraction, handling and processing of ROM coal up to 21 million tonnes per annum;
- upgrades to existing infrastructure and new infrastructure to support mining of the proposed Project; and
- an extension to the time limit on mining operations to 22 December 2048.

The Project was approved by the NSW Independent Planning Commission on 6 September 2022. Attachment 1 describes the development layout of the Project in accordance with Development Consent SSD 10418.

This HHMP has been prepared to satisfy the relevant conditions in Part B, Condition B73 of Development Consent SSD 10418.

A detailed project description associated with Development Consent SSD 10418 is provided in Section 3 of the Project EIS (MACH Energy, 2021a). The Project EIS was supported by a Historical Heritage Assessment (Extent Heritage Pty Ltd [Extent], 2020). The Historical Heritage Assessment findings and mitigation measures relevant to the preparation of this HHMP have been incorporated into this document.

Figure 2 shows the indicative Project general arrangement and existing/approved surface development areas that would continue to comprise part of the Project and the areas that would be relinquished.



MAC18-038.MP2023 - Figure 2 - Rev D

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016) Orthophoto: MACH (Jun 2023)

LEGEND

- Railway
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA92/97) ¹
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) ¹
- Development Footprint 1 (Stage 1) - General Extension Areas ¹
- Development Footprint 1 (Stage 2) - Mine Water Dam ³
- Relinquishment Area ²
- Northern Link Road Option 1 Centreline
- Northern Link Road Option 2 Centreline

NOTES

- ¹ Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.
- ² Subject to detailed design of Northern Link Road alignment.

MACHEnergy
 MOUNT PLEASANT OPERATION
 General Arrangement
 of the Project

Figure 2

1.1 PURPOSE AND SCOPE

This HHMP has been prepared by MACH Energy to satisfy the requirements of Part B, Condition B73 under Development Consent SSD 10418.

The purpose of this HHMP is to document the proposed management and protection measures to be implemented to mitigate potential impacts on and preserve the heritage significance of specific heritage items located in the vicinity of the Project disturbance area.

A separate MPO Aboriginal Cultural Heritage Management Plan has been prepared that details the protection and mitigation measures associated with the Aboriginal cultural heritage values within, and immediately adjacent to the MPO. As such, Aboriginal cultural heritage is not addressed in this HHMP.

In accordance with Part B, Condition B73(b) of Development Consent SSD 10418, this HHMP has been prepared and reviewed by MACH Energy and Dr Andrew Sneddon, Director of Extent Heritage, who has been endorsed by the Planning Secretary as a suitably qualified and experienced person. Dr Sneddon has worked in the field of cultural heritage management for over 20 years. A copy of the endorsement by the Planning Secretary is included in Attachment 2.

Part B, Condition B73(c) of Development Consent SSD 10418 requires that the HHMP be prepared in consultation with Heritage NSW, Muswellbrook Shire Council (MSC) and relevant landowners in accordance with relevant Heritage NSW guidelines (Section 2). Details of the consultation undertaken, and the outcome of that consultation is detailed in Appendix B.

In accordance with Part B, Condition B74 of Development Consent SSD 10418, MACH Energy will not commence construction of the Northern Link Road or extract more than 10.5 Mt of ROM coal in a calendar year until the HHMP is approved by the Planning Secretary.

In accordance with Part B, Condition B75 of Development Consent SSD 10418, MACH Energy will implement the HHMP, once approved by the Planning Secretary.

1.2 STRUCTURE OF THE HHMP

The remainder of the HHMP is structured as follows:

- Section 2: Outlines the relevant statutory obligations relevant to this HHMP.
- Section 3: Describes the previous assessments and investigations within the vicinity of the mine development area and historic heritage sites and values at the MPO.
- Section 4: Describes the mitigation measures to be implemented to manage historic heritage sites at the MPO.
- Section 5: Outlines the protocol for management of previously unrecorded heritage sites and discovery of human remains.
- Section 6: Describes the performance measures applicable to historic heritage management at the MPO.
- Section 7: Provides a contingency plan to manage unanticipated impacts and their consequences.
- Section 8: Describes the protocols for heritage inductions and training at the MPO.
- Section 9: Provides details for the review and improvement of environmental performance.
- Section 10: Describes the procedures in place for management and reporting of incidents, complaints and non-compliance's with statutory requirements.
- Section 11: Lists the references cited in this HHMP.
- Appendix A: Provides the Historic Heritage Related Conditions under Development Consent SSD 10418.
- Appendix B: Provides the Consultee Feedback – Key Correspondence.
- Appendix C: Provides the Archaeological Research Design and Excavation Methodology for Kayuga Coal Mine (MP20).
- Appendix D: Provides the Archaeological Research Design and Excavation Methodology for Kayuga School (MP21).
- Appendix E: Provides the Archaeological Research Design and Excavation Methodology for Thorndale (MP27)
- Appendix F: Provides the Archaeological Research Design and Excavation Methodology for Devine's (MP23).
- Appendix G: Provides the Archaeological Research Design and Excavation Methodology for the Wells (MP13, MP23, MP25).
- Appendix H: Provides the Conservation Management Plan for the Negoa Homestead.

2 STATUTORY OBLIGATIONS

MACH Energy’s statutory obligations relevant to historic heritage management are contained in (but not limited to):

- the conditions of Development Consent SSD 10418 and Development Consent DA 92/97 (until its surrender);
- the *Heritage Act, 1977*;
- relevant licences and permits, including conditions attached within the MPO MLs (ML 1645, ML 1708, ML 1709, ML 1713, ML 1750, ML 1808 and ML 1829); and
- other relevant legislation.

Obligations relevant to this HHMP are described below. Additional historic heritage related conditions from Development Consent SSD 10418 are provided in Appendix A.

In addition to the above, activities associated with the MPO will be undertaken with the licences, permits and leases described in the MPO Environmental Management Strategy (EMS).

2.1 DEVELOPMENT CONSENT SSD 10418

The conditions of Development Consent SSD 10418 relevant to the content and structure of this HHMP are described in Sections 2.1.1 and 2.1.3 below.

2.1.1 HHMP Requirements

Part B, Condition B73 of Development Consent SSD 10418 outlines the historic heritage management required at the MPO, including the preparation of a HHMP (refer Table 1).

**Table 1
Historic Heritage Management Development Consent SSD 10418 Conditions**

MPO Development Consent SSD 10418 Part B	Section where addressed in this HHMP document
<i>B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:</i>	This document.
<i>(a) be submitted for approval within 6 months of commencement of development under this consent;</i>	Noted.
<i>(b) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;</i>	Section 1.1, Attachment 2
<i>(c) be prepared in consultation with Heritage NSW, Council and relevant landowners and in accordance with the relevant Heritage NSW guidelines;</i>	Section 1.1, Appendix B
<i>(d) describe how historic heritage values of the site would be recorded, preserved and archived;</i>	Section 4.9
<i>(e) identify all heritage items in the vicinity of the site and include a statement of significance for each item;</i>	Section 3.3

Table 1 (Continued)
Historic Heritage Management Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this HHMP document
<p>(f) describe the measures to be implemented on the site to:</p> <p>(i) ensure all workers in the site receive suitable heritage inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions;</p> <p>(ii) protect heritage items located outside the approved disturbance area from impacts of the development, beyond those impacts predicted in the document/s listed in condition A2(c);</p> <p>(iii) undertake photograph/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance within the Additional Disturbance Area;</p> <p>(iv) avoid project-related use of the (timber) Kayuga Bridge,</p> <p>(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and</p> <p>(vi) identify, evaluate, record and manage any new heritage items discovered during the life of the development;</p> <p>(g) include a program to monitor the effects of blasting on heritage items (including but not limited to Kayuga Cemetery) located outside of the approved disturbance area;</p> <p>(h) include a strategy for the care, control and storage of heritage relics salvaged from the site; and</p> <p>(i) include a comprehensive conservation management plan for the ongoing management of Rosebrook and Negoa Estate.</p>	<p>Section 8</p> <p>Section 4.8</p> <p>Section 4.9 and Appendices C to G</p> <p>Section 3.3.14</p> <p>Section 5.2</p> <p>Section 5.1</p> <p>Section 4.3</p> <p>Section 4.7</p> <p>Section 4.2, Appendix H</p>
<p>B74. The Applicant must not commence construction of the Northern Link Road or extract more than 10.5 Mt of ROM coal in a calendar year until the Historic Heritage Management Plan is approved by the Planning Secretary.</p>	<p>Section 1.1</p>
<p>B75. The Applicant must implement the Historic Heritage Management Plan as approved by the Planning Secretary.</p>	<p>Section 1.1</p>

2.1.2 Additional Commitments and Recommendations

Table 2 provides a consolidated summary of commitments and recommendations from the Project EIS (MACH Energy, 2021a) and the Project Submissions Report (MACH Energy, 2021b).

Table 2
Relevant Statement of Commitments from the Project EIS

Relevant Commitments and Recommendation	Section where addressed in this HHMP document
Project EIS	
<p>Management measures for the identified historic heritage sites would be described in a Historical Heritage Management Plan to be developed for the Project.</p> <p>Additionally, archaeological investigation would be undertaken at site MP23 Devine's (no historical heritage significance) and site MP27 Thorndale (local heritage significance) due to anecdotal reports of potential child burials at these locations. If grave cuts, or unusual features including human remains, are identified, site work would stop immediately in the vicinity and the relevant authorities (including the NSW Police) would be notified immediately.</p>	Section 5.2, Appendix E, Appendix F.
<p>No specific management measures are proposed for the remainder of the sites that are not considered to be of historic heritage significance (Appendix H). However, some of these items may be of interest to local collectors, and prior to Project disturbance, may be offered to local historical groups.</p>	Section 4.1
Project Submissions Report	
<p>Notwithstanding, should the Project be approved, MACH could potentially record the wells at MP13 Humphries, MP23 Devine's and MP25 Gall's Farm. Should any relics be discovered in the recording process, MACH could undertake archaeological investigation of the wells.</p>	Section 4.1, Appendix G
<p>Excavation permits under section 139 of the Heritage Act 1977 do not apply to an approved SSD project in accordance with section 4.41 of the EP&A Act. MACH therefore understands any such requirements are typically addressed in development consents for SSD projects via a requirement to prepare a HHMP.</p>	This HHMP
<p>Heritage NSW requested for the heritage significance of MP28 Rosebrook, MP41 Negoa and MP52 Overdene (Overton) to be reassessed as they may meet criteria for State significance, even though they are not State Heritage Register listed.</p> <p>MACH supports Extent's recommendation to prepare Conservation Management Plans (CMPs) for MP38 Rosebrook and MP41 Negoa, and has already engaged Extent to prepare the CMP for MP41 Negoa.</p>	Section 4.2, Appendix H
<p>Heritage NSW requested clarification of the proposed blast monitoring and contingency measures at historical heritage sites in the event that historical heritage site are damaged as a result of blasting activities.</p>	Section 4.3
<p>Heritage NSW noted that the CMP for MP38 Rosebrook should be prepared in accordance with the existing Heritage Council of NSW guidelines and previous assessments. Heritage NSW also noted that section 139 of the Heritage Act 1977 may not apply to approved SSD projects.</p>	Section 4.2.2

2.1.3 Management Plan (General) Requirements

Part D, Condition D5 of Development Consent SSD 10418 outlines general management plan requirements. Table 3 presents these requirements and indicates where each is addressed within this HHMP.

Table 3
General Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part D	Section where addressed in this HHMP document
<p><i>D5. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</i></p> <p><i>(a) summary of relevant background or baseline data;</i></p> <p><i>(b) details of:</i></p> <p style="padding-left: 40px;"><i>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</i></p> <p style="padding-left: 40px;"><i>(ii) any relevant limits or performance measures and criteria; and</i></p> <p style="padding-left: 40px;"><i>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</i></p> <p><i>(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);</i></p> <p><i>(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</i></p> <p><i>(e) a program to monitor and report on the:</i></p> <p style="padding-left: 40px;"><i>(i) impacts and environmental performance of the development; and</i></p> <p style="padding-left: 40px;"><i>(ii) effectiveness of the management measures set out pursuant to condition D4(c);</i></p> <p><i>(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</i></p> <p><i>(g) a program to investigate and implement ways to improve the environmental performance of the development over time;</i></p> <p><i>(h) a protocol for managing and reporting any:</i></p> <p style="padding-left: 40px;"><i>(i) incident, non-compliance or exceedance of any assessment criterion or performance criterion;</i></p> <p style="padding-left: 40px;"><i>(ii) complaint; or</i></p> <p style="padding-left: 40px;"><i>(iii) failure to comply with other statutory requirements;</i></p> <p><i>(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and</i></p> <p><i>(j) a protocol for periodic review of the plan.</i></p> <p>Note: <i>The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i></p>	<p>Section 3</p> <p>Section 2</p> <p>Section 6</p> <p>Section 6</p> <p>Section 2.1.2</p> <p>Section 4</p> <p>Sections 6, 9 and 10</p> <p>Section 7</p> <p>Section 9.2</p> <p>Section 10.1</p> <p>Section 10.2</p> <p>Section 10.3</p> <p>Section 10.4</p> <p>Section 9.2</p>

2.2 DEVELOPMENT CONSENT DA 92/97

A previous HHMP was prepared to address the requirements of Schedule 3, Condition 441(d) of Development Consent DA 92/97, which required the Construction Environmental Management Plan (CEMP) to include a HHMP that describes the measures to implement the relevant historic heritage management commitments within the bounds of the Project area for the MOD 4 construction works, incorporating management measures listed in Statement of Commitments, Appendix 3 of Development Consent DA 92/97.

Following the completion of MOD 4 works, the CEMP along with the associated HHMP, was superseded.

Oral History

Schedule 3, Condition 35 of Development Consent DA 92/97 requires:

35. *By the end of December 2013, the Applicant must prepare a detailed history of the Mount Pleasant locality to the satisfaction of the Secretary. This history must:*
 - (a) *be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;*
 - (b) *be prepared in consultation with the OEH, the local history society, local community (including former residents as far as is practicable), and Registered Aboriginal Parties;*
 - (c) *be prepared in accordance with the relevant the relevant Heritage Council of NSW guidelines; and*
 - (d) *include detailed historical research as well as an oral history.*

The Oral History Report was prepared in 2004 (and subsequently reviewed in 2014). On 20 January 2014, then NSW Department of Planning and Infrastructure approved the report and advised that Schedule 3, Condition 35 of Development Consent DA 92/97 had been satisfied.

2.3 LICENCES, PERMITS AND LEASES

In addition to the requirements of Development Consent SSD 10418, activities associated with the MPO will be undertaken in accordance with the licences, permits and leases described in the MPO EMS under Development Consent SSD 10418.

2.4 OTHER LEGISLATION, POLICIES AND GUIDANCE

In addition to the statutory obligations described above, the following subsections detail the Commonwealth and NSW legislation that may be applicable to the conduct of the MPO.

In addition to statutory obligations described above, the following documents were used to inform this HHMP:

- *Assessing Heritage Significance. Guidelines for Assessing Places and Objects Against the Heritage Council of NSW Criteria* (NSW Department of Planning and Environment, 2023);
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Branch, 2009);
- *Conservation Management Documents: Guidelines on Conservation Management Plans and Other Management Documents* (NSW Heritage Office, 2022);
- *Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance* (Kerr, 2013);
- *Guidance on Developing a Heritage Conservation Management Plan* (NSW Department of Premier and Cabinet, 2021);
- *Heritage Curtilages* (NSW Heritage Office, 1996);
- *How to Prepare Archival Records of Heritage Items* (Heritage NSW, 1998);
- *Investigating Heritage Significance* (NSW Department of Planning, Environment and Industry, 2022);
- *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage NSW, 2006);
- *Relics of Local Heritage Significance* (NSW Department of Planning and Environment, 2022);
- *Skeletal Remains. Guidelines for the Management of Human Skeletal Remains Under the Heritage Act 1977* (NSW Department of Planning and Environment, 2023);
- *Standard of Best Practice for Heritage Conservation Management Plans* (NSW Department of Premier and Cabinet, 2021); and
- *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance* (Australian International Council on Monuments and Sites [ICOMOS], 2013).

2.4.1 Environment Protection and Biodiversity Conservation Act, 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) defines 'environment' to include both the natural and cultural environment. It governs Aboriginal and non-Aboriginal historical heritage items. The EPBC Act establishes two heritage lists as important mechanisms for the conservation of heritage values. Some places are included on the National Heritage List (items of outstanding heritage value to the nation) and others on the Commonwealth Heritage List (heritage items belonging to the Commonwealth or its agencies). These two lists replaced the Register of the National Estate (RNE). The RNE has been suspended and is no longer a statutory list; however, it remains as an archive.

Under Part 9 of the EPBC Act, any action that is likely to have a significant impact on a matter of National Environmental Significance (known as a controlled action under the EPBC Act), may only progress with approval of the Commonwealth Minister for the Department of the Environment. An action is defined as a project, development, undertaking, activity (or series of activities), or alteration. An action will also require approval if:

- it is undertaken on Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land; and
- it is undertaken by the Commonwealth and will have or is likely to have a significant impact.

2.4.2 Environmental Planning and Assessment Act, 1979

The EP&A Act requires that consideration be given to environmental impacts as part of the land use planning process. In NSW, environmental impacts are interpreted as including historic or non-Indigenous heritage impacts.

Development Consent SSD 10418 for the MPO was sought and granted under the SSD provisions (Division 4.1) under Part 4 of the EP&A Act. The MPO is therefore classified as a 'SSD' under Part 4 of the EP&A Act.

2.4.3 Heritage Act, 1977

The *Heritage Act, 1977* (as amended) was enacted to conserve the environmental heritage of NSW. Under section 32, places, buildings, works, relics, moveable objects or precincts of heritage significance are protected by means of either issue of Heritage Orders by the Minister or by listing on the NSW State Heritage Register (SHR). Items that are assessed as having State heritage significance can be listed on the SHR by the Minister on the recommendation of the Heritage Council of NSW.

Archaeological relics (effectively, any relics of local or State significance that are buried, but not including Aboriginal archaeology) are protected by the provisions of section 139. Under this section it is illegal to disturb or excavate any land knowing or suspecting that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. In such cases an excavation permit under section 140 is required. Note that no formal listing is required for archaeological relics; they are automatically protected if they are of local significance or State significance. There are some gazetted 'exceptions' to the permit process, for minor works. Some sub-surface features are not treated as 'relics' but as 'works', including (for example) wells and culverts.

Proposals to alter, damage, move or destroy places, buildings, works, relics, moveable objects or precincts protected by a Heritage Order or listed on the SHR require an approval under section 60. Demolition of whole buildings will not normally be approved except under certain conditions (section 63). Some of the sites listed on the SHR or on Local Environmental Plans (LEP) may either be 'relics' or have relics associated with them. In such cases, a section 60 approval is also required for any disturbance to relics associated with a listed item. In the case of relics, there are some gazetted exemptions for minor works.

Under section 170 of the *Heritage Act, 1977*, NSW Government agencies are required to maintain a register of heritage assets. The Register places obligations on the agencies, but not on non-government proponents, beyond their responsibility to assess the impact on surrounding heritage items.

In the case of State Significant Development, the provisions of the *Heritage Act, 1977* can be 'switched off'. In those circumstances, the management of heritage places, including relics, will be governed by any conditions of approval imposed by the Minister. These typically reflect the processes and requirements imposed by the *Heritage Act, 1977*.

2.4.4 Muswellbrook Local Environmental Plan, 2009

The *Muswellbrook Local Environmental Plan, 2009* (Muswellbrook LEP) controls development in relation to heritage items within the Muswellbrook Shire boundary. Clause 5.10.1 outlines the Council's aims in relation to heritage, which are to:

- conserve the environmental heritage of Muswellbrook;
- conserve the heritage significance of heritage items and heritage conservation areas including associated fabric, settings and views;
- conserve archaeological sites; and
- conserve places of Aboriginal heritage significance.

Where impacts on locally significant heritage places are proposed that are not approved by an existing consent, MSC will require a Statement of Heritage Impact to accompany a Development Application, for example, to alter the exterior fabric of a heritage building, to make structural changes to its interior, or to subdivide or erect another building within the heritage curtilage of that heritage place. Should MSC grant development consent that is inconsistent with the approvals described in Section 1.1 above, the State approvals would prevail to the extent of the inconsistency.

MSC maintains an inventory of locally significant heritage items.

3 HISTORIC HERITAGE

3.1 PREVIOUS ASSESSMENTS AND INVESTIGATIONS

MACH Energy has established and maintains a Historic Heritage Sites Database for the MPO. The database is based on previous historic heritage surveys and assessments undertaken at the MPO and surrounds. The following sections outline the findings of previous studies conducted at the MPO.

3.1.1 Historic Heritage Study (2014)

A range of historic heritage studies have been undertaken for the MPO. Relevantly, Veritas Archaeology & History Service (VAHS) was engaged by Coal & Allied prior to 2004 to conduct work in fulfilment of the now superseded original consent condition relating to European heritage.

As part of the approved MOD 1, Coal & Allied was required to prepare a detailed history of the Mount Pleasant locality, specifically in accordance with Schedule 3, Condition 35 of modified Development Consent DA 92/97.

Coal & Allied again engaged VAHS to undertake this additional research and prepare the detailed history in accordance with the relevant Heritage Council of NSW guidelines. Work in fulfilment of this condition was conducted in three parts:

- Compilation of an oral history of the families within the area bounded by Wybong, Kayuga and Dorset Roads, and the Broomfield property.
- Site survey based on the MPO EIS (ERM Mitchell McCotter, 1997) and personal records, including surveys, plans of sites, photographs and a report.
- Research including an overview of the area, off-site records and collation of surveys and research into a final report on the Parish of Ellis.

The resulting VAHS report included statements of significance for 55 known and potential historic heritage sites, being a variety of site types including known and potential archaeological sites, derelict or demolished homesteads and outbuildings, and extant historic homesteads and outbuildings. Based on these assessments, VAHS developed a series of recommendations for the management of 41 places, in light of the proposed mining activities. The balance of the sites (14) was assessed by VAHS as not meeting the threshold for local heritage significance (Extent, 2020).

3.1.2 Historical Heritage Assessment (2020)

A Historical Heritage Assessment for the Project was undertaken by Extent (2020). The assessment was prepared in consideration of the relevant principles and articles contained in the following:

- *The Burra Charter: The Australian International Council on Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance* (Australia ICOMOS, 2013);
- *NSW Heritage Manual* (NSW Heritage Office and NSW Department of Urban Affairs and Planning, 1996);
- *Assessing Heritage Significance* (NSW Heritage Office, 2001); and
- *Statements of Heritage Impact* (NSW Heritage Office, 2002).

The assessment included the following searches of online databases undertaken to identify historic heritage items within the development area:

- The World Heritage List, National Heritage List and Commonwealth Heritage List;
- NSW SHR;
- Former RNE;
- National Trust Register;
- Schedules of the Muswellbrook LEP;
- Relevant section 170 Heritage and Conservation Registers;
- Australian Institute of Architects Register of significant 20th Century Buildings; and
- Former *Hunter Regional Environmental Plan, 1989* (Heritage)¹.

Searches of the World Heritage List, National Heritage List, Commonwealth Heritage List, NSW SHR and the Australian Institute of Architects Register of Significant 20th Century Buildings identified no registered sites located within, or adjacent to, the Project (MACH Energy, 2021a).

Sites with identified heritage significance in the vicinity of the Project listed in the Muswellbrook LEP included six historic heritage sites located in broader Muswellbrook area, including:

- Negoa Homestead;
- Kayuga Bridge;
- Kayuga Homestead;
- Rosedale (Rosevale) Cottage;
- Overdene (Overton) Homestead; and
- Kayuga Cemetery.

A search of the National Trust Register (a non-statutory register) also identified four registered items in the vicinity of the Project, including:

- Negoa Homestead;
- Overdene (Overton) Homestead;
- Old Kayuga Cemetery; and
- Muswellbrook-Jerry Plains Landscape Conservation Area.

A search of relevant Section 170 Heritage and Conservation Registers identified one registered item in the vicinity of the Project:

- Kayuga Bridge.

¹ The *Hunter Regional Environmental Plan, 1989* (Heritage) was repealed on 5 August 2016; however, items listed in this document have been considered for completeness.

The Muswellbrook-Jerrys Plains Landscape Conservation Area (Figure 3) was registered by the NSW National Trust of Australia in 1985. This listing is not recognised in either the Muswellbrook LEP or the Singleton LEP (Extent, 2020). A National Trust heritage assessment listing has no legislative effect and gives rise to no statutory obligations.

The site known as Kayuga Homestead is located outside the vicinity of the Mount Pleasant Operation on land owned by Dartbrook Mine. Extent (2020) concluded it would not directly be impacted by the Mount Pleasant Operation. However, the potential visual impacts of the Project on Kayuga Homestead were considered in the Visual Landscape Assessment by Visual Planning & Assessment (VPA) (2020). This is discussed further in Section 3.2.3.

In addition to a desktop assessment and review of previous investigations, additional site investigations were conducted by Extent (2020). Relevant historic heritage sites identified within the Project area are discussed further in Section 3.2.

3.2 HISTORIC HERITAGE SITES

An item is considered to be of potential State (or local) historical heritage significance if it meets one or more of the following criteria:

- 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.
- 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.

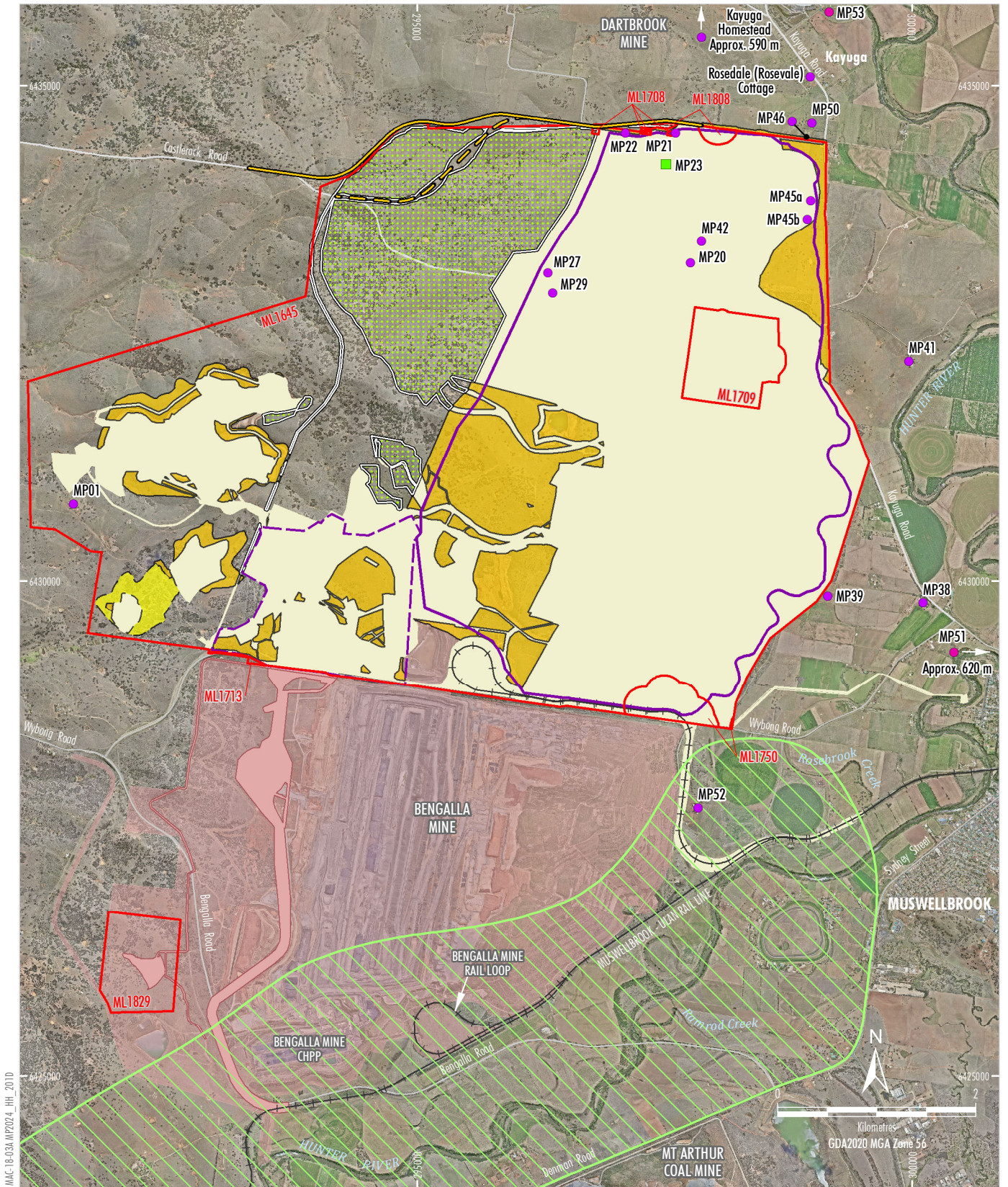
The Historical Heritage Assessment conducted for the Project (Extent, 2020) identified 14 places of local heritage significance (Figure 3 and Table 4). Two places of State heritage significance were also identified within the broader area, Kayuga Bridge (MP51) and Kayuga Cemetery (MP53). In addition, the Historical Heritage Assessment identified the potential for adverse heritage impact to MP23 Devine's. Although this site was assessed as failing to meet the threshold for either State or local heritage significance, there are anecdotal data of the presence of child burials at this site.

Kayuga Bridge (Site MP51) has been assessed to be of a State historic heritage significance (Table 4) and comprises a bridge and a roadway carried on a cross girders covered with a timber deck. The bridge is the second oldest lattice bridge in NSW and represents the significant structures of the colonial period between 1881 and 1893. MACH Energy requires mine-related traffic to avoid use of the Kayuga Bridge under the MPO Traffic Management Plan. Site MP51 would not be directly impacted by the Project.

Kayuga Cemetery (Site MP53) has also been assessed to be of a State historic heritage significance (Table 4). Site MP53 is the oldest cemetery in the Upper Hunter and had three periods of use, including the convict period (1831 – 1842), Scottish settlers and labourers, and conditional purchase settlers and labourers (post-1861). Site MP53 would not be directly impacted by the Project.

Full descriptions of each place are detailed in the Historical Heritage Assessment (Extent, 2020) with summaries provided in Section 3.3.

The Historical Heritage Assessment (Extent, 2020) considered direct heritage impacts of the Project (e.g. ground disturbance impacting archaeological sites), as well as the potential indirect heritage impacts of the Project (e.g. on the setting of heritage places).



MACH-18-038.MP2024_I_HH_2010

Source: MACH (2023); NSW Spatial Services (2023); National Trust of Australia (1985); Department of Planning and Environment (2016)
Orthophoto: MACH (Jun 2023)

- LEGEND**
- Railway
 - Mining Lease Boundary (Mount Pleasant Operation)
 - Project Continuation of Existing/Approved Surface Development (DA92/97) ¹
 - Bengalla Mine Approved Disturbance Boundary (SSD-5170)
 - Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) ¹
 - Development Footprint 1 (Stage 1) - General Extension Areas ¹
 - Development Footprint 1 (Stage 2) - Mine Water Dam 3 ¹
 - Relinquishment Area ²
 - Northern Link Road Option 1 Centreline
 - Northern Link Road Option 2 Centreline
 - Approximate Extent of Project Open Cut and Waste Rock Employment Landforms
 - Revised Infrastructure Area Envelope

- Muswellbrook-Jerrys Plains Landscape Conservation Area
- Site of Interest
- Historic Heritage Sites
- Local Significance
- State Significance

NOTES

¹ Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

² Subject to detailed design of Northern Link Road alignment.

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MOUNT PLEASANT OPERATION
Relevant Historic Heritage Sites

Figure 3

Table 4
Relevant Historic Heritage Sites

Site Number	Historic Heritage Site	Identified in Historic Heritage Register?	Summary Description	Significance	Located within Project Area
MP01	Broomfield	No	A homestead with a weatherboard home, coach house/museum, a shed of timber and corrugated iron, a shelter, a small hut with extensions, two large stable complexes and a shearing shed.	Local	Yes ¹
MP20	Kayuga Coal Mine	No	A disturbed collection of debris, with the visible extant features including the remains of timber posts, collapsed timber lined shaft entrances, exposed coal fines and broken bricks.	Local	Yes
MP21	Kayuga School	No	A series of depressions, partly soil-covered remnants of brick walls, circular brick kerbs/wells at ground level and drains.	Local	Yes
MP22	Smith's Clear Farm	No	A derelict homestead with a number of outbuildings (four sheds).	Local	Yes
MP23	Devine's	No	An archaeological site comprising a series of depressions, an artefact scatter, remnant fencing, remains of a track, an underground brick tank lined with plaster, a raised area and mature fruit trees. There is anecdotal data for the presence of child burials at this site associated with the Cracknell family.	Nil ²	Yes
MP27	Thorndale	No	A farm house constructed in the early 1870s with several derelict outbuildings.	Local	Yes
MP29	Lynch's	No	Dilapidated and weathered dwelling clad with ironbark weatherboards on a sawn timber frame with timber piers and a shed.	Local	Yes
MP38	Rosebrook	No	A farm site with the modified remains of an early homestead. It comprises of a two-storey sandstone homestead with a narrow, steep-roofed lean-to, a cellar, a billiard room and other outbuildings.	Local	No
MP39	Rosebrook Quarry	No	The site presents as a quarry, located west of the Rosebrook homestead.	Local	No
MP41	Negoa Homestead	Yes	A single-storied brick homestead in good condition with a corrugated metal hipped roof, with a two roomed cellar underneath the building.	Local	No
MP42	Fibbins	No	A farm site with the remains of a house, a brick chimney and ancillary structures.	Local	Yes

Table 4 (Continued)
Relevant Historic Heritage Sites

Site Number	Historic Heritage Site	Identified in Historic Heritage Register?	Summary Description	Significance	Located within Project Area
MP45 (a-b)	Casey: Clenmore and Edgeway	No	MP45(a): a farm site with a homestead surrounded by verandahs and a detached two-room kitchen. There are also various other ancillary farm structures. MP45(b): a large debris pile of timber and brick material used in the construction of the previous house.	Local	Yes
MP46	Kayuga Recreational Ground	No	A timber hall structure with gabled ends, a lean-to section and boarded up windows on the eastern side.	Local	No
MP50	Waitomo House	No	A four-bedroom house constructed of a sawn timber frame, mounted in timber piers and clad with a 'modern' style weatherboard.	Local	No
MP51	Kayuga Bridge	Yes	A two-span, single lane continuous steel and iron lattice truss bridge with an overall length of 162 m. The bridge is indicative of a significant structure of the colonial period.	State	No
MP52	'Overdene' (Overton)	Yes	A 19 th century five-room sandstone homestead with a central hall, brick chimneys and verandah extending around the east and south sides. The homestead has undergone a program of conservation to stabilise the physical fabric.	Local	No
MP53	Kayuga Cemetery	Yes	The site is the oldest cemetery in the Upper Hunter, with the first known burial in 1831.	State	No
-	Rosedale (Rosevale) Cottage	Yes	Historically the building has local significance because it is representative of the establishment and development phase of the town of Kayuga. It has local aesthetic significance because of its unique construction and because its original curtilage is still evident.	Local ³	No
-	Kayuga Homestead	Yes	The site is of regional significance for its substantial contribution to the success of the Kayuga community throughout the 19 th century. It is of regional significance for its potential to reveal information which could contribute to an understanding of the working of this community throughout the twentieth century.	Local	No

Source: MACH Energy (2021a).

¹ Site MP01 Broomfield is located within the boundary of the MPO mining lease but outside of the Project disturbance footprint.

² Site MP23 Devine's fails to meet the threshold for either State or local heritage significance, but as there are anecdotal data for the presence of child burials at this site (and given the site would be physically impacted by the Project), a cautious approach is warranted.

³ Significance based on listing status only.

3.2.1 Potential Direct Impacts

Of the 14 identified sites of local heritage significance, seven sites have the potential to be directly impacted by the Project (Figure 3). These include:

- Kayuga Coal Mine (MP20);
- Kayuga School (MP21);
- Smith's Clear Farm (MP22);
- Thorndale (MP27);
- Lynch's (MP29);
- Fibbins (MP42); and
- MP45(a-b) Casey: Clenmore and Edgeway.

These sites are located within the approved MPO surface development area (Figure 3). Direct impacts to these sites would be appropriately mitigated by implementing management measures consistent with the recommendations of Extent (2020) (Section 4).

In addition, Devine's (MP23) has the potential to be directly impacted by the Project. Although this site does not meet the threshold for either State or local heritage significance, there are anecdotal data of the presence of child burials at this site and therefore, a cautious management approach is warranted.

3.2.2 Potential Indirect Impacts

Potential indirect impacts associated with the Project are identified to be potential impacts resulting from vibration due to blasting activity which has the theoretical potential to damage/destroy/disturb historical heritage items, and potential impacts to any identified significant views or vistas.

In terms of potential indirect impact by blasting as a result of vibration, the applicable assessment criteria for heritage items is 10 millimetres per second (mm/s), in accordance with Development Consent SSD 10418. This limit does not apply to historic heritage sites located within the approved disturbance area.

Extent (2020) considered potential indirect impacts of the Project to the following sites:

- Broomfield (MP01);
- Rosebrook (MP38);
- Rosebrook Quarry (MP39);
- Negoa Homestead (MP41);
- Kayuga Recreation Ground (MP46);
- Waitomo House (MP50);
- Kayuga Bridge (MP51);
- Overdene (Overton) (MP52);
- Kayuga Cemetery (MP53); and
- Rosedale (Rosevale) Cottage.

These sites have been assessed for potential indirect impacts relating to blasting (building damage), air quality, acoustics, visual amenity and altered 'use' of the site. Implementation of the management measures recommended by Extent (2020) has been incorporated in Section 4.

3.2.3 Visual Impacts

A Visual Landscape Assessment was conducted by VPA (2020) for the Project EIS. The visual character and scale of the Project is consistent with the existing visual landscape (i.e. MPO, Bengalla Mine), thereby integrating components within the existing regional mining setting.

Rural residences are located throughout the local setting mainly on the lower elevation of the Hunter River flood plain along Dartbrook Road, Blairmore Road, Nandowra Road and Kayuga Road, and would also include the heritage listed Kayuga Homestead.

Previous assessments determined that high visual impacts would occur at rural properties on the Hunter River flood plain due to the approved MPO.

Within the Northern sector, the Project would continue to have high visual impacts on rural residences (including to Kayuga Homestead) with views of the Project during construction and operation, which would reduce to low visual impacts in the long-term.

There would be an increase in the extent and elevation of the mining landform visible at some sites. This would be mitigated through rehabilitation of the landform in accordance with the MPO Rehabilitation Strategy.

3.2.4 Cumulative Impacts

The Project would result in demolition of six homesteads of local heritage significance, removing these from the Mount Pleasant cultural landscape (MACH Energy, 2021a). Many of the features that contribute to the Mount Pleasant cultural landscape, including the homesteads to be disturbed, are in poor condition and within a compromised rural landscape (Extent, 2020). Extent (2020) noted that the Project has an opportunity to have a positive effect of recording these features through the recommended photographic archival recording. Extent (2020) also noted that the Project would also have a positive effect through the recommended further archaeological investigation and heritage interpretation measures. There would be negligible impact on the broader setting of the Muswellbrook-Jerrys Plains Landscape Conservation Area. The cumulative historical heritage impacts of the Project has been assessed to be low (Extent, 2020).

3.3 HISTORIC HERITAGE VALUES

All previously identified historic heritage items assessed to be of local heritage significance are detailed below along with the associated description of heritage values that may be subject to impact.




3.3.1 Broomfield (MP01)

Broomfield (MP01) (Plate 1) is a place of local heritage significance. It is located within the boundary of the MPO MLs but outside of the Project disturbance footprint. Therefore, Broomfield (MP01) would not be physically impacted by the proposed mine works. The site has been abandoned for many years and the extant structures are in poor condition due to natural wear and tear. Its conservation and reoccupation are not viable. The site's significance principally resides in its ability to tell the story of the local area.

3.3.2 Kayuga Coal Mine (MP20)

Kayuga Coal Mine (MP20) (Plate 2) is a place of local heritage significance for its historical values. In addition, the extant shafts and entrances have the potential to yield useful research data (although they would be considered 'works', not 'relics', under the *Heritage Act, 1977*). The site would be disturbed or destroyed by the Project. This would constitute an adverse heritage impact. However, the significance of the site of Kayuga Coal Mine (MP20) rests principally in its ability to yield research data.

Extent has prepared an Archaeological Research Design and Excavation Methodology for the Kayuga Coal Mine (MP20). A copy of the Archaeological Research Design and Excavation Methodology is provided in Appendix C.

<p style="text-align: center;">MP01 Broomfield</p>	<p style="text-align: center;">MP20 Kayuga Coal Mine</p>
 <p>Plate 1 The garden vegetation at Broomfield (MP01), which has overgrown parts of the homestead.</p>	 <p>Plate 2 The overgrown gully that divides the former site of the Kayuga Coal Mine (MP20).</p>
<p style="text-align: center;">MP21 Kayuga School</p>	<p style="text-align: center;">MP22 Smith's Clear Farm</p>
 <p>Plate 3 View across the site of the former Kayuga School (MP21), showing its overgrown state.</p>	 <p>Plate 4 The east elevation of the homestead at Smith's Clear Farm (MP22).</p>
<p style="text-align: center;">MP27 Thorndale</p>	<p style="text-align: center;">MP29 Lynch's</p>
 <p>Plate 5 The homestead known as Thorndale (MP27). Note the extent of the overgrown vegetation.</p>	 <p>Plate 6 The single timber dwelling at Lynch's (MP29).</p>

3.3.4 Kayuga School (MP21)

Kayuga School (MP21) (Plate 3) is an archaeological site of local heritage significance. The site is located within the boundary of the MPO MLs and would be disturbed or destroyed by the Project. The features at MP21 have high potential to constitute 'relics' as defined by the *Heritage Act, 1977*. Therefore, the disturbance or destruction of the Kayuga School (MP21) as part of the proposed mine works would constitute an adverse heritage impact. However, the significance of the site rests principally in its ability to yield research data.

Extent has prepared an Archaeological Research Design and Excavation Methodology for the Kayuga School (MP21). A copy of the Archaeological Research Design and Excavation Methodology is provided in Appendix D.

3.3.5 Smith's Clear Farm (MP22)

Smith's Clear Farm (MP22) (Plate 4) is a place of local heritage significance. The site would be physically impacted by the proposed mine works. The disturbance or demolition of Smith's Clear Farm (MP22) would constitute a minor adverse heritage impact. The site has been abandoned for many years and the extant structures are in poor condition due to natural wear and tear. Its conservation and re-occupation are not viable. The site's significance principally resides in its ability to tell the story of the local area.







3.3.6 Thorndale (MP27)

Thorndale (MP27) (Plate 5) is a place of local heritage significance. It would be physically impacted by the Project, which would necessitate its demolition. The disturbance or demolition of the house at Thorndale (MP27) would constitute an adverse heritage impact. However, the house has been abandoned for many years and the extant structure is in poor condition due to natural wear and tear. Its conservation and re-occupation are not viable. The house's significance now principally resides in its ability to tell the story of the local area. The shearing shed at Thorndale (MP27) was damaged in a storm event in 2019 and subsequently demolished. There are unsupported anecdotal data that there may be child burials at the house site. However, the site has been assessed as having low potential to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*.

Extent has prepared an Archaeological Research Design and Excavation Methodology for Thorndale (MP27). A copy of the Archaeological Research Design and Excavation Methodology is provided in Appendix E.

3.3.7 Lynch's (MP29)

Lynch's (MP29) (Plate 6) is a place of local heritage significance. The site would be physically impacted by the proposed mine works. The disturbance or demolition of Lynch's (MP29) would constitute a minor adverse heritage impact. The site has been abandoned for many years and the extant structure is in poor condition due to natural wear and tear. Its conservation and re-occupation are not viable. The site's significance principally resides in its ability to tell the story of the local area.

<p style="text-align: center;">MP38 Rosebrook</p>	<p style="text-align: center;">MP39 Rosebrook Quarry</p>
 <p>Plate 7 The front elevation of the homestead known as 'Rosebrook' (MP38).</p>	 <p>Plate 8 A rocky outcrop comprising the quarry face at Rosebrook Quarry (MP39).</p>
<p style="text-align: center;">MP41 Negoa Homestead</p>	<p style="text-align: center;">MP42 Fibbins</p>
 <p>Plate 9 The circa 1860 sandstone section of the homestead and the servant's quarters at Negoa Homestead (MP41).</p>	 <p>Plate 10 View looking east showing the rear of the main house at Fibbins (MP42).</p>
<p style="text-align: center;">MP45 (a) Clenmore</p>	<p style="text-align: center;">MP45(b) Edgeway</p>
 <p>Plate 11 The north elevation of the house known as 'Clenmore' at MP45(a).</p>	 <p>Plate 12 The collapsed remains of the house known as 'Edgeway' at MP45(b).</p>

3.3.8 Rosebrook (MP38)

Rosebrook (MP38) (Plate 7) is a place of local significance. However, the homestead is not located within the MPO MLs (Figure 3). It would not be directly impacted by the Project. There would be no adverse impacts in relation to the use of the homestead. Rosebrook (MP38) is located on private land and could continue to be used as a residence or other accommodation if the Project proceeds. It is understood that there is a current lease agreement between MACH Energy and the existing tenant in effect until 2031. A Conservation Management Plan will be prepared for this place.

There would be no impacts on Rosebrook (MP38) in terms of potential indirect impacts to the physical fabric (e.g. through vibration) or auditory setting. All blasting activities for the Project would be designed and managed to limit ground vibration to 10 mm/s at historic heritage sites in accordance with the approved MPO Blast Management Plan (Section 4.3). As the Project progresses to the north-west of the MPO ML boundary, blasting activities would move further away from Rosebrook (MP38).

3.3.9 Rosebrook Quarry (MP39)

Rosebrook Quarry (MP39) (Plate 8) is a place of local significance. Its significance principally rests in its ability to yield research data, although the site would comprise a 'work' (rather than a 'relic') under the *Heritage Act, 1977*. Rosebrook Quarry (MP39) would not be physically impacted by the proposed mine works, as it is located outside of the MPO MLs and the Project disturbance footprint.

3.3.10 Negoa Homestead (MP41)

The Negoa Homestead (MP41) (Plate 9) is a place of local heritage significance for satisfying a range of criteria. However, it is located outside the MPO MLs and would not be directly impacted by the Project. There is moderate potential for MP41 to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*.

There would be no impacts on the Negoa Homestead (MP41) in terms of potential indirect impacts to the physical fabric (e.g. through vibration) or auditory setting. All blasting activities for the Project would be designed and managed to limit ground vibration to 10 mm/s at the Negoa Homestead (MP41), in accordance with the MPO Blast Management Plan (Section 4.3).

The Negoa Homestead (MP41) is significant for, among other values, its aesthetic values. Two views in particular have been identified as being highly significant: views to/from its southern elevation (its main façade) and views to/from its long western elevation. These views would not be significantly impacted by the proposed Project. Views towards Negoa would be largely unchanged. Views outwards from Negoa would capture an increase in elevation and extent of the mining landform but when vegetated it would read as a natural rise in the distance not out of character with the present landscape.

A Conservation Management Plan (CMP) was prepared for the conservation of the Negoa Homestead (MP41) (Extent, 2021) and discussed in Section 4.2.

3.3.11 Fibbins (MP42)

Fibbins (MP42) (Plate 10) is a place of local significance. It is located within the MPO MLs and would be disturbed or destroyed by the Project (Figure 3).

The disturbance or demolition of the house at Fibbins (MP42) would constitute an adverse heritage impact. However, the house has been abandoned for many years and the extant structure is in poor condition due to natural wear and tear. Its conservation and re-occupation are not viable. The house's significance principally resides in its ability to tell the story of the local area. As such, there is low potential for the site to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*.

3.3.12 Casey: Clenmore and Edgeway (MP45 a-b)

MP45(a-b) Casey: Clenmore (Plate 11) and Edgeway (Plate 12) would be physically impacted by the proposed mine works.

The extant structure at MP45(a), and what remains of MP45(b), have some significance for their ability to provide data about the history of the local area. Their demolition as part of the Project would constitute a minor adverse heritage impact. Both sites have been abandoned for many years and the extant structures are in poor condition due to natural wear and tear, and in the case of MP45(b), collapse. Their conservation and re-occupation are not viable.

There is low potential for these sites to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*. There would be no adverse archaeological impacts as a result of the Project. The sites' significance principally resides in their ability to tell the story of the local area.

3.3.13 Kayuga Recreation Ground (MP46)

Kayuga Recreation Ground (MP46) (Plate 13) is a place of local heritage significance. It is located on MSC-owned land (Figure 3) and would not be directly impacted by the Project. There is low potential for the site to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*.

In terms of potential indirect impacts, there would be no change in relation to the 'use' of the structure surviving at Kayuga Recreation Ground (MP46). It is currently unoccupied. If the disturbance or demolition of Kayuga Recreation Ground (MP46) becomes necessary due to the modification of the Project infrastructure footprint as a result of detailed design, this would constitute an adverse heritage impact. Mitigation measures and recommendations are presented in Section 4.

The site has been abandoned for many years and the extant structure is in poor condition due to natural wear and tear. The site's significance therefore now principally resides in its ability to tell the story of the local area, which can be realised through photographic archival recording.

3.3.14 Waitomo House (MP50)

Waitomo House (MP50) (Plate 14) is a place of local heritage significance. It is located outside of the MPO MLs (Figure 3) and would not be directly impacted by the Project.

Waitomo House (MP50) would be retained *in-situ*. There would be some adverse impacts in terms of its setting, and limitations on its future re-use having regard to air quality and acoustic impacts. If a decision is made to demolish Waitomo House (MP50), this would be an adverse heritage impact that would be mitigated by observing the recommendations for photographic archival recording.

3.3.15 Kayuga Bridge (MP51)

Kayuga Bridge (MP51) (Plate 15) is listed in the Muswellbrook LEP as a place of local significance and is assessed in a section 170 Heritage and Conservation Register as a place of State heritage significance. It would not be directly impacted by the Project.

In terms of potential indirect impacts to the physical fabric of Kayuga Bridge (MP51), MACH Energy observes an ongoing commitment to ensure that all mine-related vehicles do not use or access Kayuga Bridge (MP51) as outlined in the MPO Traffic Management Plan.

There would be no indirect impacts on Kayuga Bridge (MP51) as a result of vibration. The MPO Blast Management Plan prescribes ground vibration at residences on privately owned land and historic heritage sites to be no more than 10 mm/s. As Kayuga Bridge (MP51) is located further away from the proposed Project disturbance area than the private receivers located to the east of the MPO ML, the blast criteria would also be met at Kayuga Bridge (MP51).

3.3.16 Overdene (Overton) (MP52)

Overdene (Overton) (MP52) (Plate 16) is a place of local significance (built form and archaeology) and is captured in the Muswellbrook LEP. The existing CMP for Overdene (Overton) (MP52) was previously prepared by AECOM and Hanson Bailey (2017) for the Bengalla Mine in consultation with the Heritage Council of NSW and MSC. This is discussed further in Section 4.2.

Overdene (Overton) (MP52) falls outside the MPO MLs, noting that the site is located on Bengalla Mine-owned land. It would not be directly impacted by the Project and would be retained and conserved *in-situ* consistent with the existing Overdene CMP (AECOM and Hansen Bailey, 2017).

Bengalla Mine have developed a Historic Heritage Management Plan for the management of heritage items within and adjacent to Bengalla Mine in accordance with Development Consent SSD-5170. The Historic Heritage Management Plan developed for Bengalla Mine includes management measures and the CMP for Overdene (MP52) (Extent, 2020).

Provided the management recommendations presented in Section 4 are implemented, the proposed mine works would have no adverse heritage impact on Overdene (Overton) (MP52).

3.3.17 Kayuga Cemetery (MP53)

Kayuga Cemetery (MP53) (Plate 17) is a place of State heritage significance. It is the oldest cemetery in the Upper Hunter and has the potential to provide further understanding of the burial patterns of the settlers and the role a small country cemetery played in the community. Kayuga Cemetery (MP53) is not located within the MPO MLs and would not be directly impacted by the Project.

The MPO Blast Management Plan prescribes ground vibration at residences on privately owned land and historic heritage sites to be no more than 10 mm/s. As Kayuga Cemetery (MP53) is located further away from the Project disturbance area than the private receivers located to the east of the MPO ML, the blast criteria would also be met at Kayuga Cemetery (MP53). Therefore, the Project would have no adverse impact on Kayuga Cemetery (MP53) as a result of blasting.

As discussed in the Historical Heritage Assessment (Extent, 2020), the conservation and management of the Kayuga Cemetery (MP53) is the responsibility of MSC. Provided the management recommendations presented in Section 4, the proposed mine works would have no adverse heritage impact on Kayuga Cemetery (MP53).

3.3.18 MP23 Devine's

Devine's (MP23) would be physically impacted by the proposed mine works and fails to meet the threshold for either State or local significance. There is low potential for the site to contain artefacts that would satisfy the definition of 'relics' as defined by the *Heritage Act, 1977*.

However, there are anecdotal data that there may be child burials at this site. Therefore, the potential adverse heritage impacts occasioned by the Project would be mitigated by observing the recommendations presented in Sections 4 and 5.2. A cautious approach to the potential archaeological resource at MP23 has been taken in Sections 4 and 5.2.

Extent was commissioned by MACH Energy to undertake an Archaeological Research Design and Excavation Methodology for Devine's (MP23). A copy of the Archaeological Research Design and Excavation Methodology is provided in Appendix F.

3.3.19 Rosedale (Rosevale) Cottage

Rosedale (Rosevale) Cottage is listed in the Muswellbrook LEP as a place of local heritage significance. It is located outside of the MPO MLs (Figure 3) and would not be directly impacted by the Project. Potential impacts to Rosedale (Rosevale) Cottage by the Project would be indirect (e.g. through vibration during blasting or visual setting). Mitigation measures and recommendations are presented in Section 4.

3.3.20 Kayuga Homestead

Kayuga Homestead is listed in the Muswellbrook LEP as a place of local heritage significance. It is located outside of the MPO MLs (Figure 3) and would not be directly impacted by the Project. Potential impacts to Kayuga Homestead by the Project would be indirect (e.g. through vibration during blasting or visual setting). Mitigation measures and recommendations are presented in Section 4.

<p style="text-align: center;">MP46 Kayuga Recreational Ground</p>	<p style="text-align: center;">MP50 Waitomo House</p>
	
<p>Plate 13 View of the former hall at the Kayuga Recreation Ground (MP46) in the 1990s, prior to VAHS fieldwork in 2014.</p>	<p>Plate 14 View looking west of the homestead at MP50 during the VAHS fieldwork in 2014.</p>
<p style="text-align: center;">MP51 Kayuga Bridge</p>	<p style="text-align: center;">MP52 'Overdene' (Overton)</p>
	
<p>Plate 15 View of the Kayuga Bridge (MP51) capturing the historic iron lattice truss design.</p>	<p>Plate 16 The west elevation (rear) of the homestead building at Overdene (Overton) (MP52).</p>
<p style="text-align: center;">MP53 Kayuga Cemetery</p>	<p style="text-align: center;">MP23 Devine's</p>
	
<p>Plate 17 View looking north-east across the site known as the Kayuga Cemetery (MP53).</p>	<p>Plate 18 An example of the scattered farming bric-a-brac associated with site known as Devine's (MP23).</p>

3.4 HERITAGE INTERPRETATION

In accordance with the recommendations made in the Historical Heritage Assessment by Extent (2020), MACH Energy will prepare an Interpretation Plan.

The Interpretation Plan will collate and synthesise the data generated by previous heritage studies conducted for the MPO, notably the VAHS (2014) report, any future the photographic archival records to be conducted for the recommended sites (Section 4.1) and the oral history data generated by VAHS in 2004. Additionally, the Interpretation Plan will incorporate the results of any archaeological investigations undertaken at the MPO.

The Interpretation Plan would devise the most effective way of 'telling the story' of MPO prior to the Project, which would include a consideration of the following:

- relevant themes and stories;
- the relevant 'audience' for the interpretation measures, including the general public; and
- the most effective media for communicating those stories and themes.

As the Interpretation Plan will incorporate the results of the investigations (Section 4.1), it will be prepared in calendar year 2025.

Within 12 months of the completion of the Interpretation Plan, the interpretation measures recommended in this plan will be implemented by MACH Energy.

4 MANAGEMENT MEASURES

This section of the HHMP details the management strategies that have been developed for the historic heritage sites associated with the Project.

It addresses the outcomes of consultation undertaken with Heritage NSW, MSC and relevant landowners, as well as commitments and recommendations made in the Project EIS (MACH Energy, 2021a) and Submissions Report (MACH Energy, 2021b).

The Historical Heritage Assessment (Extent, 2020) prepared for the Project provided management recommendations for the identified historic heritage items. These recommendations have been incorporated into this HHMP on the subsections below.

4.1 SUMMARY OF MANAGEMENT MEASURES FOR HISTORIC HERITAGE

Table 5 presents the management actions described for the relevant heritage sites located within the Project and the nature of any adverse heritage impacts, which were identified through the Historical Heritage Assessment conducted for the Project (Extent, 2020).

Table 5
Site-specific Historic Heritage Management Actions

Site Number ¹	Historic Heritage Site	Key Proposed Management Measures ²
MP01	Broomfield	<ul style="list-style-type: none"> Retain <i>in-situ</i> if practicable and make the structures safe and weather-proof. All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. In the event the site is to be directly disturbed or demolished, conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. It would be appropriate for the archival record to be made principally through photography, with illustrative drawings, rather than full measured drawings. Once the archival record is complete, works would then proceed at the site without the need for further heritage inputs.
MP20	Kayuga Coal Mine	<ul style="list-style-type: none"> Conduct archaeological investigations in accordance with the Archaeological Research and Design Methodology (Appendix C) prior to any disturbance, using a combination of mechanical and manual excavation, provided it is safe to do so. For those areas identified as unsafe to undertake archaeological investigations, it is appropriate for works to proceed without the need for further inputs from an archaeologist. Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. Once the archaeological investigations and reporting are complete, works would then proceed at the site without the need for further heritage inputs.

Table 5 (Continued)
Site-specific Historic Heritage Management Actions

Site Number ¹	Historic Heritage Site	Key Proposed Management Measures ²
MP21	Kayuga School	<ul style="list-style-type: none"> • Conduct archaeological investigations of MP21 in accordance with the Archaeological Research and Design Methodology (Appendix D) prior to any disturbance, using a combination of mechanical and manual excavation provided it is safe to do so. • Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • Once the archaeological investigations and reporting are complete, the site may be disturbed without the need for further heritage inputs.
MP23	Devine's	<ul style="list-style-type: none"> • Conduct archaeological investigations in accordance with the Archaeological Research and Design Methodology (Appendix F) prior to any disturbance due to anecdotal reports of potential child burials, utilising a qualified archaeologist with demonstrated experience in the identification of burials outside of dedicated/consecrated cemeteries. • Archaeological investigations are recommended to focus on the garden areas around the former homestead where anecdotal data suggest that there may be child burials. It would be appropriate for archaeological investigations to be undertaken by a machine excavator, with a flat-edged bucket, monitored by the engaged archaeologist. Grass cover and soil deposits should be removed in shallow scrapes ('spits' of c.100 mm) until natural deposits are exposed. Manual excavation should be employed at the qualified archaeologist's discretion. • In the event that human remains or the possible location(s) of burials or graves are identified, site work would stop immediately in the vicinity and the relevant authorities (including the NSW Police) would be notified immediately (Section 5.2). Works would only proceed again with approval from NSW Police and after observing the requirements of the NSW Department of Health in relation to the <i>Public Health Act, 1991</i> and the <i>Coroners Act, 2009</i>. • Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • In the event that archaeological investigations do not result in the identification of possible grave or burial locations (or human remains), works would then proceed at the site without the need for further inputs from the engaged archaeologist.
MP22; MP29; MP42; MP45(a-b)	Smith's Clear Farm; Lynch's; Fibbins; Casey; Clenmore and Edgeway	<ul style="list-style-type: none"> • Conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. It would be appropriate for the archival record to be made principally through photography, with illustrative drawings, rather than full measured drawings. • Once the archival record is complete, works would then proceed at the site without the need for further heritage inputs.

Table 5 (Continued)
Site-specific Historic Heritage Management Actions

Site Number ¹	Historic Heritage Site	Key Proposed Management Measures ²
MP27	Thorndale	<ul style="list-style-type: none"> • Conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. It would be appropriate for the archival record to be made principally through photography, with illustrative drawings, rather than full measured drawings. • Conduct archaeological investigations in accordance with the Archaeological Research and Design Methodology (Appendix E) prior to any disturbance due to anecdotal reports of potential child burials, utilising a qualified archaeologist with demonstrated experience in the identification of burials outside of dedicated/consecrated cemeteries. • It would be appropriate for archaeological investigations to be undertaken by a machine excavator, with a flat-edged bucket, monitored by the engaged archaeologist. Grass cover and soil deposits should be removed in shallow scrapes ('spits' of c.100 mm) until natural deposits are exposed. Manual excavation should be employed at the qualified archaeologist's discretion. • In the event that human remains or the possible location(s) of burials or graves are identified, site work would stop immediately in the vicinity and the relevant authorities (including the NSW Police) would be notified immediately (Section 5.2). Works would only proceed again with approval from NSW Police and after observing the requirements of the NSW Department of Health in relation to the <i>Public Health Act, 1991</i> and the <i>Coroners Act, 2009</i>. • Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • In the event that archaeological investigations do not result in the identification of possible grave or burial locations (or human remains), works would then proceed at the site without the need for further inputs from the engaged archaeologist.
MP38	Rosebrook	<ul style="list-style-type: none"> • Maintain and conserve the homestead, any outbuildings and garden areas <i>in-situ</i>. • Prepare a CMP consistent with relevant NSW Government heritage guideline documentation. • Undertake archaeological investigation prior to any significant ground disturbance. Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan.
MP39	Rosebrook Quarry	<ul style="list-style-type: none"> • No specific management recommendations.
MP41	Negoa Homestead	<ul style="list-style-type: none"> • Maintain and conserve <i>in-situ</i> in accordance with the existing Negoa CMP (Extent, 2021), or any future updates. • All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. • Consult with a suitably qualified archaeologist prior to conducting any ground disturbance works within the grounds of MP41 or in its vicinity.

Table 5 (Continued)
Site-specific Historic Heritage Management Actions

Site Number ¹	Historic Heritage Site	Key Proposed Management Measures ²
MP46	Kayuga Recreational Ground	<ul style="list-style-type: none"> Given the management of the site remains the responsibility of MSC, no conservation measures are required. All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. In the event the site is to be directly disturbed or demolished, conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. It would be appropriate for the archival record to be made principally through photography, with illustrative drawings, rather than full measured drawings. Once the archival record is complete, works would then proceed at the site without the need for further heritage inputs.
MP50	Waitomo House	<ul style="list-style-type: none"> Retain <i>in-situ</i> and conserve within an appropriate setting, and make the structures safe and weatherproof. Consult with a heritage professional in relation to any proposed alterations and additions to the house. All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. If <i>in-situ</i> retention is not practicable, conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. It would be appropriate for the archival record to be made principally through photography, with illustrative drawings, rather than full measured drawings.
MP51	Kayuga Bridge	<ul style="list-style-type: none"> Continue to observe MACH Energy's existing commitment relating to the use of the Kayuga Bridge in accordance with the MPO Traffic Management Plan. All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. Given the management of the site remains the responsibility of Transport for NSW, no further measures are required.
MP52	'Overdene' (Overton)	<ul style="list-style-type: none"> Maintain and conserve <i>in-situ</i> in accordance with the existing Overdene CMP (AECOM and Hansen Bailey, 2017), noting that the site is located on Bengalla Mine owned land.
MP53	Kayuga Cemetery	<ul style="list-style-type: none"> All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. Given the management of the site remains the responsibility of the MSC, no further measures are required.
-	Rosedale (Rosevale) Cottage	<ul style="list-style-type: none"> All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. Given the site is not owned by MACH Energy, no further measures are required.
-	Kayuga Homestead	<ul style="list-style-type: none"> All blasting activities would be designed and managed in accordance with the MPO Blast Management Plan. Given the site is not owned by MACH Energy, no further measures are required.

Source: Extent (2020).

¹ The site number correlates with the numbers presented on Figure 3.

² Refer to the Historical Heritage Assessment (Extent, 2020) for additional details regarding the management measures recommended by Extent (2020).

Additionally, the Historical Heritage Assessment (Extent, 2020) identified wells present at Humphries (MP13), Devine's (MP23), Gall's Farm (MP25) and Rosebrook (MP38). It is noted that MP13 Humphries, MP23 Devine's and MP25 Gall's Farm have been determined by Extent (2020) to not meet the criteria for either State or local heritage significance. The wells are regarded as 'works' under the *Heritage Act, 1977*. If these wells contained artefacts, they may be 'relics' under the *Heritage Act, 1977*. As per the Submissions Report (MACH Energy, 2021b), the appropriate management strategy for the Project would be to record the wells as part of the proposed mine works and if relics are discovered (as assessed by a qualified archaeologist), they will be archaeologically investigated prior to their damage or destruction. The results of those excavations should be presented in a publicly accessible report within 12 months of completion of the excavation. A detailed Archaeological Research Design and Excavation Methodology for the wells (Humphries [MP13], Devine's [MP23], Gall's Farm [MP25]) was prepared by Extent and provided in Appendix G.

No specific management measures are proposed for the remainder of the sites that are not considered to be of historic heritage significance as assessed in the Historical Heritage Assessment (Extent, 2020). However, some of these items may be of interest to local collectors, and prior to Project disturbance, may be offered to local historical groups (e.g. the Denman Heritage Village) (Extent, 2020).

4.2 CONSERVATION MANAGEMENT PLANS

The CMPs contain (or in the case of the Rosebrook CMP, will contain) conservation policies and schedules for short term, medium term and long-term works to maintain the properties. The current CMPs include ongoing periodic maintenance, such as annual dilapidation inspections, regular inspections of the roofs, gutters, downpipes and drainage, annual pest inspections and cleaning and frequent security inspections. These are documented in regular internal inspections and reported in the MPO Annual Review.

4.2.1 Overdene Conservation Management Plan

The existing CMP for Overdene (Overton) (MP52) was prepared for the Bengalla Mine (AECOM and Hansen Bailey, 2017) and lists the conservation policies to be used to assist in the ongoing use, maintenance and conservation of the site. Any works undertaken within the curtilage of the Overdene listing will be managed by Bengalla Mine and follow the management measures summarised in the existing Overdene CMP (AECOM and Hansen Bailey, 2017) to ensure that the works are undertaken with respect to the item's heritage significance.

4.2.2 Rosebrook Conservation Management Plan

In accordance with Part B, Condition B73(i) of Development Consent SSD 10418, a CMP for the Rosebrook Homestead (MP38) will be prepared. This CMP will be prepared within 12 months of commencing under Development Consent SSD 10418.

4.2.3 Negoa Homestead Conservation Management Plan

In accordance with Part B, Condition B73(i) of Development Consent SSD 10418, a CMP for the Negoa Homestead (MP41) was previously prepared by Extent (2021). The Negoa CMP prepared by Extent (2021) is used as the principal guiding tool to direct future management, maintenance and conservation works, adaptive re-use, new works, potential future uses, and interpretation of the site (Appendix H).

MACH Energy will maintain and conserve the property *in-situ* in accordance with the conservation strategies outlined in the Negoa CMP.

Any future proposals for associated major works to the homestead are to be accompanied by the preparation of an updated Negoa CMP, if not covered by an existing one (Extent, 2021).

4.3 BLASTING AND VIBRATION

Part B, Condition B12 of Development Consent SSD 10418 requires that any blasting undertaken in the MPO area should not cause exceedances of 10 mm/s ground vibration at historic heritage sites.

MACH Energy will design and manage blast events to limit ground vibration to 10 mm/s (as defined in Table 2 Blasting Criteria [Part B, Condition B12 of Development Consent SSD 10418]) at historic heritage sites (Table 5). Additionally, this will be managed in accordance with the management measures outlined in the approved MPO Blast Management Plan. If sites remain *in situ*, blast vibration monitoring will be undertaken either at the site or at representative locations, when blasting is within 500 m of the site. Representative blast monitoring to inform ground vibration impacts at the structure will be undertaken during blast events and monitoring results during blast events will be included in the MACH Energy Monthly Environmental Monitoring Report and reviewed in the MPO Annual Review (Section 9.1).

Compliance with blast limits is specified in Development Consent SSD 10418 and Environment Protection Licence (EPL) 20850. Airblast overpressure and ground vibration levels will be measured and electronically recorded in accordance with the units of measure, sampling method and sample frequency outlined in the MPO Blast Management Plan and EPL 20850.

In accordance with Part B, Condition B24(i) of Development Consent SSD 10418, the MPO Blast Management Plan will include a strategy to monitor, mitigate and manage the effects of blasting on heritage items (including but not limited to Kayuga Cemetery [MP53]), including details of baseline (i.e. pre-blasting) and ongoing risk-based dilapidation surveys (subject to landowner access arrangements). All construction work will be undertaken in accordance with the approved MPO Blast Management Plan to ensure no ground vibration criteria exceedance occurs. Performance indicators and procedures for notification of blast exceedances are included in the MPO Blast Management Plan.

The CMP for Overdene (Overton) (MP52) (Section 4.2.1) states that monitoring and management of blasting impacts and temporary reinforcement should be undertaken as required within the Overdene curtilage, noting that such works should be undertaken with reference to the documented effects of blasting contained in the blasting report.

4.4 AVOIDANCE AND CONSERVATION

In-situ conservation objectives generally include that the sites be:

- Kept reasonably secure against vandalism and storm damage.
- Protected from accidental damage arising out of MPO activities (e.g. the movement of heavy machinery, new construction, etc.). This will include measures such as:
 - maintenance of the Historic Heritage Site Database (Section 4.5);
 - undertaking toolbox presentations and providing other relevant training for workers to ensure the workers' awareness of the heritage significance of the disturbance area prior to undertaking work within its bounds;
 - demarcation of areas of heritage significance or archaeological sensitivity on a map;
 - demarcation of areas of heritage significance with physical fencing and signage if necessary;
 - demarcation of the extent of disturbance (including heavy vehicle movement) associated with construction works; and
 - restricting the movement of heavy vehicles and machinery to existing tracks and roads, as much as practical.

The Project EIS recommended the avoidance and *in-situ* conservation of the following sites:

- Broomfield (MP01);
- Rosebrook (MP38);
- Negoa Homestead (MP41);
- Waitomo House (MP50); and
- Overdene (Overton) (MP52).

Specific management measures relevant to the listed heritage sites are detailed in Section 4.1.

4.5 MANAGEMENT OF HISTORIC HERITAGE SITE DATABASE

MACH Energy will continue to maintain an internal Historic Heritage Site Database, which contains the name, site description, significance, GDA coordinates, and status of historic heritage sites located at the MPO.

The information within this database will be saved in both tabular and Geographic Information System (GIS) formats and will be made available to all relevant MACH Energy staff and contractors when developing maps/drawings/figures to ensure that any disturbance works consider the location of known historic heritage sites. Updates to the Historic Heritage Sites Database will be undertaken as required. The Ground Disturbance Permit (GDP) includes the review and consideration of historic heritage sites at MPO. The GDP process is further discussed in Section 4.6.

4.6 GROUND DISTURBANCE PERMITS

MACH Energy has implemented a GDP process that must be completed prior to any ground disturbance activities being carried out on-site. The GDP provides an internal check against all relevant approvals and management actions that may be required to be obtained and/or implemented prior to carrying out the clearing or ground disturbance activities. A copy of the current GDP form is provided in Attachment 3 (note the internal GDP form may be amended from time to time as required).

The purpose of the GDP is to:

- clearly identify the area to be disturbed;
- identify any environmentally (or other) sensitive feature(s) (refer to Parts 4, 5 and 6 of the GDP [Attachment 3]) within or adjacent to the area to be disturbed;
- initiate appropriate actions where special management measures may be required for those identified environmentally (or other) sensitive feature(s), such as pre-clearance surveys or fauna impact mitigation actions;
- check that all appropriate approvals and management actions are in place prior to carrying out the disturbance; and
- provide an auditable record of actions undertaken to allow disturbance to proceed. A GDP will be completed by the relevant Project Manager and approved by MACH Energy's Environmental Superintendent or delegate prior to any clearing activities (including for each clearing campaign) commencing at the MPO.

All contractors undertaking works at the MPO will be made aware of the GDP process through various mechanisms including site inductions and toolbox meetings.

4.7 STORAGE OF HERITAGE RELICS

Part B, Condition B73(h) of Development Consent SSD 10418 requires a strategy for the storage of relics or heritage items salvaged on site, both during development and in the long term.

MACH Energy does not anticipate that the storage of any relics or heritage items will be required at the MPO, however in the event that any previously unidentified historical heritage items (including relics) are discovered during the life of the MPO (Section 5.1), they would be offered to the local historical society and/or managed in accordance with the recommendations made by a suitably qualified archaeologist at the time of the salvage. In the case of relics, this would include appropriate recording.

4.8 MANAGEMENT OF SITES OUTSIDE APPROVED SURFACE DISTURBANCE AREAS

Direct surface impacts will be limited to the mine disturbance footprint. Seven sites of local heritage significance have the potential to be directly impacted by the Project (Table 4). Direct impacts to these sites would be appropriately mitigated by implementing management measures consistent with the recommendations of Extent (2020) (Section 4.1).

The specific historic heritage management requirements presented in this HHMP are made with direct reference to known historic heritage sites. Although the nature and general location of the proposed activity is known, the specific design and placement of ancillary facilities is determined progressively over the life of the MPO.

Hence, it is important that all future surface activities outside of the major surface development areas be assessed according to the Historic Heritage Sites Database (Section 4.5) and subsequently subject to (where appropriate) archaeological survey, assessment and application of appropriate management.

In addition to the proposed major surface disturbance works at the MPO (e.g. open cut pits, waste emplacements, major surface facilities, major water management structures) ancillary infrastructure may also be required, outside the areas shown on Figure 2.

Ancillary infrastructure includes, for example:

- firebreaks;
- water diversion structures;
- minor contour banks;
- tracks;
- tracks along pipelines;
- explosives storage facilities;
- powerlines;
- fences;
- exploration sites; and
- sediment and erosion control structures.

MACH Energy will aim to avoid historic heritage sites when planning and designing ancillary infrastructure. A GDP will be required for all works related to the MPO and/or occurring on MACH Energy-owned land. The GDP process is outlined in Section 4.6 and in the MPO EMS and includes an assessment of compliance with this plan and due diligence searches including searches of internal registers, spatial data and the Historic Heritage Site Database.

4.9 PHOTOGRAPHIC/ARCHIVAL RECORDING PROCEDURE

All photographic/archival recording will be undertaken prior to the commencement of any surface disturbance activities that would potentially disturb/impact the item nominated for photographic/archival recording. Results of archival recording will be provided to Heritage NSW and MSC within 6 months of completion.

Archival records will be publicly accessible so that this story is most effectively communicated to both the general public and to specialists, including historians and researchers. This can be achieved by providing a copy of the record to the local historical society (or equivalent).

The archival recordings will be undertaken in accordance with NSW Heritage Office *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006) and *How to Prepare Archival Records of Heritage Items* (NSW Heritage Office and Department of Urban Affairs and Planning, 1998). The photographic recordings will include:

- a brief report detailing background information and methodology in addition to the actual archival record;
- detailed photograph of site/item which will include contextual photographs showing site/item and remains, and relevant relationship to other sites/items and surroundings;
- photographic catalogue sheets (photographic record sheets);
- measured plans of the sites/item (unless nature of site/item does not warrant a site plan, in these instances the photographs will be accompanied by an appropriate plan indicating the location of the site only); and
- photographic plans (referenced to the photographic catalogue sheets) particular to each site showing the locations of all the photographic images unless nature of the item does not warrant a photographic plan.

From the mitigation measures recommended by Extent (2020) in the Historical Heritage Assessment, the following sites were recommended to have photographic/archival recordings be completed prior to any disturbance or demolition:

- Broomfield (MP01);
- Smith's Clear Farm (MP22);
- Thorndale (MP27);
- Lynch's (MP29);
- Fibbins (MP42);
- MP45(a-b) Casey: Clenmore and Edgeway;
- Kayuga Recreational Ground (MP46); and
- Waitomo House (MP50).

5 UNEXPECTED FINDS PROTOCOL

5.1 PROTOCOL FOR THE MANAGEMENT OF PREVIOUSLY UNRECORDED HERITAGE SITES

The following procedure guides the management of unexpected and previously unidentified finds during the course of operations. Finds may include artefact scatters (glass, animal bone, ceramic, brick, metal, etc.), building foundations and earthworks of unknown origin. The procedures are:

- All work in the area is to cease immediately.
- Alert the Environmental Superintendent (or delegate) to the find.
- If necessary, protect the area with temporary fencing.
- If the impact to the unexpected finds can be avoided, works may resume as long as no finds are impacted.
- If the impact to the unexpected finds cannot be avoided, the following procedures are to be undertaken:
 - engage a suitably qualified archaeologist to undertake an assessment of the find/s;
 - the assessment should be undertaken using the guidelines *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Branch, 2009) and *Historical Archaeology Code of Practice* (Heritage Council of NSW, 2009);
 - on the advice of the archaeologist, if necessary, prepare an Impact Assessment and Research Design and Methodology to submit and obtain a section 140 excavation permit or exception (if required);
 - undertake the archaeological mitigation in accordance with the prepared documents and the permit/exception issued by Heritage NSW; and
 - once the site has been mitigated to the satisfaction of the archaeologist and Heritage NSW, works may resume in the area.

Previously unrecorded relics or sites will be identified through this process and a statement of significance will be recorded. Information regarding any identified State-significant historic relics or intact archaeological deposits will be submitted to Heritage NSW for inclusion on the SHR.

5.2 PROTOCOL FOR THE DISCOVERY OF HUMAN REMAINS

MACH Energy will comply with the relevant NSW Government legislative requirements in the event that any human remains are discovered during the life of the Project.

No burial exhumations are proposed as part of the Project works. The only known cemetery in proximity to the Project area is the Kayuga Cemetery (MP53), which is outside of the MPO MLs and will be avoided by all impacts.

As discussed in Section 3.3.5 and Section 3.3.17, there are unsupported anecdotal data from the Historical Heritage Assessment (Extent, 2020) that there may be child burials at Devine's (MP23) and Thorndale (MP27). The validity of the anecdotal data could not be confirmed through desktop research. Applying a precautionary principle, management measures for Devine's (MP23) and Thorndale (MP27) are discussed in Section 4.1.

In accordance with Part B, Condition B73(f)(v), MACH Energy will undertake additional archaeological investigation, prior to the site being disturbed. In accordance with Heritage NSW requirements (MACH Energy, 2021b), if child burials are identified at Devine's (MP23) and Thorndale (MP27), these remains have the potential to be considered 'relics' under the *Heritage Act, 1977*. A detailed Archaeological Research Design and Excavation Methodology for Thorndale (MP27) and Devine's (MP23) is provided in Appendix E and F.

Part B, Condition B67 of Development Consent SSD 10418 requires work to cease immediately, and the area secured if suspected human remains are discovered on the site. Further, MACH Energy is required to notify DCCEEW, NSW National Parks and Wildlife Service, NSW Police Force and Heritage NSW. Work may not recommence until authorised by NSW Police Force and Heritage NSW.

In the event that operations reveal previously unknown human skeletal material (remains), the following procedure is to be followed:

1. When suspected human remains are exposed, all work is to cease immediately in the near vicinity of the find location and the area is to be secured so as to avoid any potential harm to the remains.
2. The MACH Energy Environmental Superintendent (or relevant equivalent) is to be notified immediately.
3. The MACH Energy Environmental Superintendent (or relevant equivalent) is to notify the NSW Police Force immediately.
4. The MACH Energy Environmental Superintendent (or relevant equivalent) is to contact the DPHI Environment line on 131 555 and Heritage NSW, DCCEEW and NSW National Parks and Wildlife Service to notify that possible skeletal remains have been discovered and advise that the NSW Police Force have been notified. MACH Energy will facilitate, in cooperation with the NSW Police Force, DPHI and Heritage NSW, the identification of the skeletal remains by an appropriately qualified person.
5. An area (to be determined following advice from Heritage NSW and the NSW Police Force) is to be cordoned off by temporary fencing around the exposed suspected human remains - work can continue outside of this area as long as there is no risk of interference to the human remains or the assessment of human remains.
6. Should the remains be identified as Aboriginal and the NSW Police Force require no further involvement, MACH Energy will manage the remains in consultation with the Registered Aboriginal Party (RAP) representatives and Heritage NSW, with advice from a suitably qualified heritage expert. Appropriate management measures will be determined through consultation with the RAPs. Representatives of the Aboriginal community should be present during all investigations of Aboriginal remains.
7. Work will not recommence at the location until all legal requirements and the reasonable requirements of Heritage NSW have been adequately addressed.

6 MEASUREMENT AND EVALUATION

In accordance with Part D, Condition D5 of Development Consent SSD 10418, MACH Energy has proposed performance measures to judge the performance of, and guide the implementation of, the management measures discussed within this HHMP. The proposed performance indicators are detailed in Table 6.

Table 6
Historic Heritage Performance Indicators

Aspect	Performance Indicator
Incidents and non-compliances.	<ul style="list-style-type: none"> • No incidents or non-compliances recorded regarding historic heritage at the MPO. • Preparation of CMPs for Rosebrook (MP38) and Negoa (MP41). • Conduct archaeological excavation(s) and investigation(s). • Preparation of archival records.
Minimisation of blasting impacts on heritage impacts, in accordance with Schedule 3, Condition 15(a) of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B22(b) of Development Consent SSD 10418.	<ul style="list-style-type: none"> • Negligible subsidence impacts or environmental consequences.

MACH Energy will report on progress against these performance indicators in the MPO Annual Review (Section 9.1). A contingency plan will be followed in the event of an unintended impact on historic heritage sites (i.e. an incident or non-compliance with this HHMP - Refer to Section 10.1).

The following conditions of Part B, Condition B66 of Development Consent SSD 10418 are relevant to the performance of this HHMP:

B66. The Applicant must ensure that the development does not cause any direct or indirect impact on any identified Aboriginal sites, conservation areas or heritage items located outside the approved disturbance area, beyond those predicted in the document/s listed in condition A2(c).

MACH Energy will comply with the above requirement and will avoid impacts to known historic heritage items located outside the approved disturbance area of the mine development area unless other relevant approvals are obtained.

7 CONTINGENCY PLAN

7.1 POTENTIAL CONTINGENCY MEASURES

MACH Energy has a good understanding of historic heritage surrounding the mine and has established a comprehensive system to monitor and respond to heritage management issues. In the event that unanticipated impacts occur to heritage sites as a result of mining activities at the MPO, MACH Energy will:

- apply adaptive management (Section 7.2);
- review the current HHMP (controls and monitoring), to ensure it is effective and criteria is being met;
- develop and implement additional management or mitigation measures;
- undertake follow-up inspections to assess the effectiveness of the additional measures;
- report any exceedances and non-compliances in accordance with Section 10; and
- apply the Unexpected Finds Protocol in accordance with Section 5.

7.2 ADAPTIVE MANAGEMENT

In accordance with Part D, Condition D4 of Development Consent SSD 10418, MACH Energy will assess and manage risks to comply with the criteria and/or performance measures outlined in Section 6.

Where any non-compliance with the criteria and/or performance measures occurs, at the earliest opportunity, MACH Energy will:

- take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- consider all reasonable and feasible options for remediation and submit a report to the DPHI describing these options and preferred remediation measures; and
- implement remediation measures as directed by the Planning Secretary.

8 HERITAGE INDUCTIONS AND TRAINING

All MPO site specific employee and contractor inductions (including those inductions for construction personnel) will include historic heritage and Aboriginal cultural heritage induction training components. This will outline current protocols and responsibilities with respect to the management of historic heritage sites in the vicinity of the MPO.

The induction process also includes a description of the MPO GDP process and relevant protocols prior to any disturbance activities. The induction includes:

- the nature and location of the heritage sites;
- the historic heritage values and significance of the heritage sites;
- the nature of the protection measures being undertaken;
- the content of this HHMP; and
- information related to the relevant legislation for the protection of historic heritage sites/items (particularly provisions section 139 and 146 of the *Heritage Act, 1977*) and the penalties which may arise if sites/items are disturbed/destroyed.

MACH Energy will maintain an accurate record of all employee and contractor inductions in accordance with Part B, Condition 73(f) of Development Consent SSD 10418.

8.1 ACCOUTABILITIES

Responsibility for the implementation of this HHMP lies with MACH Energy, with the input from external specialists and contractors, as required. Relevant accountabilities associated with the HHMP are presented in Table 7. An overview of all the roles and responsibilities of members of the site, including the environmental management team are described in the MPO EMS.

Table 7
Roles and Responsibilities

Role	Responsibility
General Manager Operations	<ul style="list-style-type: none"> • Provide sufficient resources for the implementation of this HHMP.
Environmental Superintendent (or delegate)	<ul style="list-style-type: none"> • Coordinating monitoring and systematically reviewing and reporting of the outcomes of monitoring as part of ongoing mine planning; • Ensuring that the plan is relevant to current operations; • Oversee the implementation of this HHMP; • Ensure that monitoring results are used to develop/trigger management measures for heritage sites; and • Coordinate periodic reviews of this HHMP.
All Employees and Contractors	<ul style="list-style-type: none"> • All general employees trained in environmental procedures and protocols as part of the induction process and regular site meetings. • All general employees responsible for immediately reporting environmental incidents.

9 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

9.1 ANNUAL REVIEW

In accordance with Part D, Condition D11 of Development Consent SSD 10418, MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the previous calendar year).

In relation to management of historic heritage at the MPO, the MPO Annual Review will:

- include a comprehensive review of the monitoring results and complaints records relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - monitoring results of the previous years; and
 - relevant predictions in accordance with Part A, Condition A2 of Development Consent SSD 10418;
- identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- identify any discrepancies between the predicted and actual impacts of the MPO, and analyse the potential cause of any significant discrepancies; and
- include annual review of blast monitoring results in relation to relevant historic heritage site blast limits, in accordance with the MPO Blast Management Plan, with non-compliances reported in the MPO Annual Review.

Copies of the approved MPO Annual Review will be submitted to MSC and made available to the Community Consultative Committee and any interested person upon request, in accordance with Part D, Condition D12 of Development Consent SSD 10418. The MPO Annual Review will also be made publicly available on the MACH Energy website (<https://machenergyaustralia.com.au/>).

As mentioned in Part D, Condition D11 of Development Consent SSD 10418 (above) relating to MPO Annual Reviews, MACH Energy will include a comprehensive review of environmental performance at the MPO in accordance with Part A, Condition A2 of Development Consent SSD 10418 requires that:

A2. The development may only be carried out:

- (a) in compliance with the conditions of this consent;*
- (b) in accordance with all written directions of the Planning Secretary;*
- (c) generally in accordance with the EIS and EAs;*
- (d) generally in accordance with the Development Layout in Appendix 2.*

9.2 HISTORIC HERITAGE MANAGEMENT PLAN REVISION

In accordance with Part D, Condition D7 of Development Consent SSD 10418, this HHMP will be reviewed, and if necessary revised (to the satisfaction of the Planning Secretary), within three months of the submission of:

- an incident report (Part D, Condition D9 or D10 of Development Consent SSD 10418);
- an Annual Review (Part D, Condition D11 of Development Consent SSD 10418);
- an Independent Environmental Audit (IEA) (Part D, Condition D13 of Development Consent SSD 10418);
- any modification to the conditions of Development Consent SSD 10418; and
- a notification of a change in development phase under Part A, Condition A12 of Development Consent SSD 10418.

In accordance with Part D, Condition D8 of Development Consent SSD 10418, within six weeks of conducting any review, MACH Energy will advise the Planning Secretary of the DPHI of the outcomes of the review and submit any revised documents submitted to the Planning Secretary for approval.

In accordance Part A, Condition A24 of Development Consent SSD 10418, MACH Energy may submit a revised HHMP for the approval of the Planning Secretary at any time and may also submit any revision to this HHMP on a staged basis.

In accordance with Part A, Condition A25 of Development Consent SSD 10418, if agreed with the Planning Secretary, a revision to this HHMP required under Development Consent SSD 10418 may be prepared without undertaking consultation with all parties nominated under the relevant conditions of Development Consent SSD 10418.

This HHMP will be made publicly available on the MACH Energy website (<https://machenergyaustralia.com.au/>), in accordance with Part D, Condition D17 of Development Consent SSD 10418.

9.3 INDEPENDENT ENVIRONMENTAL AUDIT

Within one year of commencement of development under Development Consent SSD 10418, and every three years after, an IEA will be undertaken and submitted as required, in accordance with Part D, Condition D13 of Development Consent SSD 10418.

In accordance with Part D, Condition D14 of Development Consent SSD 10418, within three months of commencing the IEA, MACH Energy will submit a copy of the audit report to the Planning Secretary, and other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. MACH Energy will ensure that the recommendations will be implemented and the findings and compliance with the IEA will be reported in the MPO Annual Reviews.

Subsequent versions of the IEA will be provided to the Planning Secretary of the DPHI and made available on the MACH Energy website. The IEA will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary of the DPHI.

10 REPORTING PROCEDURES

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418, MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the [MPO EMS](#).

In accordance with Part D, Condition D17(vi) of Development Consent SSD 10418, MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website (<https://machenergyaustralia.com.au/>).

In accordance with Part D, Conditions D15 and D16 of Development Consent SSD 10418, any conditions of Development Consent SSD 10418 that require the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the NSW EP&A Act. These conditions include incident notification (Part D, Condition D9 of Development Consent SSD 10418); non-compliance notification (Part D, Condition D10 of Development Consent SSD 10418); reporting and response; compliance reporting; and IEA (Part D, Condition D13 of Development Consent SSD 10418).

10.1 INCIDENT REPORTING

An incident is defined as an occurrence or a set of circumstances that causes or threatens to cause material harm to the environment and/or breaches or exceeds the limits or performance measures/criteria in Development Consent SSD 10418.

In the event that review of monitoring data, or a complaint indicates an incident has occurred, the incident will be reported in accordance with Part D, Condition D9 of Development Consent SSD 10418. The Planning Secretary will be notified in writing via the Major Projects website immediately after MACH Energy becomes aware of an incident. The notification will identify the Project name and development application number and set out the location and nature of the incident.

In accordance with Part D, Condition D10 of Development Consent SSD 10418, within seven days of becoming aware of a non-compliance MACH Energy will notify DPHI of the non-compliance.

The notification must be made in writing via the Major Projects Website and will:

- identify the MPO (including the Development Application number and name);
- set out the condition of Development Consent SSD 10418 that the incident is non-compliant with;
- describe the location and nature of the incident;
- the reason for the non-compliance (if known); and
- what actions have been, or will be, undertaken to address the non-compliance.

10.2 COMPLAINTS

MACH Energy maintains a Community Hotline (1800 886 889), which is dedicated to the receipt of community complaints. The Community Hotline is publicly advertised in a variety of MACH Energy's public communication tools and is available during operating hours (i.e. 24/7), to receive any complaints. Communication received from the hotline is recorded in a Community and Stakeholder Engagement Database.

MACH Energy has developed a procedure that outlines its commitment to receiving, responding to and maintaining a record of phone calls from the community. This procedure is supported by a Community and Stakeholder Engagement Register. This is described in MPO EMS.

In accordance with Part D, Condition D17 of Development Consent SSD 10418, a complaints register will be made available on the MACH Energy website (<https://machenergyaustralia.com.au/>) and updated monthly.

10.3 NON-COMPLIANCE WITH STATUTORY REQUIREMENTS

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418, a protocol for managing and reporting non-compliances with statutory requirements has been developed as a component of MPO EMS and is described below.

Compliance with all approval plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with MACH Energy and the Project. MACH Energy will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in Section 10.1, MACH Energy will report incidents in accordance with Part D, Condition D9 of Development Consent SSD 10418.

A review of compliance with all conditions in Development Consent SSD 10418, Development Consent DA 92/97 (prior to its surrender) and relevant MPO MLs will be undertaken prior to (and included within) each MPO Annual Review (Section 9.1).

Additionally, in accordance with Part D, Condition D13 of Development Consent SSD 10418, an IEA (Section 9.3) will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary to assess whether MACH Energy is complying with the requirements in Development Consent SSD 10418.

In accordance with Part A, Condition A2 of Development Consent SSD 10418, MACH Energy will carry out the development in accordance with:

- the conditions of Development Consent SSD 10418;
- all written directions of the Planning Secretary;
- the 1997 EIS, EA (MOD 1), EA (MOD 2), EA (MOD 3), EA (MOD 4), the Project EIS; and
- with the Development Layout in Appendix 2 of Development Consent SSD 10418.

10.4 ACCESS TO INFORMATION

In accordance with Part D, Condition D17 of Development Consent SSD 10418, the MACH Energy website will be maintained as a tool for the provision of information to stakeholders and interested parties about the operation and environmental performance of the MPO. Information required by MACH Energy to be available on the website is outlined in MPO EMS.

11 REFERENCES

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- Extent Heritage Pty Ltd (2021) *Negoa Homestead ('MP41') – 92 Wiltons Lane, Kayuga (near Muswellbrook), NSW, Conservation Management Plan.*
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- MACH Energy Australia Pty Ltd (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*
- MACH Energy Australia Pty Ltd (2017c) *Mount Pleasant Operation – Rail Modification Environmental Assessment.*
- MACH Energy Australia Pty Ltd (2021a) *Mount Pleasant Optimisation Project Environmental Impact Statement.*
- MACH Energy Australia Pty Ltd (2021b) *Mount Pleasant Optimisation Project – Submissions Report.*
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- New South Wales Department of Planning and Environment (2023) *Assessing heritage significance. Guidelines for assessing places and objects against the Heritage Council of NSW criteria.*
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- New South Wales Department of Premier and Cabinet (2021) *Guidance on developing a heritage conservation management plan.*
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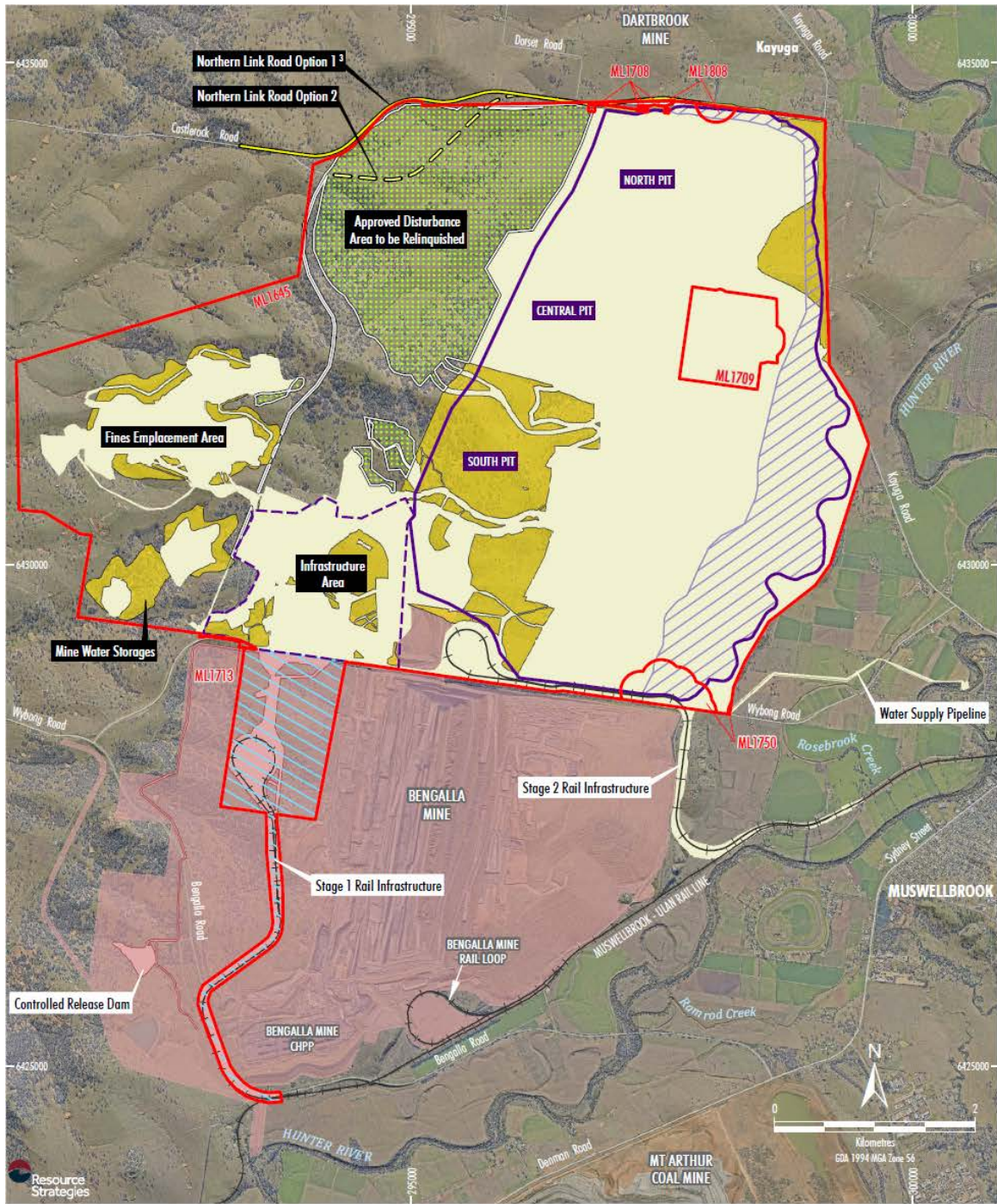
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ATTACHMENT 1

APPENDIX 2 OF DEVELOPMENT CONSENT SSD 10418

APPENDIX 2 DEVELOPMENT LAYOUT PLANS



- LEGEND**
- Existing Mine Elements**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Project Continuation of Existing/Approved Surface Development (DA92/97) ¹
 - Infrastructure to be removed under the Terms of Condition 37, Schedule 3 (DA92/97)
 - Bengalla Mine Approved Disturbance Boundary (SSD-5170)
 - Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) ¹
- Additional/Revised Project Elements**
- Approved Disturbance Area to be Relinquished ²
 - Approximate Additional Disturbance of Project Extensions ¹
 - Northern Link Road Option 1 Centreline ³
 - Northern Link Road Option 2 Centreline
 - Approximate Extent of Project Open Cut and Waste Rock Placement Landforms
 - Approximate Extent of Project Out-of-Pit Waste Employment
 - Revised Infrastructure Area Envelope

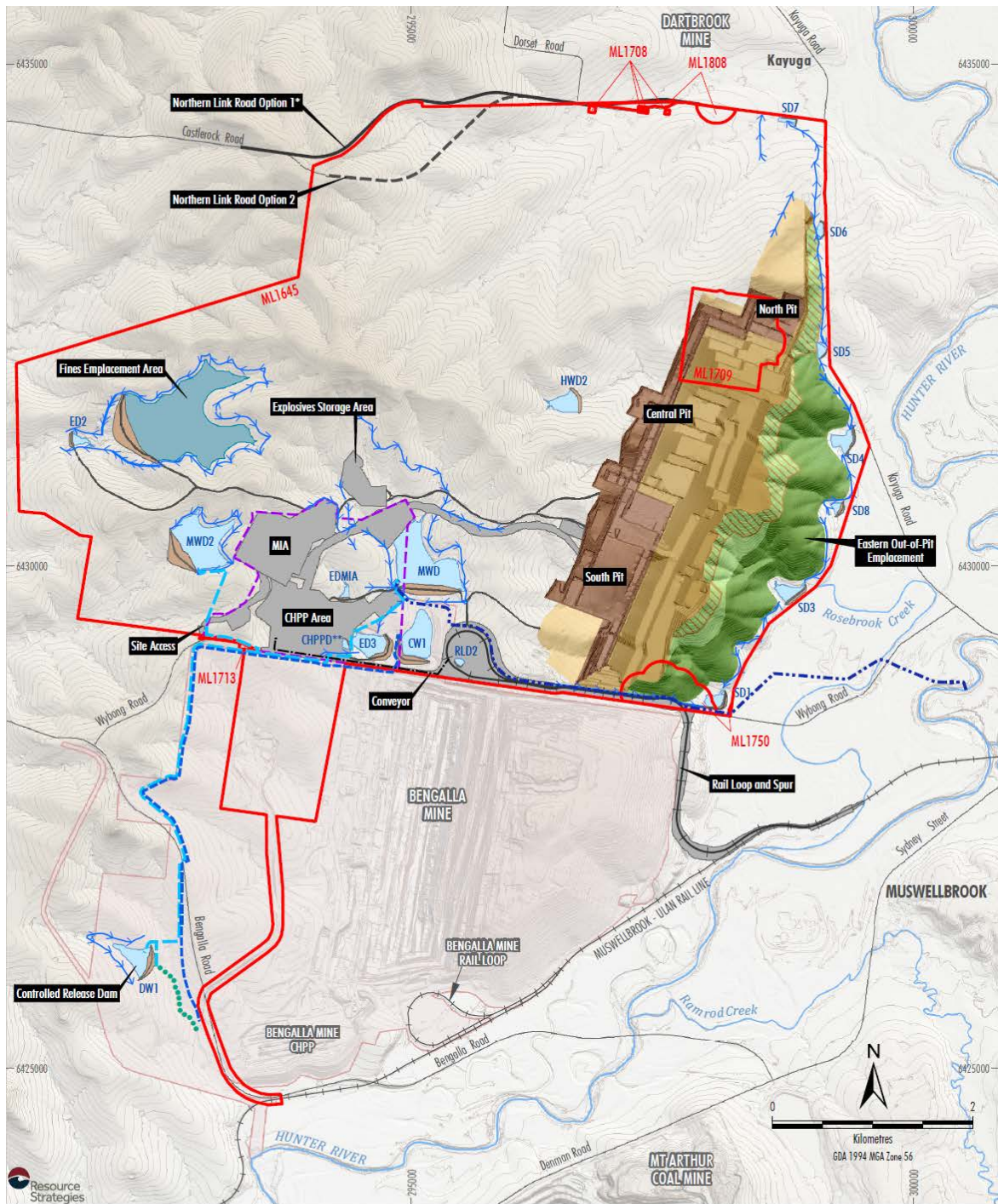
- NOTES**
1. Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.
 2. Subject to detailed design of Northern Link Road alignment.
 3. Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020); Department of Planning and Environment (2016) Orthophoto: MACH (2020)

MACHEnergy
 MOUNT PLEASANT OPTIMISATION PROJECT
 General Arrangement of the Project

Figure 3-1

Figure 1: General Project Arrangement



Source: MACH (2020); NSW Spatial Services (2020)

- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
 - Infrastructure and Borrow/Stockpile
 - Key Surface Water Drain (Conceptual)
 - Access Road
 - Northern Link Road Option 1 Centreline*
 - Northern Link Road Option 2 Centreline
 - Bengalla Mine Approved Disturbance Boundary (SSD-5170)

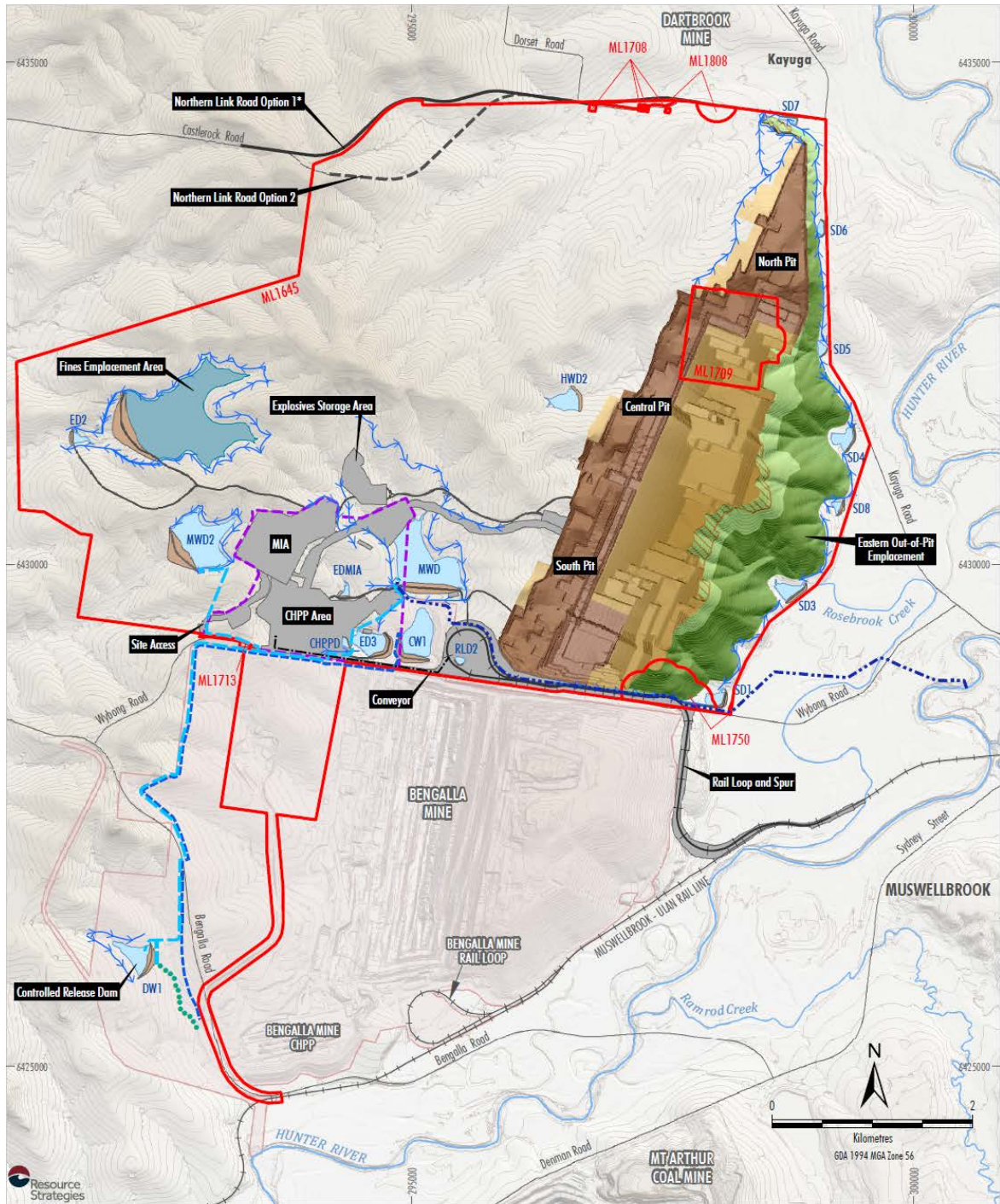
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.
 ** Coal Handling and Preparation Plant Dam.

MACHEnergy
 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2026

Figure 3-4

Figure 2: General Project Arrangement – 2026



- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
 - Infrastructure and Borrow/Stockpile
 - Key Surface Water Drain (Conceptual)
 - Access Road
 - Northern Link Road Option 1 Centreline*
 - - - Northern Link Road Option 2 Centreline
 - Bengalla Mine Approved Disturbance Boundary (SSD-5170)
 - Fines Emplacement Area
 - Water Dam
 - Approximate Extent of Scour Protection
 - Indicative Water Pipeline Alignment
 - Hunter River Supply Pipeline
 - - - DW1 Pipeline (Bi-directional)
 - - - Bengalla Mine CW1 Pipeline

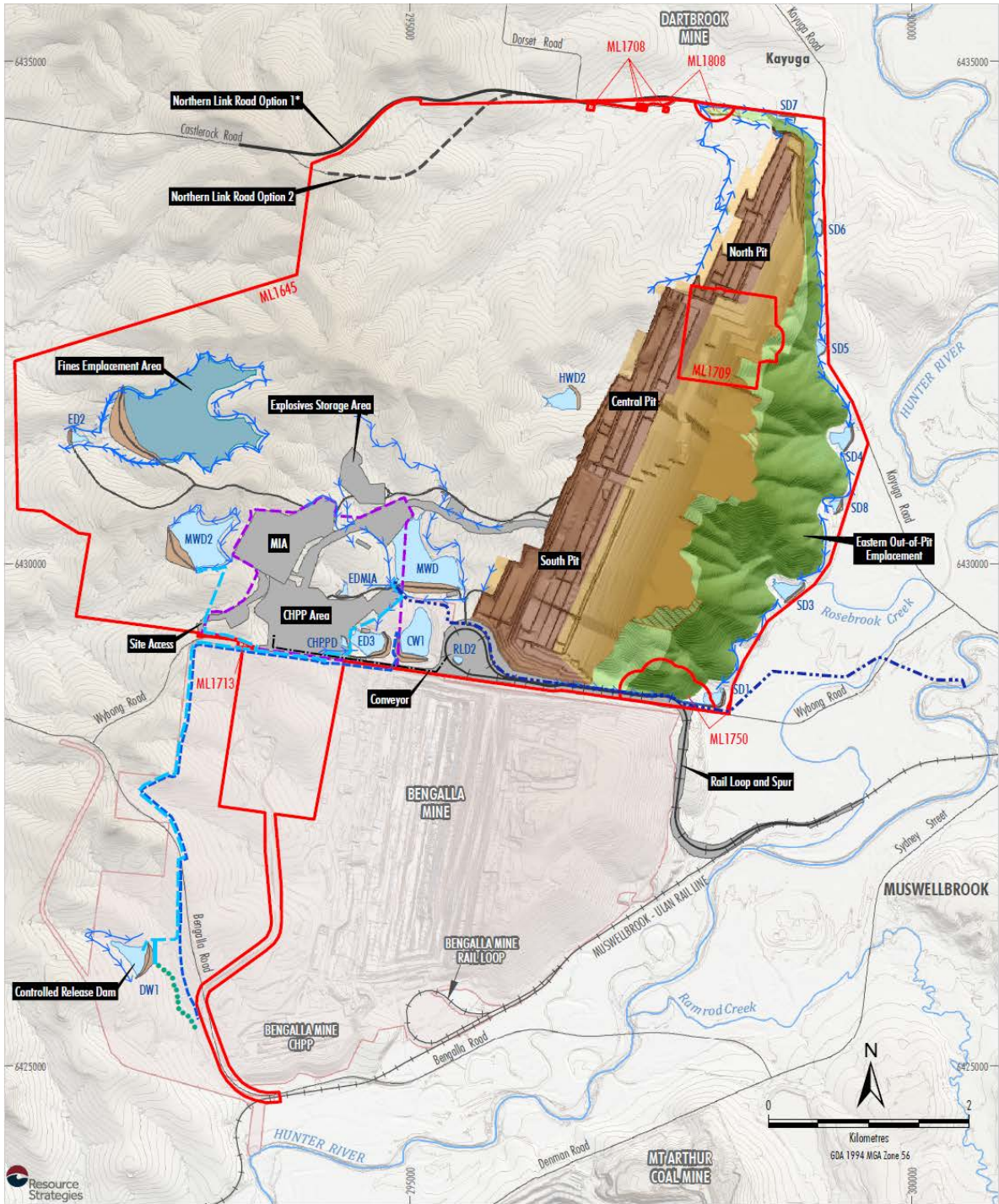
* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

MACHEnergy
 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2028

Figure 3-5

Figure 3: General Project Arrangement – 2028



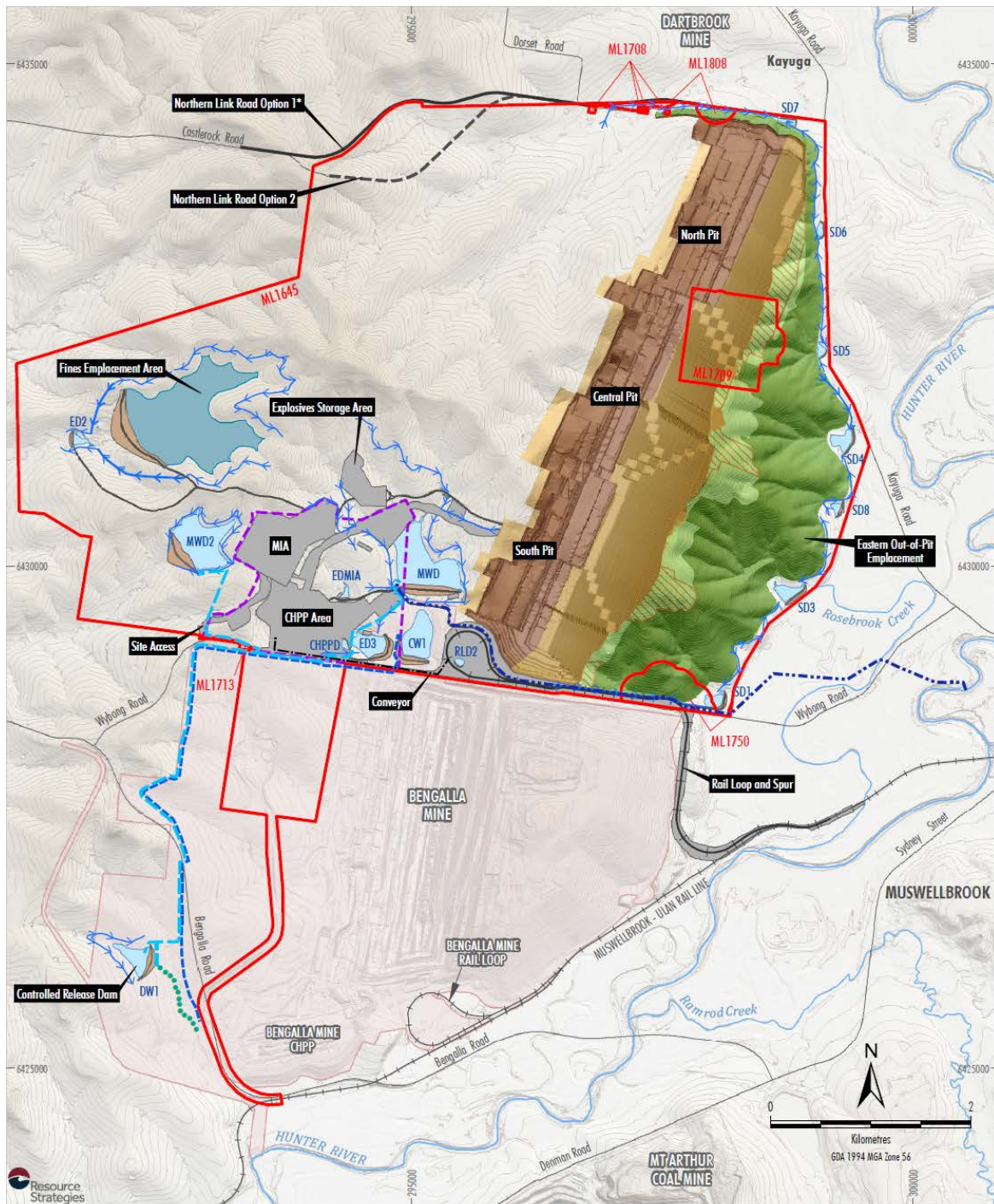
- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
 - Infrastructure and Borrow/Stockpile
 - Key Surface Water Drain (Conceptual)
 - Access Road
 - Northern Link Road Option 1 Centreline*
 - Northern Link Road Option 2 Centreline
 - Bengalla Mine Approved Disturbance Boundary (SSD-5170)
 - Fines Emplacement Area
 - Water Dam
 - Approximate Extent of Scour Protection
 - Indicative Water Pipeline Alignment
 - Hunter River Supply Pipeline
 - DW1 Pipeline (Bi-directional)
 - Bengalla Mine CW1 Pipeline
- * Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

MACHEnergy
 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2031

Figure 3-6

Figure 4: General Project Arrangement - 2031



- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
 - Infrastructure and Borrow/Stockpile
 - Key Surface Water Drain (Conceptual)
 - Access Road
 - Northern Link Road Option 1 Centreline*
 - - - Northern Link Road Option 2 Centreline
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 - Fines Emplacement Area
 - Water Dam
 - Approximate Extent of Scour Protection
 - Indicative Water Pipeline Alignment
 - Hunter River Supply Pipeline
 - - - DW1 Pipeline (Bi-directional)
 - Bengalla Mine CW1 Pipeline

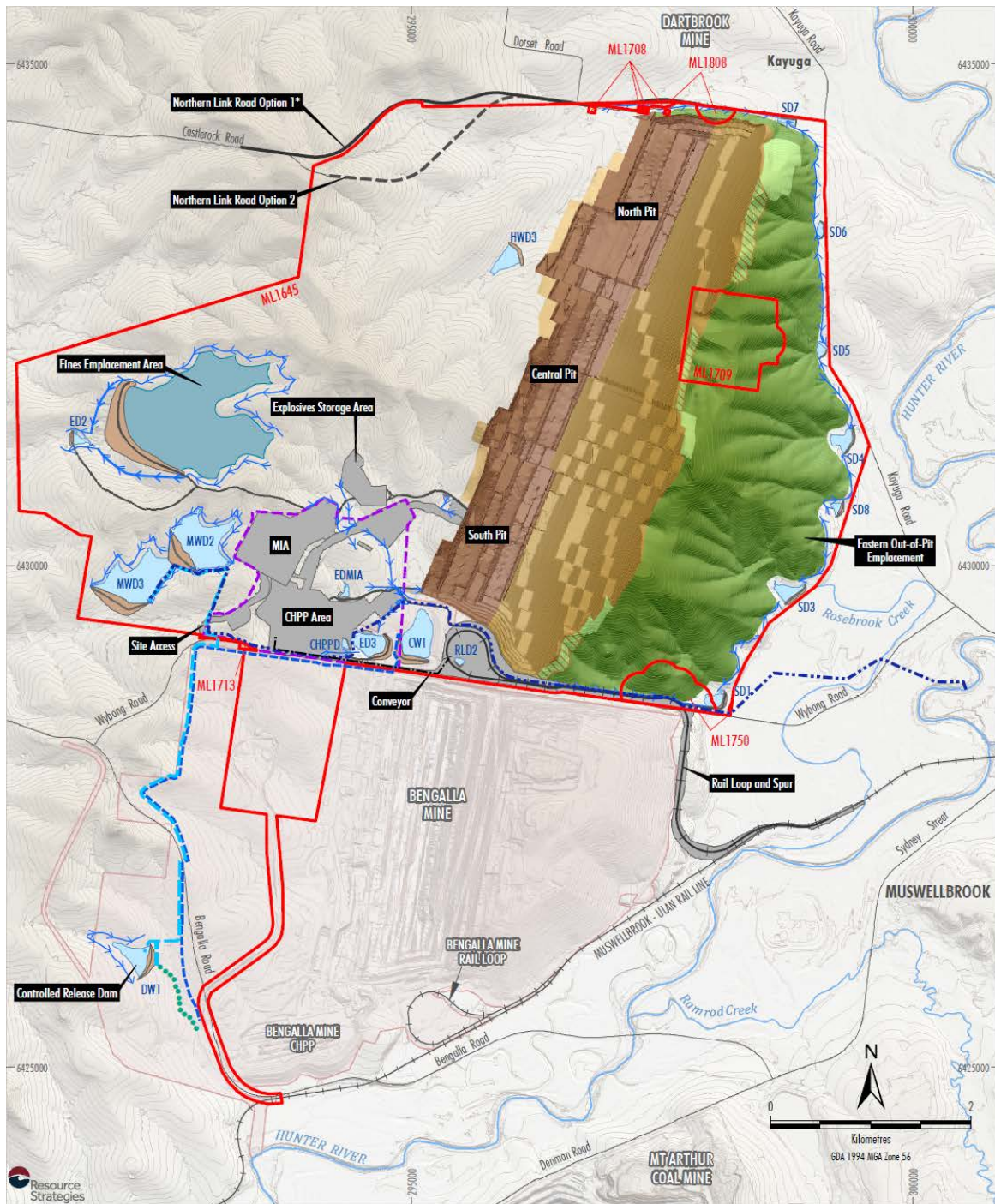
* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

MACHEnergy
 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2034

Figure 3-7

Figure 5: General Project Arrangement - 2034



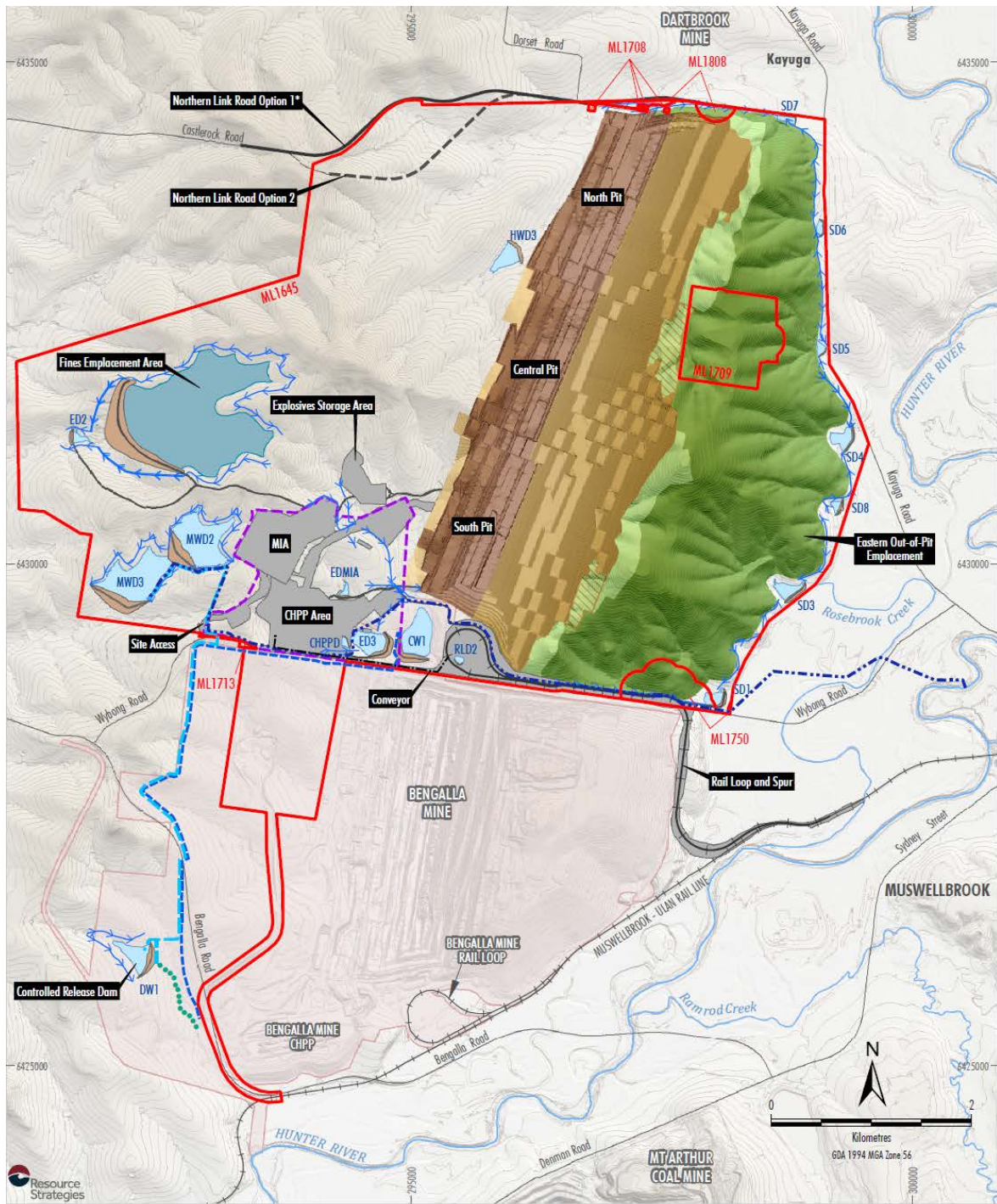
- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
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 - Northern Link Road Option 1 Centreline*
 - Northern Link Road Option 2 Centreline
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 - Fines Emplacement Area
 - Water Dam
 - Approximate Extent of Scour Protection
 - Indicative Water Pipeline Alignment
 - Hunter River Supply Pipeline
 - DW1 Pipeline (Bi-directional)
 - Bengalla Mine CW1 Pipeline
- * Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

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 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2041

Figure 3-8

Figure 6: General Project Arrangement - 2041



Source: MACH (2020); NSW Spatial Services (2020)

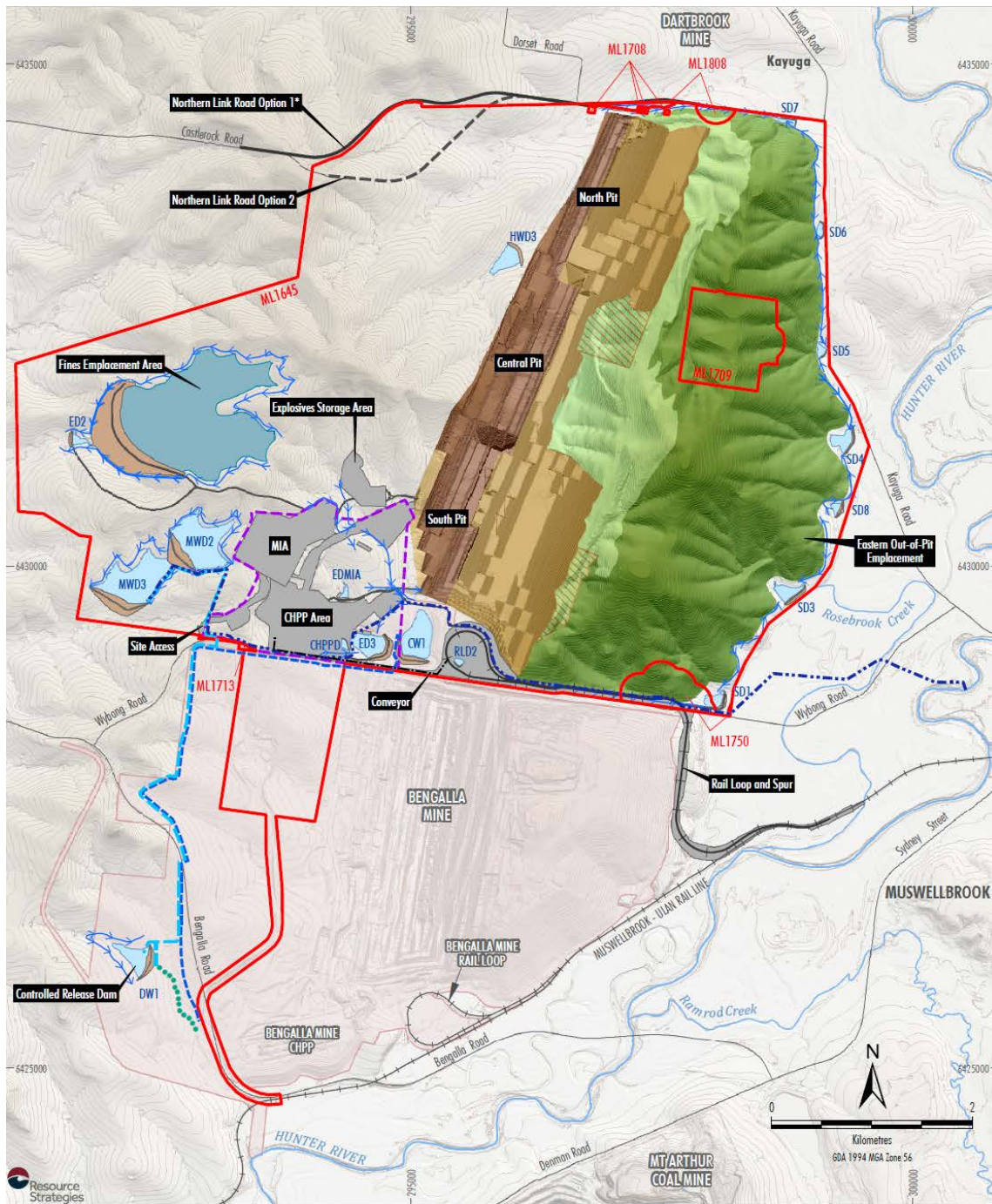
- LEGEND**
- Mining Lease Boundary (Mount Pleasant Operation)
 - Revised Infrastructure Area Envelope
 - Topsoil Stripping
 - Active Mining
 - Active Overburden Emplacement
 - Initial Rehabilitation
 - Established Rehabilitation
 - Topsoil Stockpile
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 - Fines Emplacement Area
 - Water Dam
 - Approximate Extent of Scour Protection
 - Indicative Water Pipeline Alignment
 - Hunter River Supply Pipeline
 - DW1 Pipeline (Bi-directional)
 - Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

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 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2044

Figure 3-9

Figure 7: General Project Arrangement - 2044



Source: MACH (2020); NSW Spatial Services (2020)

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 MOUNT PLEASANT OPTIMISATION PROJECT
 Provisional General Arrangement
 2047

Figure 3-10

Figure 8: General Project Arrangement – 2047

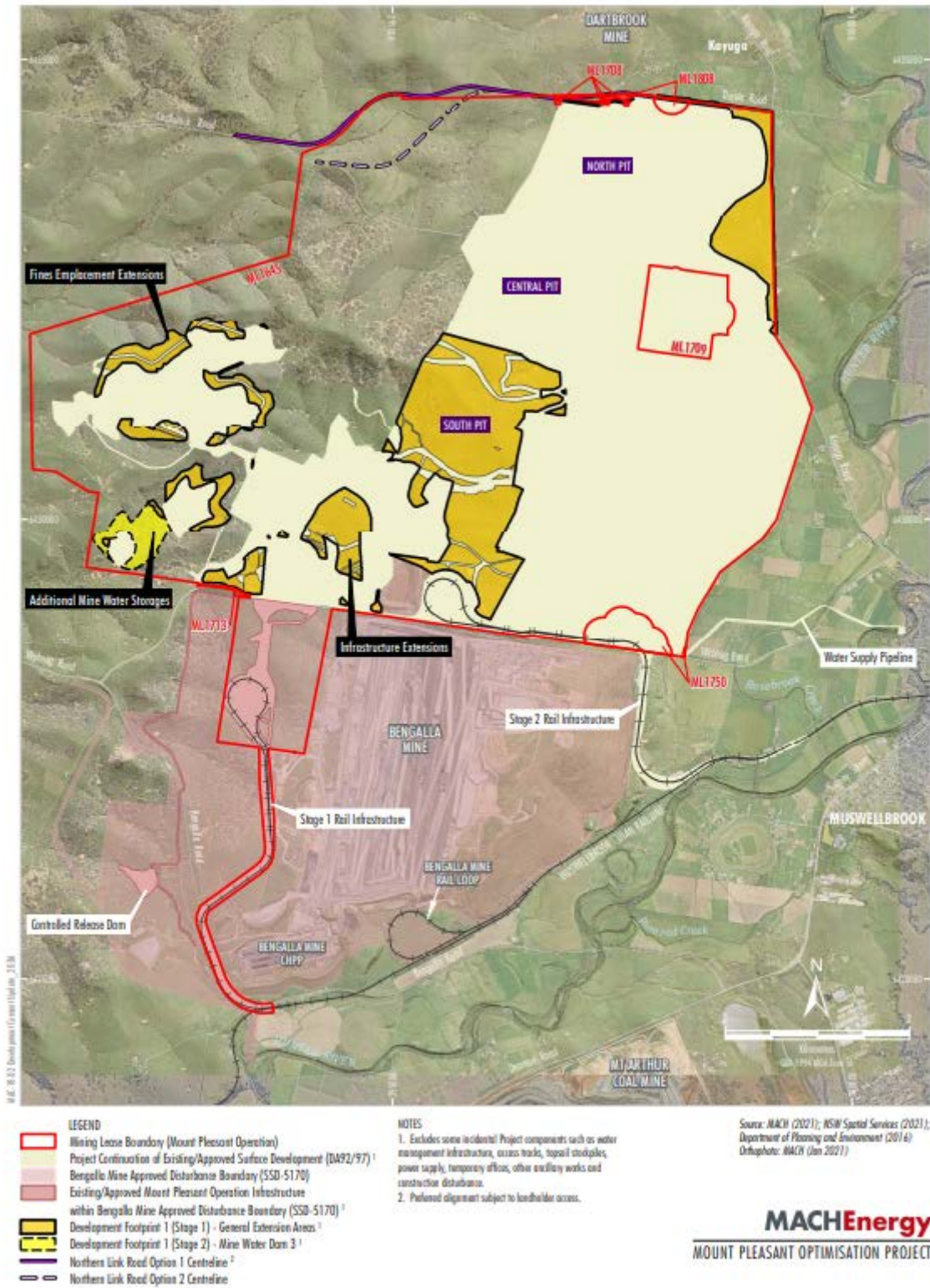
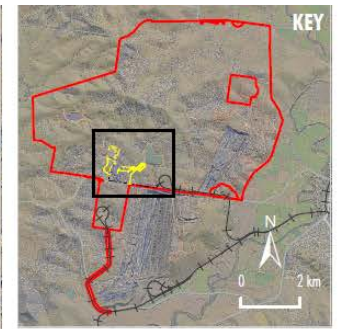
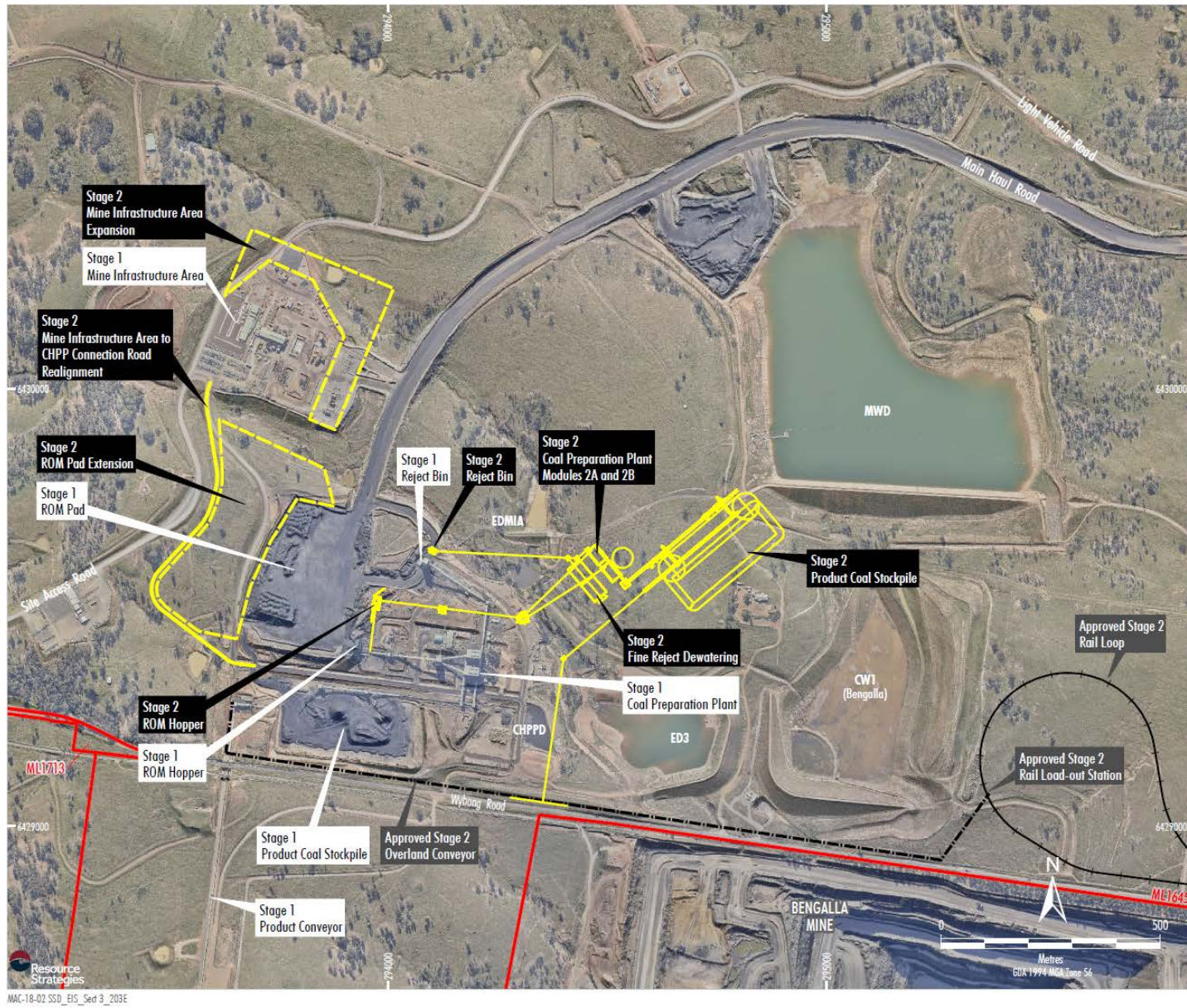


Figure 9: Staging of Project Disturbance Areas



LEGEND
 Mining Lease Boundary (Mount Pleasant Operation)

Source: MACH (2020); NSW Spatial Services (2020)
 Orthophoto: MACH (July 2020)

MACH Energy
 MOUNT PLEASANT OPTIMISATION PROJECT
 Indicative Materials Handling and Mine Infrastructure Area Layout

Figure 3-12

Figure 10: Indicative Mine Infrastructure Area Layout

ATTACHMENT 2
ENDORSEMENT OF DR ANDREW SNEDDON

Mariah Lane
Environmental Advisor
Mach Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW, 2300

17/05/2023

Subject: Endorsement of Suitably Qualified and Experience Specialists for Mount Pleasant Optimisation Project

Dear Ms. Lane

I refer to your request for the Planning Secretary's endorsement of suitably qualified and experienced specialists to prepare management plans for the Mount Pleasant Optimisation Project (SSD-10418) and Mount Pleasant Coal Mine DA (92/97 until its surrender).

The Department has reviewed the nominations and information you have provided and is satisfied that the following specialists are suitably qualified and experienced. Accordingly, I can advise that the Planning Secretary approves/endorsees the appointment of the following specialists:

- Dr Colin Driscoll of Hunter Eco for preparation of the Biodiversity Management Plan
- Chloe Annandale of Landroc for preparation of the Rehabilitation Strategy
- John Wassermann of RWDI for the preparation of the Blast Management Plan and Noise Management Plan
- Jamie Reeves of Niche Environment and Heritage for the preparation of the Aboriginal Cultural Heritage Management Plan
- Aleks Todoroski of Aleks Air Sciences for the preparation of the Air Quality and Greenhouse Gas Management Plan
- Dr Andrew Sneddon of Extent for the preparation of the Historic Heritage Management Plan
- Penny Dalton of TTPP for the preparation of the Traffic Management Plan
- Camilla West of ATC Williams and Bryce McKay of AGEC for the preparation of the Water Management Plan

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely



Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

ATTACHMENT 3

MOUNT PLEASANT OPERATION GROUND DISTURBANCE PERMIT

GROUND DISTURBANCE PERMIT

Permit to be completed with reference to Ground Disturbance Permit Procedure ME-EMS-PRO-02

Permit Criteria

This permit must be completed for all surface disturbance work including slashing, fencing, tree clearing, removal of topsoil, demolition and access to rehabilitation areas

Part 1 – Task Details (to be completed by the person requesting the permit)

Site	Mount Pleasant Operation	Permit ID Number:	MPO-GDP-
Company Name:		Date:	
Permit Holder:		Plan provided?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Note



A plan must be provided, unless otherwise agreed to with the Environmental Superintendent (or Delegate), which includes the entire area to be disturbed, access areas and park-up areas, for approval of this permit. Where applicable erosion and sediment control, and stockpile and rehabilitation information must also be included. A change in the conditions of this Permit may require a reassessment of this Permit.

Proposed start date		Expected duration:		(weeks)
Job location:				
Job description:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slashing	Vegetation clearing	Topsoil removal	Demolition
Other				
Details of activities: <i>Include summary of task, reason, purpose, size of disturbance (ha), boundaries and the expected duration, including rehabilitation</i>				
Is demarcation or pegging of the work area required? <i>(Demarcation is mandatory except for routine slashing)</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Entire area is to be clearly demarcated Demarcation to be confirmed by pre-clearing survey - Part 9 to be completed	
Is the task area within approval boundaries? <i>(Where demarcation of an external approval boundary is required it must be performed by a qualified surveyor – Part 10 to be completed)</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Describe below how boundaries are identified? <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
Is the specific task permitted under any existing approvals?	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	If no, additional approval required, discuss with the Environmental Superintendent.	
Will infrastructure be removed or decommissioned as part of this Permit? <i>Includes fences, powerlines, pipelines, cables and similar, houses, yards etc.</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	List affected infrastructure in consultation with Land and Property Superintendent. <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
Will topsoil and/or vegetation be removed, relocated or stockpiled as part of this Permit?	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Pre-disturbance survey required – Part 5 and 6 to be completed. Clearing & Stockpiles required – Part 7 to be completed	
Are water courses located within or near work area? <i>Includes designated water courses, creeks, tributaries or drainage lines</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Erosion and sediment control required Details must be included on plan For designated water courses, additional approval is required – consult with Environmental Superintendent	
Is erosion and sediment control required for this task?	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Erosion and sediment control required – Part 3 to be completed	
Will the works impact on any statutory environmental points? <i>Includes potential impacts on air quality monitoring equipment and discharge points etc.</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes -	Include details in comments below	

Is drilling or excavation required as part of this task?	<input type="checkbox"/> No <input type="checkbox"/> Yes -	Additional permits maybe required – discuss requirements with Environmental Superintendent, including liaison with Survey Team and Dial Before You Dig.
Is the disturbance to be conducted on land owned by the operation?	<input type="checkbox"/> No <input type="checkbox"/> Yes -	If No, seek guidance from the Environmental Superintendent to confirm if further approvals are required.
Are access tracks required to the area and included in this disturbance permit?	<input type="checkbox"/> No <input type="checkbox"/> Yes -	Include details in comments below

Part 2a – Land and Property Superintendent (or Delegate) Infrastructure Disturbance *(mandatory for all permits)*

Will any infrastructure be removed as part of this permit? Including fences, powerlines, pipelines, cables and similar, houses, yards etc. If yes, undertaken relevant management and mitigation measures to ensure no impact to land and property.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 2b – Environmental Superintendent (or Delegate) Work Area Visit *(mandatory for all permits)*

Environmental Superintendent (or Delegate) – Initial inspection
I have physically visited the proposed disturbance work area and I am aware of the scope and requirements of the proposed work.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 3 – Erosion and Sediment Control *(to be completed by the person requesting the permit)* Required Not Required

Only applicable if Erosion and Sediment control is required from Part 1, to be completed by the Permit Holder



Note

All erosion and sediment plan requirements must be completed prior to any disturbance activity commencing

Erosion and sediment plan	<input type="checkbox"/> Not Required	<input type="checkbox"/> Required – all elements below must be completed			
				Sediment and erosion control plans attached Scale map of affected areas and details included on site plan	
Sediment dam(s)	<input type="checkbox"/> Not Required	<input type="checkbox"/> Required – all elements below must be completed			
	Sediment dam calculations				
	<i>Area (ha)</i> <small>(Total catchment area)</small>	<i>Settling zone vol (m³)</i>	<i>Sediment storage vol (m³)</i>	<i>Total basin vol (m³)</i>	<i>Flocculant (if required)</i>
Controls <i>List all required controls to manage erosion and sediment for permit approval. Specific Permit Conditions must be listed in Part 8</i>					

Part 4 – Community Interaction *(to be completed by the Environmental Superintendent or Delegate in consultation with External Relations Manager)*

Is the proposed area within 2 km of sensitive receivers?	<input type="checkbox"/> No – go to Part 5	<input type="checkbox"/> Yes - List details and include on final plan
Does any member of the public need to be contacted?	<input type="checkbox"/> No	<input type="checkbox"/> Yes - List contact details
Are there any additional requirements from public contact?	<input type="checkbox"/> No	<input type="checkbox"/> Yes - List Specific Permit Conditions in Part 8
Controls <i>Details of any procedures, operating hour limits or contact information. Specific Permit Conditions must be listed in Part 8.</i>		

Part 5 – Cultural/European Heritage *(to be completed by the Environmental Superintendent or Delegate)*

If any response is unknown, complete required level of due diligence to enable a response.

Has a Cultural Heritage/European clearance been obtained within the proposed disturbance area?	<input type="checkbox"/> Yes Verify location on plan and provide details, list any controls below
	<input type="checkbox"/> No Conduct due diligence of proposed disturbance area
Are Cultural/European Heritage sites located within the disturbance area, including access tracks?	<input type="checkbox"/> Yes Identify all known European or Cultural Heritage sites on plan, list any controls below
	<input type="checkbox"/> No Verify against existing site data
Controls <i>List all required controls to manage Cultural/European heritage for Permit approval. Specific Permit Conditions must be listed in Part 8.</i>	

Part 6 – Ecology *(to be completed by the Environmental Superintendent or Delegate)*

If any response is unknown, complete required level of due diligence to enable a response.

Is any significant flora or fauna located in the area to be disturbed?	<input type="checkbox"/> Yes List controls below
	<input type="checkbox"/> No No further action required?
Are any sensitive wildlife habitats located in the area to be disturbed?	<input type="checkbox"/> Yes List controls below
	<input type="checkbox"/> No No further action required?
Are there any site specific ecology requirements for the area to be disturbed? <i>Includes tree or habitat clearing restrictions etc. Wildlife spotter / catcher required</i>	<input type="checkbox"/> Yes List controls below
	<input type="checkbox"/> No No further action required?
Controls <i>List all required controls to manage ecology for permit approval. Specific Permit Conditions must be listed in Part 8.</i>	

Part 7 – Clearing and Stockpiles

(to be completed by the person requesting the permit)

Required Not Required

Is vegetation to be cleared and/or topsoil to be stripped?	<input type="checkbox"/> Yes Complete relevant section(s) below
	<input type="checkbox"/> No This part not applicable, go to Part 8
Topsoil management <i>(only applicable if stripping topsoil)</i>	
Is topsoil strip depth known?	<input type="checkbox"/> Yes Enter strip depth: 100-300 millimetres
	<input type="checkbox"/> No Confirm strip depth with Environmental Superintendent
Can topsoil be directly placed on rehabilitation areas?	<input type="checkbox"/> Yes Include location details on plan and Specific Permit Requirements in Part 8
	<input type="checkbox"/> No

Part 7 – Clearing and Stockpiles *(continued)*

Topsoil stockpiles *(only applicable if stockpiling topsoil)*

Maximum topsoil stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the topsoil stockpile(s) location included on the plan?	<input type="checkbox"/> Yes	Confirm correct location details on plan
	<input type="checkbox"/> No	Update plan to include details
Is stockpile drainage adequate?	<input type="checkbox"/> Yes	Environmental Superintendent to confirm erosion and sediment plan
	<input type="checkbox"/> No	Update erosion and sediment plan to include topsoil stockpile
Are there site specific conditions / requirements for topsoil stockpiles?	<input type="checkbox"/> Yes	Update Specific Permit Conditions in Part 8
	<input type="checkbox"/> No	No further action

Vegetation management *(only applicable if clearing vegetation)*

Can vegetation be directly placed on rehabilitation areas?	<input type="checkbox"/> Yes	Include location details on plan and Specific Permit Requirements in Part 8
	<input type="checkbox"/> No	Complete vegetation stockpile sub-section below

Vegetation stockpiles *(only applicable if stockpiling vegetation)*

Maximum vegetation stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the vegetation stockpile(s) location included on the plan?	<input type="checkbox"/> Yes	Confirm correct location details on plan
	<input type="checkbox"/> No	Update plan to include details
Is stockpile drainage adequate?	<input type="checkbox"/> Yes	Environmental Superintendent to confirm erosion and sediment plan
	<input type="checkbox"/> No	Update erosion and sediment plan to include vegetation stockpile
Are there site specific conditions / requirements for vegetation stockpiles?	<input type="checkbox"/> Yes	Update Specific Permit Conditions in Part 8
	<input type="checkbox"/> No	No further action

Controls

List all required stockpile controls for permit approval. Specific Permit Conditions must be listed in Part 8.

Part 8 – Specific Permit Conditions *(to be completed by the Environmental Superintendent)*

1.	All disturbance must remain within the GDP application area, no disturbance or machinery is to be outside the peg/survey line. If GDP markers have been removed/knocked over, supervisor must be notified and area must be re-surveyed and markers re-instated before disturbance proceeds.
2.	Dust shall be kept to a minimum in accordance with the Air Quality Management Plan.
3.	Should archaeological sites be discovered, works are to stop immediately and MACH Energy notified.
4.	Works to be undertaken in progressive manner and disturbance minimised where practical.
5.	Erosion and sediment controls to be installed prior to stripping of topsoil/disturbance. All controls to be installed and maintained in accordance with Blue Book principles and in accordance with ESCP outlined in GDP.
6.	
7.	
8.	
9.	
10.	

Part 9 – Survey (Boundary Check) Signoff *(to be completed by the person requesting the permit)*

Approval Boundaries Check:

Survey Inspection

The proposed disturbance area is within approved disturbance limits and has been clearly demarcated, relevant to the tasks, and clearly identifies required boundaries to meet the requirements of this permit.

A survey has been completed, for the requirements detailed above and confirmed that demarcation and construction of controls identified in Part 3 have been constructed to design.

Date	Time	Contact number (mobile)	Name (must be qualified surveyor)	Signature

Part 10 – Permit Approval

Environmental Superintendent (or Delegate) Approval

I have reviewed the contents of this Permit and confirm that all information, where applicable, is correct and has been completed to site requirements.

I have inspected the work area and pre-disturbance controls and all pre-disturbance activities, where applicable, have been completed to the Permit requirements.

The Permit Issuer is aware of the approved scope, all Part 8 – Specific Permit Conditions and any other aspects for completion of work related to this Permit I Authorise approval of this Permit to the defined scope, and additional conditions listed in Part 8 – Specific Permit

<p>Pre-Clearance inspection completed including the following:</p>	<input type="checkbox"/> Erosion and sediment controls (not confirmed by survey) are installed <input type="checkbox"/> Habitat trees have been identified and any controls specified are in place <input type="checkbox"/> Area is adequately demarcated <input type="checkbox"/> Access to the site is adequate and where applicable covered by the permit <input type="checkbox"/> Any site specific controls (where identified) have been installed
--	---

Comments:	Refer to Part 8 for comments.
-----------	-------------------------------

Date	Time	Contact number (mobile)	Name (printed)	Signature



Caution

No further on the ground works can proceed until Part 10 is completed. All pre-disturbance controls must be in place.

Permit Holder

I am authorised to perform the role of Permit Holder for this Permit.

I have read and understood the contents and conditions of this permit and any related procedures, and I agree to abide by these requirements. I have communicated the requirements of this permit to those working under the approval of this permit.

Any proposed change to the scope or conditions of this permit will be discussed with the Environmental Superintendent (or Delegate) first. I will comply with all requirements, including reporting requirements.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 11 – Attachments *(to be completed by the person requesting the permit)*

All attached documents, directly related to this Permit, are to be listed below. These will include a risk assessment and an Erosion and Sediment Control Plan at a minimum.

Date	Reference number	Title

Part 14 – Amendments <i>(completed by the Permit Holder and Environmental Superintendent (or Delegate), if required)</i>	<input type="checkbox"/> Required	<input type="checkbox"/> Not Required
--	-----------------------------------	---------------------------------------

Amendment:	<ul style="list-style-type: none"> <input type="checkbox"/> Updated job description and site plan, including expected duration <input type="checkbox"/> Update survey of work area, if required <input type="checkbox"/> Confirm area within approval boundaries <input type="checkbox"/> Update DBYD, if required <input type="checkbox"/> Update erosion and sediment control works, if required <input type="checkbox"/> Confirm no impact to community <input type="checkbox"/> Confirm no impact to cultural or European heritage <input type="checkbox"/> Confirm no impact to ecology <input type="checkbox"/> Complete site visit, if required <input type="checkbox"/> Confirm updated topsoil and/or vegetation clearing and stockpiles, if required
------------	--

Comments <i>Including additional specific permit conditions.</i>	
--	--

Environmental Superintendent (or Delegate) Amendment Assessment
<i>An assessment of the amendment/s has been completed, as per the above checklist. Additional works outlined in the amendment/s can now be completed.</i>

<i>Date</i>	<i>Time</i>	<i>Contact number (mobile)</i>	<i>Name (printed)</i>	<i>Signature</i>

Permit Holder Amendment Assessment
<i>An assessment of the amendment/s has been completed, as per the above checklist. Additional works outlined in the amendment/s can now be completed.</i>

<i>Date</i>	<i>Time</i>	<i>Contact number (mobile)</i>	<i>Name (printed)</i>	<i>Signature</i>

Part 15 – Post-Disturbance Assessment

(completed by the Permit Holder and Environmental Superintendent (or Delegate) on permit completion/cancellation, if required)

Required

Not Required

Post-Disturbance Assessment completed including:

- All rubbish removed from work area(s)
- All pegs and flagging tape removed
- All plant and equipment removed from the work area(s)
- Erosion and sediment controls completed to plan
- All rehabilitation work completed to requirements (including access tracks)
- Landholder satisfied with rehab works (where applicable)
- Stockpiles constructed to requirements (where applicable)
- Site plan updated to reflect any changes (stockpiles, dams etc. where applicable)
- Has clearing been completed in accordance with the permit?
- Has survey completed an “as constructed pick up”?

Comments

Instructions or requirements relevant to post-disturbance inspections.

Environmental Superintendent (or Delegate) Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this Permit. All works have been inspected, as noted above, and have been completed to site requirements. This Permit can now be completed/cancelled.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Permit Holder Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this permit. All works have been inspected, as noted above, and have been completed to site requirements. This permit can now be completed/cancelled.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 16 – Permit Completion / Cancellation (all signatures required)

Permit Complete

Permit Cancelled (comments required)

The task activities authorised by this permit are complete, or no longer required. All required inspections have been completed. No further work is permitted under the authority of this permit.

Comments

Cancellation must include reasons.

Environmental Superintendent (or Delegate)

All Environmental aspects of this permit have been completed (including cancelled) to site requirements.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Permit Holder

All work has been completed (or cancelled) to satisfy the requirements of this permit.

Date	Time	Contact number (mobile)	Name (printed)	Signature

APPENDIX A

**HISTORIC HERITAGE RELATED CONDITIONS –
DEVELOPMENT CONSENT SSD 10418**

APPENDIX B
CONSULTEE FEEDBACK – KEY CORRESPONDENCE

From: Andrew Reid <Andrew.Reid@machenergy.com.au>
Sent: Wednesday, March 27, 2024 6:04 PM
To: Theresa Folpp <Theresa.Folpp@muswellbrook.nsw.gov.au>
Cc: Michael Redman <Michael.Redman@machenergy.com.au>; Sharon Pope <Sharon.Pope@muswellbrook.nsw.gov.au>
Subject: Re: MPO - Historic Heritage Management Plan (SSD 10418) for Consultation - MSC

Thanks Theresa,
Appreciate the feedback.

Kind Regards,
Andrew

From: Theresa Folpp <Theresa.Folpp@muswellbrook.nsw.gov.au>
Sent: Wednesday, March 27, 2024 5:08 PM
To: Andrew Reid <Andrew.Reid@machenergy.com.au>
Cc: Michael Redman <Michael.Redman@machenergy.com.au>; Sharon Pope <Sharon.Pope@muswellbrook.nsw.gov.au>
Subject: RE: MPO - Historic Heritage Management Plan (SSD 10418) for Consultation - MSC

Hi Andrew,

Council's Heritage Advisor has reviewed and noted the MPO Historic Heritage Management Plan and has not requested any changes.

Regards,
Theresa



Muswellbrook Shire Council | Theresa Folpp | Environmental Planning Officer | Available Tue - Fri
T: 02 6549 3700 | **E:** theresa.folpp@muswellbrook.nsw.gov.au | www.muswellbrook.nsw.gov.au |

I respectfully acknowledge the local Aboriginal people who are the Traditional Owners and Custodians of the land on which I work

Please consider the environment before printing this email

From: Andrew Reid <Andrew.Reid@machenergy.com.au>
Sent: Tuesday, February 20, 2024 7:33 AM
To: Sharon Pope <Sharon.Pope@muswellbrook.nsw.gov.au>
Cc: Theresa Folpp <Theresa.Folpp@muswellbrook.nsw.gov.au>; Michael Redman <Michael.Redman@machenergy.com.au>
Subject: MPO - Historic Heritage Management Plan (SSD 10418) for Consultation - MSC

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Sharon,

Please find attached for the purpose of consultation, a draft of the Mount Pleasant Operation (MPO) Historic Heritage Management Plan prepared by MACH Energy.

The Historic Heritage Management Plan has been prepared to outline MACH Energy's historic heritage management measures for the MPO and has been developed in accordance with Condition B73, Part B of Development Consent SSD 10418.

It would be appreciated if the Muswellbrook Shire Council could provide any comments on the Historic Heritage Management Plan by 16 March 2024.

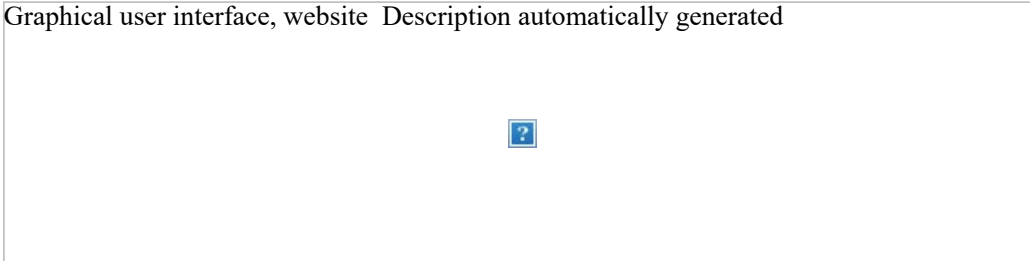
Please do not hesitate to contact me should you wish to discuss.

Kind Regards,

ANDREW REID
SUPERINTENDENT ENVIRONMENT (OPERATIONS)

Mount Pleasant Operation
Andrew.Reid@machenergy.com.au
M: 0411 440 912

Graphical user interface, website Description automatically generated



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Muswellbrook Shire Council ABN 86 864 180 944

Our ref: HMS ID 5835

Mariah Lane
MACH Energy Australia Pty Ltd
By email: mariah.lane@machenergyaustralia.com.au

Other consultation for the Mount Pleasant Operation Historic Heritage Management Plan (SSD-10418-PA-17)

Dear Ms Lane,

Thank you for your referral dated 19 February 2024 inviting comments from the Heritage Council of NSW on the Draft Historic Heritage Management Plan (HHMP) required under relevant conditions of approval for the above State Significant Development (SSD) project.

The following reports were considered in our assessment:

- *Mount Pleasant Operation Historic Heritage Management Plan, Revision A*, prepared for MACH Energy Australia Pty Ltd.

As delegate of the Heritage Council of NSW, I provide the following comments:

Archaeological investigation

- It is noted that archaeological investigation is proposed to be undertaken prior to ground surface disturbances occurring at a number of sites. This approach is supported by Heritage NSW; however, please note the following comments.
- In comments provided at the Environmental Impact Statement stage (letter dated 5 March 2021) Heritage NSW requested that an Archaeological Research Design and Excavation Methodology (ARDEM) be provided at the Response to Submissions (RTS) stage.
- The ARDEM was not supplied at the RTS stage, and it was indicated in the RTS that any ARDEM requirements – such as for the management of relics subject to impact – could be addressed through the preparation of a HHMP. In comments provided on the RTS (letter dated 16 July 2021) Heritage NSW recommended that a condition of consent be included requiring preparation of an

ARDEM prior to any archaeological investigations occurring on site, to manage disturbance to historical archaeological relics.

- Heritage NSW does not consider that the draft HHMP sufficiently addresses the requirement for an ARDEM. An ARDEM is necessary to guide any archaeological investigations undertaken, including through the development of appropriate research questions, excavation methodology, and post-excavation analysis procedures. An ARDEM is required to ensure that appropriate management and mitigation of potential impacts to historical archaeological relics is achieved. We therefore reiterate our previous recommendation provided at the RTS stage:
 - *Prior to any archaeological investigations occurring on site, the Applicant shall engage a suitably qualified historical archaeologist to prepare an Archaeological Research Design and Excavation Methodology (ARDEM), in accordance with the Guidelines published by the Heritage Council of NSW, to manage disturbance to historical archaeological relics on site, including those sites identified in the Extent Heritage report. The ARDEM should assess their significance and consider the impacts from the proposal on this potential resource.*

The ARDEM should also include a strategy for the sorting, selective discard, and storage of any artefacts recovered during the archaeological investigations.

Heritage Interpretation Plan

- Section 3.4 of the HHMP states that a Heritage Interpretation Plan (HIP) will be prepared and implemented. Heritage NSW supports this as proposed; however, we consider that the results of any archaeological investigations undertaken should also be incorporated into the HIP.

We have no further comment to make in relation to the draft HHMP.

If you have any questions about this correspondence, please contact Sam Gibbins, Senior Assessments Officer - Historical Archaeology at Heritage NSW on (02) 9873 8500 or heritagemailbox@environment.nsw.gov.au

Yours sincerely

Michael Ellis.

Michael Ellis
Manager Assessments
Heritage NSW
Department of Climate Change, Energy, the Environment and Water
As Delegate of the Heritage Council of NSW

12 March 2024

Historic Heritage Management Plan (SSD 10418) – Response to Consultation Comments (Heritage NSW)

Relevant Development Consent SSD 10418 Condition	Comment Received	Relevant Section in the HHMP	MACH Response
<i>Part B, Condition B73</i>	<p>Archaeological Investigation</p> <ul style="list-style-type: none"> It is noted that archaeological investigation is proposed to be undertaken prior to ground surface disturbances occurring at a number of sites. This approach is supported by Heritage NSW; however, please note the following comments. In comments provided at the Environmental Impact Statement stage (letter dated 5 March 2021) Heritage NSW requested that an Archaeological Research Design and Excavation Methodology (ARDEM) be provided at the Response to Submissions (RTS) stage. The ARDEM was not supplied at the RTS stage, and it was indicated in the RTS that any ARDEM requirements – such as for the management of relics subject to impact – could be addressed through the preparation of a HHMP. In comments provided on the RTS (letter dated 16 July 2021) Heritage NSW recommended that a condition of consent be included requiring preparation of an ARDEM prior to any archaeological investigations occurring on site, to manage disturbance to historical archaeological relics. 	-	<p>Noted. Extent Heritage was commissioned by MACH Energy to prepare the following Archaeological Research Design and Excavation Methodologies:</p> <ul style="list-style-type: none"> Kayuga Coal Mine (MP20); Kayuga School (MP21); Thorndale (MP27); Devine’s (MP23); and Wells (MP13, MP23, MP25).
<i>Part B, Condition B73</i>	<ul style="list-style-type: none"> Heritage NSW does not consider that the draft HHMP sufficiently addresses the requirement for an ARDEM. An ARDEM is necessary to guide any archaeological investigations undertaken, including through the development of appropriate research questions, excavation methodology, and post-excavation analysis procedures. An ARDEM is required to ensure that appropriate management and mitigation of potential impacts to historical archaeological relics is achieved. We therefore reiterate our previous recommendation provided at the RTS stage: <ul style="list-style-type: none"> Prior to any archaeological investigations occurring on site, the Applicant shall engage a suitably qualified historical archaeologist to prepare an Archaeological Research Design and Excavation Methodology (ARDEM), in accordance with the Guidelines published by the Heritage Council of NSW, to manage disturbance to historical archaeological relics on site, 	<ul style="list-style-type: none"> Appendix C – Kayuga Coal Mine (MP20) ARDEM; Appendix D – Kayuga School (MP21) ARDEM; Appendix E – Thorndale (MP27) ARDEM; Appendix F – Devine’s (MP23) ARDEM; and Appendix G – Wells (MP13, MP23, MP25) ARDEM. 	<p>The ARDEMs have been prepared by Extent Heritage and prepared in accordance with the principles and procedures established by the following documents:</p> <ul style="list-style-type: none"> <i>The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013;</i> and <i>Historical Archaeology Code of Practice</i> (NSW Department of Planning and Heritage Council of NSW 2006).

Historic Heritage Management Plan (SSD 10418) – Response to Consultation Comments (Heritage NSW)

Relevant Development Consent SSD 10418 Condition	Comment Received	Relevant Section in the HHMP	MACH Response
	<p>including those sites identified in the Extent Heritage report. The ARDEM should assess their significance and consider the impacts from the proposal on this potential resource. The ARDEM should also include a strategy for the sorting, selective discard, and storage of any artefacts recovered during the archaeological investigations.</p>		<p>The ARDEMs will be compiled into the Historic Heritage Management Plan as appendices.</p>
<i>Part B, Condition B73</i>	<p>Heritage Interpretation Plan Section 3.4 of the HHMP states that a Heritage Interpretation Plan (HIP) will be prepared and implemented. Heritage NSW supports this as proposed; however, we consider that the results of any archaeological investigations undertaken should also be incorporated into the HIP.</p>	Section 3.4	<p>Section 3.4 of the Historic Heritage Management Plan has been updated to address this commitment.</p>

APPENDIX C

**ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY –
KAYUGA COAL MINE (MP20)**

EXTENT



MOUNT PLEASANT OPERATION

ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY – KAYUGA COAL MINE (MP20)

Prepared for MACH Energy Australia Pty Ltd

June 2024—FINAL



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EXTENT HERITAGE PTY LTD
ABN 24 608 666 306
ACN 608 666 306
accounts@extent.com.au
extent.com.au

SYDNEY
Level 3/73 Union Street
Pyrmont NSW 2009
T 02 9555 4000

MELBOURNE
Level 1, 52 Holmes Street
Brunswick East VIC 3057
T 03 9388 0622

BRISBANE
Level 2, 109 Edward Street
Brisbane QLD 4000
T 07 3051 0171

HOBART
Level 3, 85 Macquarie Street
Hobart TAS 7000
T 03 6144 5880

Document information

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1. INTRODUCTION

1.1. Project background

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by MACH Energy Australia Pty Ltd (MACH Energy) to prepare a historical Archaeological Research Design and Excavation Methodology (ARDEM) for Kayuga Coal Mine (MP20) ('the study area'), located within the vicinity of the Mount Pleasant Operation.

The Mount Pleasant Operation is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 Kilometres (km) northwest of Muswellbrook and approximately 50 km northwest of Singleton (Figure 1). The Mount Pleasant Operation involves the construction and operation of an open cut coal mine and associated rail spur and product coal loading infrastructure. Kayuga Coal Mine (MP20) is located towards the northern extent of the Mount Pleasant Operation and may potentially be directly impacted by the proposed mine works (Figure 1).

This ARDEM has been prepared in accordance with, and follows, NSW Heritage's guideline documents (Section 1.2). It presents a proposed methodology for the archaeological investigation of the Kayuga Coal Mine (MP20), informed by research questions developed for the potential archaeological resource.

The archaeological investigation would be undertaken by a team of experienced archaeologists in accordance with the guidelines and standards prepared by the Heritage Council of NSW and Heritage NSW.

1.2. Statutory framework

Kayuga Coal Mine (MP20) was identified in the Mount Pleasant Optimisation Project (the Project) Environmental Impact Statement (EIS) (MACH Energy 2021) as an archaeological site (and, in the case of the mine shaft, a 'work') that would be adversely impacted by the Project.

The EIS recommended that prior to any ground disturbance taking place there, the site should be investigated by qualified archaeologists to ensure that its research potential was met prior to its disturbance or destruction. The full extent of the underground mine is illustrated in a 1919 map (Figure 9).

The Project was declared a State Significant Development (SSD) in 2022 (SSD 10418). An excavation permit is not required pursuant to section 139 of the *NSW Heritage Act 1977*. However, in providing comment on the EIS and proposed mitigative actions, Heritage NSW requested that an ARDEM be prepared as if an excavation permit were required pursuant to section 139 of the *NSW Heritage Act 1977* (SSD 10418 PA 17).



This ARDEM was prepared by Extent Heritage to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418:

B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

...

(f) describe the measures to be implemented on the site to:

...

(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and

This ARDEM is included as an appendix to the Historic Heritage Management Plan for the Project (SSD 10418).

This ARDEM was prepared in accordance with the principles and procedures established by the following documents:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013 (the Burra Charter) (Australia ICOMOS 2013); and*
- 'Historical Archaeology Code of Practice' (Heritage Council 2006).

1.3. Site location and identification

Kayuga Coal Mine (MP20) is located within the northern half of the mining lease (ML 1645) and is approximately 5.2 km northwest of Muswellbrook and approximately 6 km southwest of Aberdeen. Historically, the site was located on Portion 92, Parish of Ellis, County of Brisbane (Figure 2 and Figure 3).

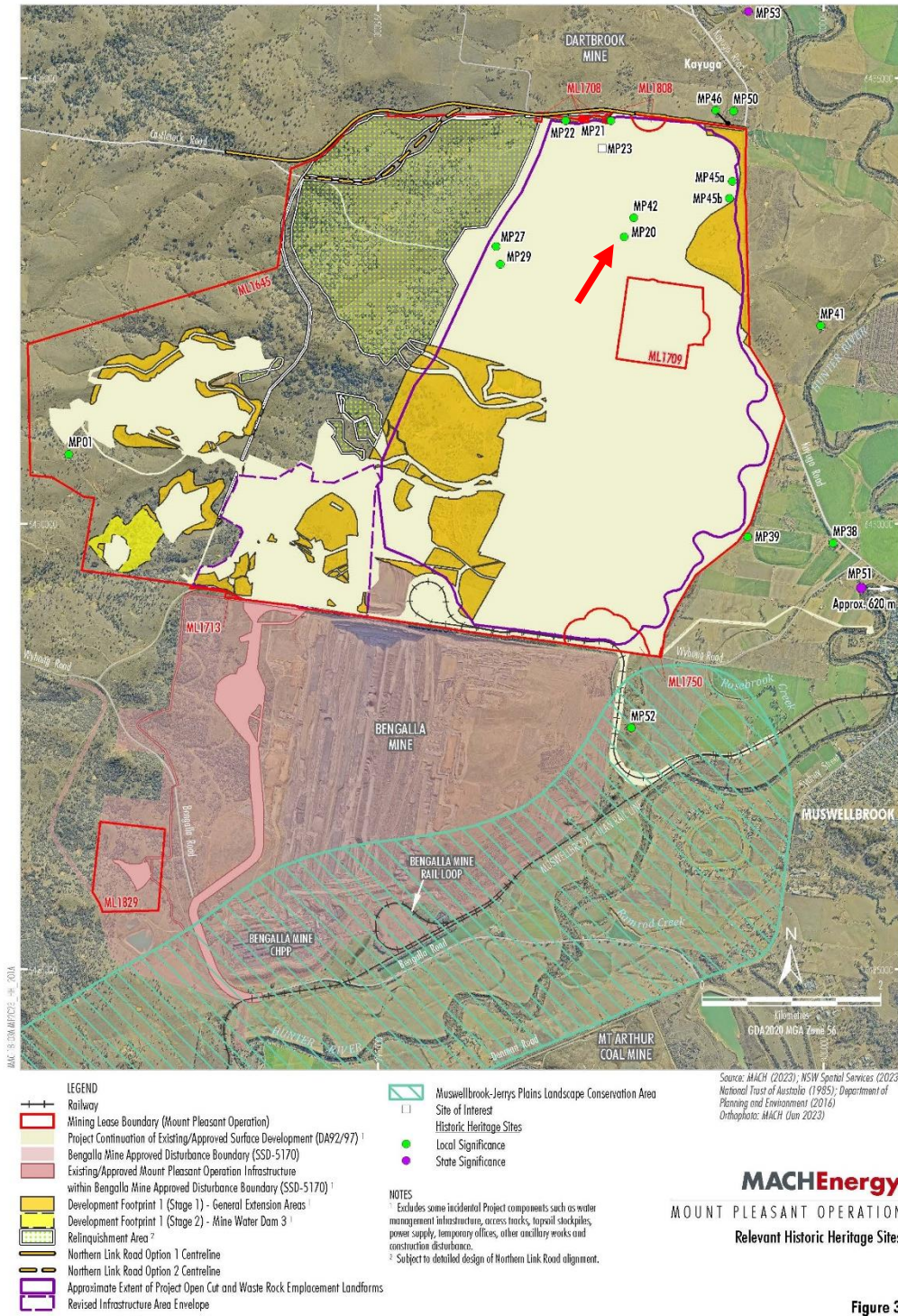


Figure 1. Map illustrating the boundary of the Project area with approximate locations of historical heritage places previously assessed. This report concerns only MP20 (denoted by the red arrow).

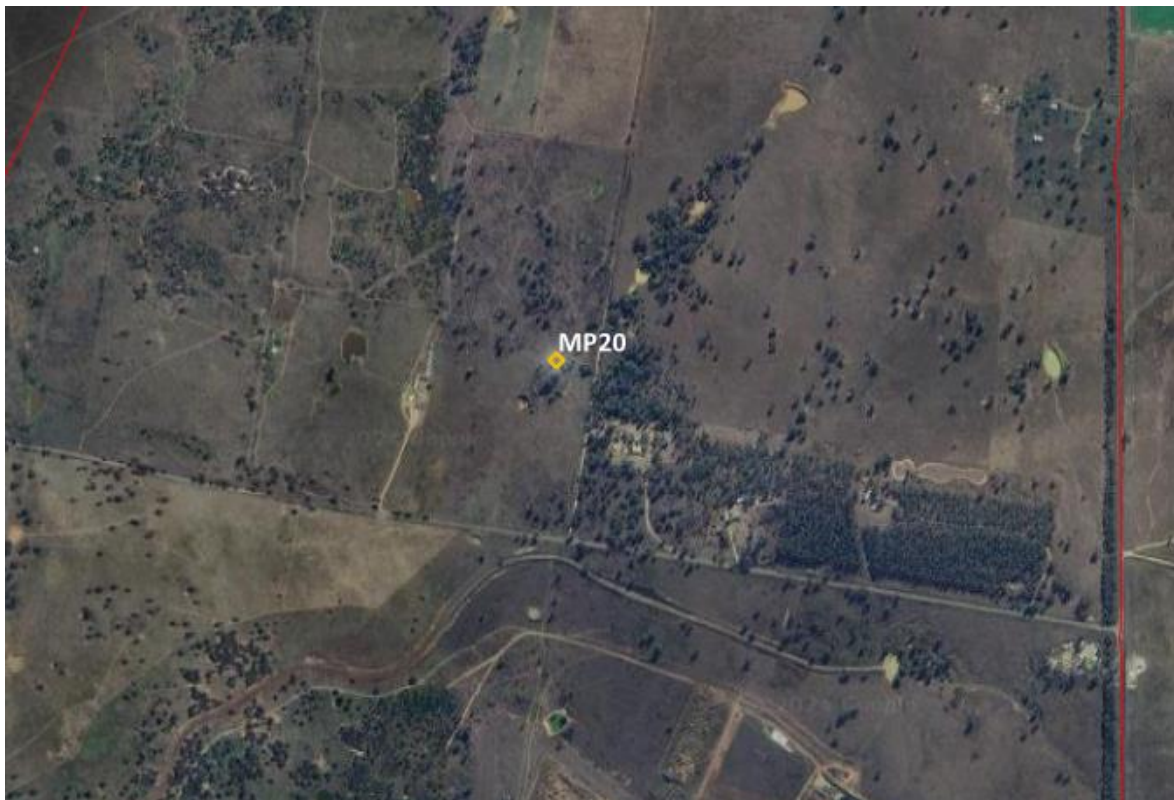


Figure 2. Aerial image showing the location of Kayuga Coal Mine (MP20) within the Project area (red outline).



Figure 3. Map showing the position of MP20 within Portion 92 with a historical map overlay (Source: NSW Department of Lands 1938 via National Library of Australia).

1.4. Previous reports and investigations

Kayuga Coal Mine (MP20) has been subject to previous heritage investigations. This report draws on the following previous heritage reports:

- Veritas Archaeology and History Services (VAHS) 2014. *Mount Pleasant Historic Heritage Study*. Prepared for Rio Tinto Coal Australia.
- Extent Heritage 2020, *Mount Pleasant Optimisation Project, NSW Historical Heritage Assessment and Statement of Heritage Impact*. Prepared for MACH Energy Australia Pty Ltd.

1.5. Limitations

This report uses historical documentation and previously established significance assessments prepared by third party heritage consultants to describe and assess the heritage significance of land that would be affected by the proposal. This ARDEM has been prepared in accordance with the Heritage Council of NSW's *Archaeological Assessment Guidelines* (1996) Heritage Branch of the Department of Planning's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009), the Department of Planning and Environment's *Heritage Code of Practice* (2006) and *Assessing heritage significance Guidelines for assessing places and objects against the Heritage Council of NSW criteria* (2023).

This report does not review the Indigenous cultural heritage values of the subject area. This report aims to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418, and forms part of the appendix to accompany the Historic Heritage Management Plan (SSD 10418).

1.6. Authorship

This report was prepared by Hannah Craig-Ward (Heritage Advisor, Extent Heritage) and reviewed by Jessica Cuskelly (Senior Heritage Advisor, Extent Heritage) and Andrew Sneddon (Director, Extent Heritage) for quality assurance purposes.

2. STUDY AREA

It is an archaeological site containing very few standing features. The site is divided by a gully running roughly south to north. On the east side of the gully, the following features were noted (VAHS 2014, p. 235) (see Figure 4 - Figure 9):

- a dam;
- several timber posts mortised for rails;
- remains of a fireplace and broken bricks;
- a post, concrete block, and piles of ash;
- a depression which may be a collapsed shaft;
- a number of posts to the west of the depression near another open mine shaft; and
- areas of coal fines.

VAHS (2014, p. 235) also describes the following features on the west side of the gully:

- a post near the gully which lines up with standing and fallen posts to the west and east;
- a depression approximately 140 metres (m) west of the gully that may be a mine shaft;
- an open timber-lined shaft;
- remains of a shaft (axle) with iron wheels (rotating part of a machine);
- coal fines;
- a dam and old trough; and
- a number of pepper trees on both sides of the gully.



Figure 4. The overgrown gully that divides the former site of the Kayuga Coal Mine (MP20). Note the visible remnant coal workings.) (Source: Extent Heritage 2020, p. 56)



Figure 5. Timber posts near mine shaft at MP20 (Source: Extent Heritage 2020, p. 56).



Figure 6. View of open mine shaft partially covered over with timbers and a piece of machinery (shaft with wheels) (Source: VAHS 2014, p. 241).



Figure 7. Remains of yards and base of chimney (Source: VAHS 2014, p. 243).

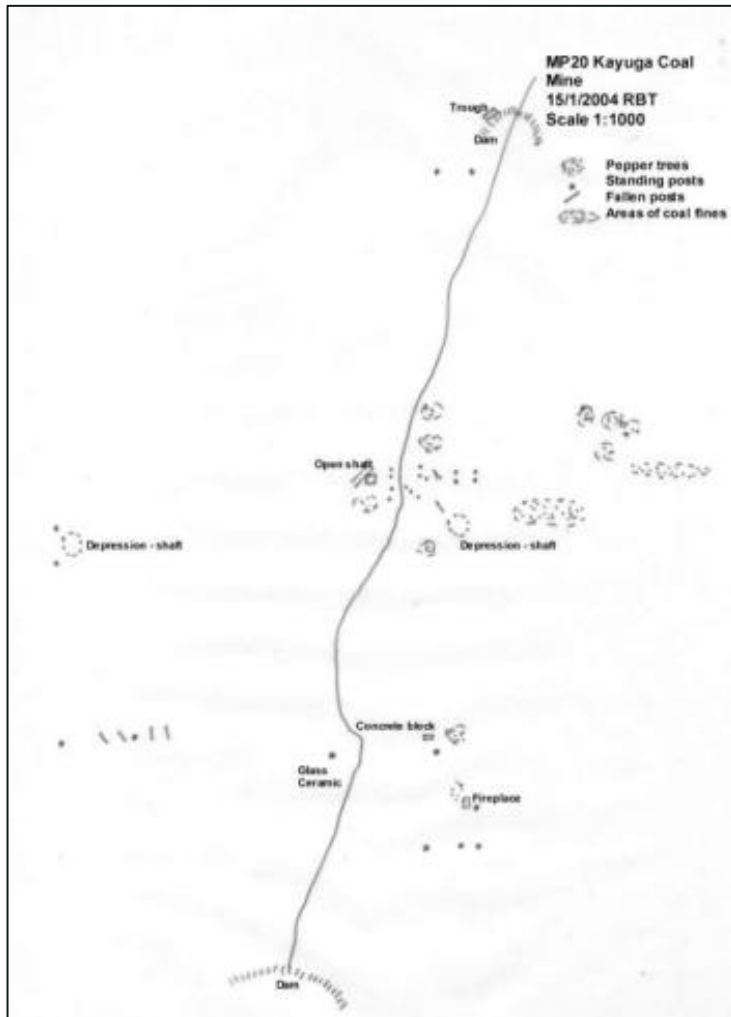


Figure 8. Plan drawing (not to scale) showing the location of surface features at the Kayuga Coal Mine (MP20) site, 2004 (Source: VAHS 2014, p. 238).

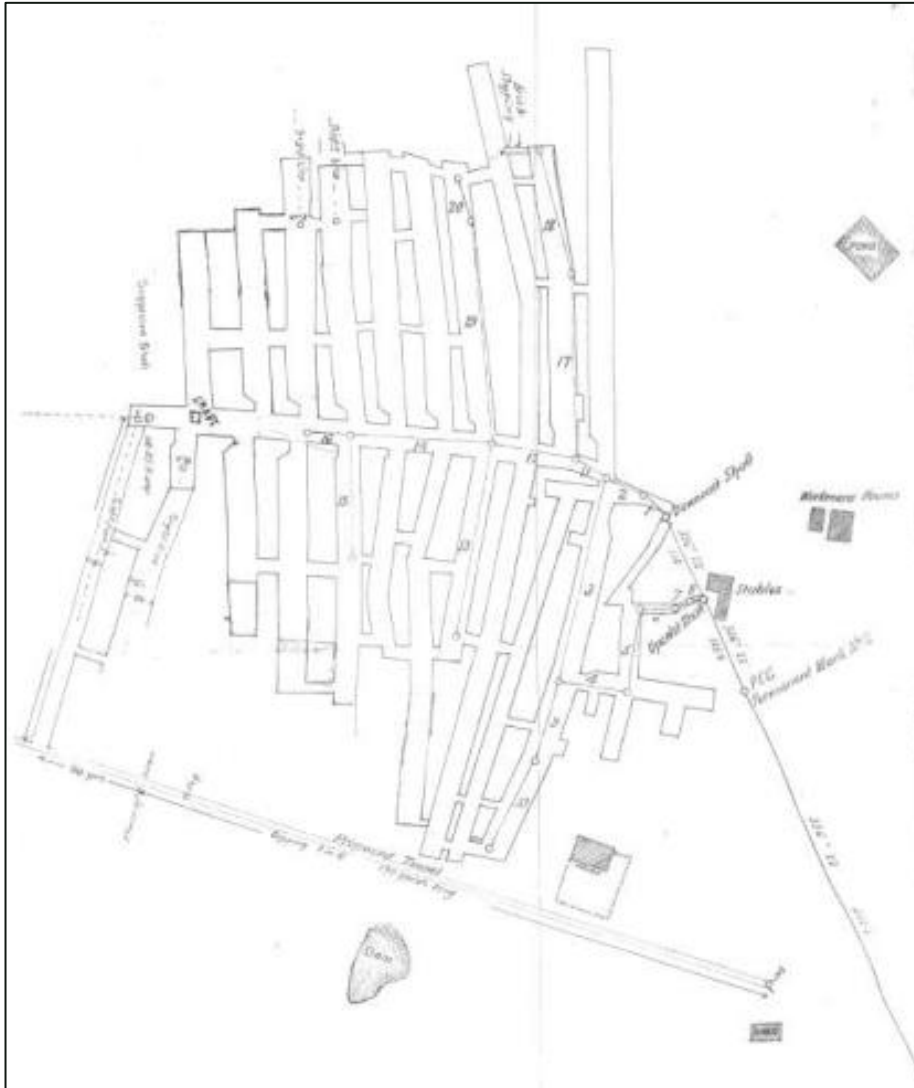


Figure 9. Plan of Kayuga Coal Mine in 1907, original held by NSW Department of Mines. Notation on plan states that it is a true copy of the mine abandoned 25th November 1907. W Humble 20th April 1919 (Source: VAHS 2014, p. 239).

3. HISTORICAL CONTEXT

This section provides a summary of the development of the Muswellbrook area as well as site specific history. It draws from the historical overview presented in the VAHS report (2014, p. 35-37) as well as Extent Heritage's previous historical heritage assessment (2020, p. 26-27), augmented by additional historical research.

3.1. Muswellbrook

The early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. As early as 1823, explorer Allan Cunningham travelled over The Great Dividing Range almost to the present site of Muswellbrook. By 1824, government surveyor Henry Dangar began to survey and map the Hunter Region, setting aside 640 acres for a village that was to become the township of Muswellbrook (Dangar 1828). Muswellbrook was strategically situated in relation to the Hunter River and was on the main track to the Liverpool Plains, which subsequently became the Great Northern Road (present-day New England Highway) (Extent Heritage 2020, p. 26).

Following Dangar's survey, large grants of land in the area, particularly along the Hunter River, were awarded to wealthy settlers in return for taking convict labourers into their employ (Extent Heritage 2020, p. 26). This early period of settlement saw the establishment of a number of large estates in Muswellbrook, including 'Edinglassie', 'Overton', 'Negoa', and 'Bengalla' estates, among others. These wealthy landowners 'dominated the economic and social life of the district' (VAHS 2014, p. 36). By 1841, Muswellbrook had become a thriving town of 215 residents with multiple shops, several hotels and a flour mill. By the mid-nineteenth century, Muswellbrook's population had grown considerably in response to increased trade, the opening of the railway in 1869 and the increased availability of land under *The Crown Lands Acts* of 1861 (Extent Heritage 2020, p. 26).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses. The fertile nature of the land combined with ease of irrigation and transport to Sydney enabled Muswellbrook's settlers to successfully establish and support a range of agricultural and pastoral industries (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Towards the end of the nineteenth century, the introduction of milking machines and tractors led to the mechanisation of farming, which in turn created a pivotal increase in productivity for these early small-scale farming enterprises. Following the opening of the Kayuga Creamery in 1893, the establishment of large-scale commercial dairying soon provided the economic basis for Muswellbrook. Other creameries and butter factories soon opened at Overton (Blunt's), Muswellbrook and Aberdeen (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Concurrently, the development of Muswellbrook was also defined by the advent of a new, dominant industry: coal mining. As early as 1867, the *Maitland Mercury* reported the opening of a coal mine on the Negoa Estate for the supply of the Muswellbrook blacksmiths (VAHS 2014:46). By the late 1800s, the Weis Brothers were reporting operations of a coal mine at Kayuga on the property of Mr. Elijah Cox, which continued until the early 1930s (Extent Heritage 2020, p. 27; VAHS 2014, p. 37).

In addition, the Muswellbrook Coal Mine is one of the oldest coal mines in NSW that remains operational (Muswellbrook Shire Council 2015a). Established in 1906 as an underground mine, the Muswellbrook Coal Mine shifted its operations to open cut mining in the mid-1940s (Extent Heritage 2020, p. 27).

This combination of a new, dominant industry (i.e. coal mining) and the subdivision of many of the area's larger estates into smaller land holdings suitable for tenant farmers significantly altered Muswellbrook from a small country town to an economically diverse and growing rural/resource extraction centre. Further, it played a significant role in shaping the character of the cultural landscape (Extent Heritage 2020, p. 27).

3.1.1. Kayuga

While a village reserve appeared on early maps of the region, by 1858 the only development was the establishment of a burial ground for the surrounding district (in 1828) (VAHS 2014, p. 40, 43). The first plan of the village was drawn by Surveyor John Rogers in May 1858, however it was redesigned by Surveyor Bennet on 24 September the same year, to better align the streets with the Muswellbrook to Scone road (VAHS 2014, p. 43). Kayuga took its name from Donald MacIntyre's Kayuga Station to the north, and John Hobart Cox's Negoa station was located to the south of the village (VAHS 2014, p. 43).

Village allotments were put up for sale in 1861, however sales were very slow and Kayuga remained as a small township with a post office, hall, school, and church as well as the original cemetery (*The Sydney Morning Herald* 1861, p. 2; VAHS 2014, p. 44).

3.2. Site history

Coal mining began in the Kayuga area in 1867, when a Mr Edgar opened a coal mine on the Negoa Estate, approximately 19 km from Muswellbrook (VAHS 2014, p. 232). The seam was reported as being five feet thick and being used by Muswellbrook blacksmiths; however, the location of this mine is unknown (*The Maitland Mercury and Hunter River General Advertiser* 1867, p. 3; VAHS 2014, p. 232).

Portion 92, Parish of Ellis, where the Kayuga Coal Mine (MP20) was later established, was first purchased by Elijah Cox, date unknown (VAHS 2014, p. 232; Figure 10). On 8 February 1877, a farm belonging to E. Cox comprising 40 acres, a secure fence, a dam, house, sheds, and stockyards, was advertised for sale (*The Maitland Mercury and Hunter River General Advertiser* 1877, p. 8); however, it is not known if the property was sold (VAHS 2014, p. 232).

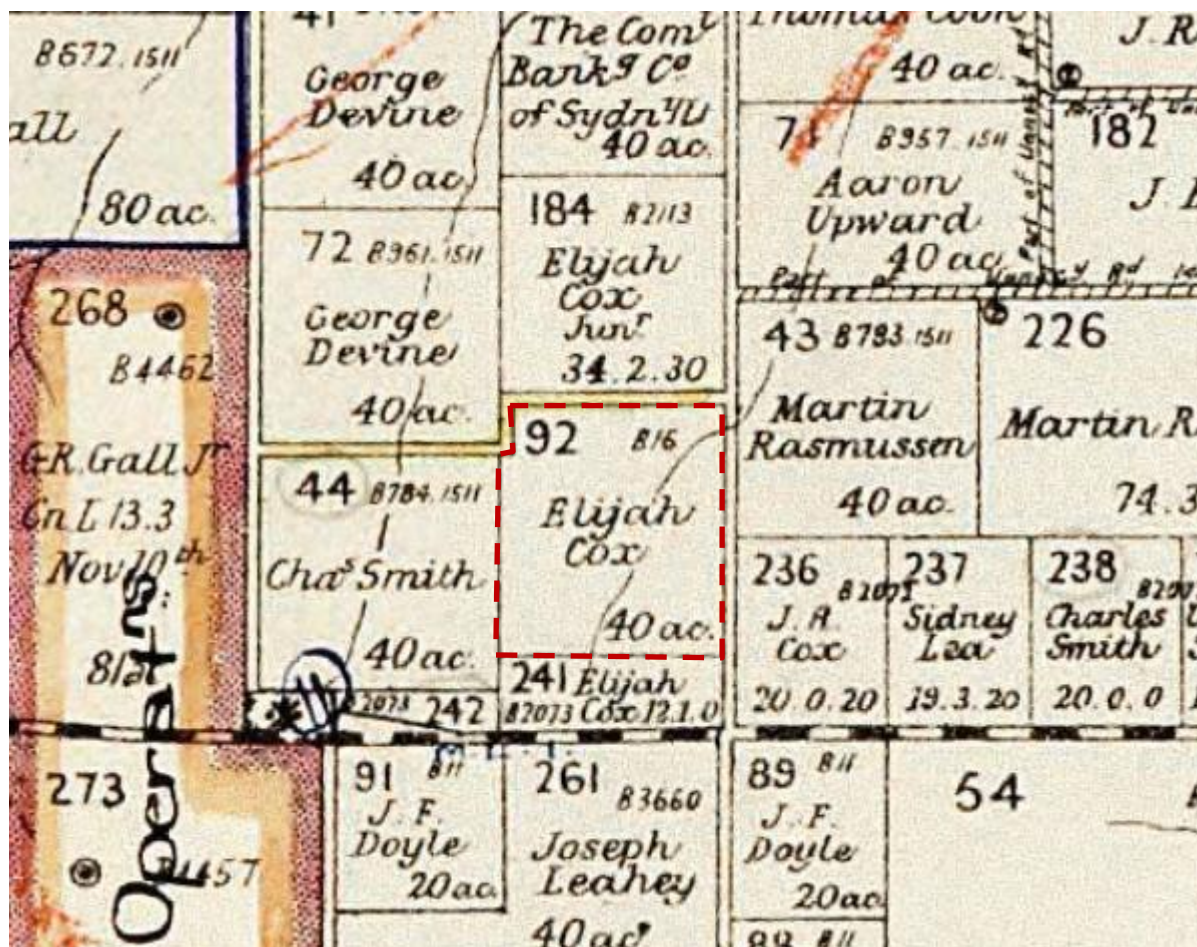


Figure 10. Cropped 1915 Parish of Ellis County of Brisbane map with Portion 92 outlined (Source: New South Wales, Department of Lands 1915, via NSW Land Registry Services 2020 Historical Land Records Viewer).

In 1886 Elijah Cox obtained freehold to this land from the Crown (VAHS 2014, p. 232). In April 1891, it was reported that Elijah Cox had taken 'an excellent sample of coal which was taken from a seam twelve feet thick' that he had discovered on his land 'while sinking a well' (*Newcastle Morning Herald and Miners' Advocate* 1891, p. 8). Later that year, however, Elijah Cox died leaving an estate valued at £285/5/- which included 52 acres of land with a house and garden of 100 fruit trees (VAHS 2014, p. 233).

On 22 March 1892, a Mr W. Weiss started a coal mine on the late Mr E Cox's property (VAHS 2014, p. 233). In February 1894, it was reported that the 'Kayuga Coal-pit' was being 'worked on royalty by Messrs. Weiss & Co., but owned by Cox Bros.' (*The Maitland Daily Mercury* 1894a, p. 4). However, *The Maitland Daily Mercury* (1894b, p. 1) then reported that the 'coal mine situated at Kayuga, and worked by Weiss Bros' was solely owned by Mary Ann Cox (the widow of Elijah Cox). In 1901, Mary transferred the property to her son, Arthur James Cox (VAHS 2014, p. 233). The property was then leased in 1906 to a newly formed company, the 'Kayuga Coal Mining Co' (VAHS 2014, p. 233). In 1908 ownership of the Kayuga Coal Mine was transferred to Messrs Blunt & Co. and managed by A J Cox (VAHS 2014, p. 233). Between 1911 and 1913, the mine was then managed by Herbert Fibbins (VAHS 2014, p. 234).

In late 1913 and early 1914, the property, including the Kayuga Coal Mine was advertised for sale by auction by instruction of Arthur Cox (*The Muswellbrook Chronicle* 1913, p. 7; 1914a, p. 3). The property comprised 52 acres, 1 rood, being both Portion 241 and 92, which had been fenced and subdivided into four paddocks with 42 acres that had been cultivated and adapted for fruit, maize, pumpkins, etc. (*The Muswellbrook Chronicle* 1914a, p. 3). The Kayuga Coal Pit was described as having been 'worked successfully for many years' and being in 'full working order, with steel rails laid in pit and up-to-date points and three shafts' (*The Muswellbrook Chronicle* 1914a, p. 3). A cottage, hay shed, and stables were also located on the property (*The Muswellbrook Chronicle* 1914a, p. 3). On 9 January, however, the *Newcastle Morning Herald and Miners' Advocate* (1914, p. 8) reported that the Kayuga Coal Mine had been withdrawn from sale. The mine was re-advertised for sale on 7 February 1914, with an auction scheduled for 18 February (*The Muswellbrook Chronicle* 1914b, p. 7).

The Muswellbrook Chronicle (1914c, p. 2) reported on 28 February 1914 that 'Mr Arthur Cox has sold his piece of land at Kayuga with the coal pit' to Mr. R. Tucker at a 'satisfactory price'. However, a 'Notice of Transfer Land' dated 28 January 1929 indicates Arthur Cox sold Portion 92 and 241 to William Donald Quantrill (VAHS 2014, p. 234). In 1923 it was reported that about half a dozen men had been working at the Kayuga Coal Mine for a syndicate and the Broken Hill Proprietary Company (BHP) was testing the coal to see if it was suitable for coke (*Evening News* 1923, p. 8). Employment at the mine peaked this year, with eight men employed underground and five above (VAHS 2014, p. 234). In 1929 operations were suspended as the property was purchased by W. D. Quantrill (VAHS 2014, p. 234).

In 1930, *The Muswellbrook Chronicle* (1930, p. 2) reported that the 'Kayuga Coal Pit' had resumed operations, being under new management: a Mr O'Brien, who had interests in the Ravensworth Colliery. A year later, however, the coal pit had closed (*The Muswellbrook Chronicle* 1931, p. 2).

In 1945, Portions 92 and 241 were advertised for auction, 'a/c. Mr. W. D. Quantrill' being well fenced and watered by a dam (*The Muswellbrook Chronicle* 1945, p. 5). The property was then sold to Leslie Richard Brotherton, a farmer of Kayuga, with the only improvements listed being fencing, indicating that any buildings and fruit trees on the land had previously been removed (VAHS 2014, p. 235). In 1954, Brotherton sold the property to William Alphonses Houlahan, a grazier of Muswellbrook (VAHS 2014, p. 235). Houlahan then sold the property to Ronald Nepreur Wilkins in January 1955, who then sold it to Alan Malcom Watt on 20 April 1956 (VAHS 2014, p. 235). On 27 June 1958, Patrick Joseph Lonergan purchased Portion 92 and 241 from A. M. Watt; the property was then inherited by Wayne and Pat Watts (VAHS 2014, p. 235).

4. ARCHAEOLOGICAL SIGNIFICANCE

4.1. Assessment criteria and rankings

The significance of heritage places is assessed against a suite of established heritage assessment criteria. The *Burra Charter* (Australia ICOMOS 2013) notes that a place may be of ‘cultural significance’ for its ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Article 1.2). These basic principles have found legislative form in the NSW *Heritage Act 1977*.

Section 4A of the NSW *Heritage Act 1977* states:

- ‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- ‘local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The Heritage Council of NSW provides guidelines for the assessment of heritage significance of an item or place. This is achieved by assessing the place or item’s significance in reference to specific criteria, which can be applied at a national, state or local level.¹ Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 1, below). These criteria are a reflection of the more broadly expressed criteria set out in Article 1.2 of the *Burra Charter* (Australia ICOMOS 2013).

¹ State of NSW and Department of Planning and Environment (DPE) 2023, *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, State of NSW and DPE, Sydney.

Table 1. The assessment criteria for heritage significance per the NSW *Heritage Act 1977*.

Criterion	Description
(a)	<i>Historic significance:</i> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
(b)	<i>Historical association:</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 cultural or natural history (or the cultural or natural history of the local area).
(c)	<i>Aesthetic/creative/technical achievement:</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).
(d)	<i>Social, cultural, and spiritual:</i> An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
(e)	<i>Research potential:</i> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
(f)	<i>Rare:</i> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
(g)	<i>Representative:</i> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

Thus, a place may have significance for a range of reasons and the level of significance may vary from local to State. Places may also be ranked further along a scale from little, through moderate to high and exceptional significance (State of NSW and DPE 2023, p. 18). Therefore, a place may be assessed as being, for example, of low local significance or exceptional State significance.

Graded levels of significance are a management tool used to assess the relative significance of elements within an item, place or site and to assist in decision-making regarding elements of a place. The gradings of significance that have been used for elements within the study area are based on guidelines established in the State of NSW and DPE publication, *Assessing Heritage Significance* (see Table 2, below).

Table 2. Gradings of significance definitions (Source: State of NSW and DPE 2023. *Assessing Heritage Significance*. Sydney: Heritage Office).

Grading	Justification	Status
Exceptional	Rare or outstanding element contributing to a place or object's significance.	Fulfils criteria for local and State listing.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance.	Fulfils criteria for local or State listing.

Grading	Justification	Status
	Alterations do not detract from its significance.	
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the place or object's significance	Does not fulfil heritage significance.

4.2. Historical themes

The 'Australian Historical Themes' is a resource developed by the former Australian Heritage Commission (2001, p. 2) to assist in the assessment of historical heritage places. The contribution that the potential archaeological resource at Kayuga Coal Mine (MP20) may make to the study of these themes is relevant to its potential heritage significance.

The historical themes that have been identified as relevant are presented in Table 3.

Table 3 Relevant historical themes and sub-themes for Kayuga Coal Mine (MP20) (after Australian Heritage Commission 2001).

Australian Historical Theme	Subthemes
2. Peopling Australia	2.4 Migrating 2.5 Promoting settlement
3. Developing local, regional and national economies	3.4.3 Mining 3.5 Developing primary production 3.16 Struggling with remoteness, hardship and failure
4. Building settlements, towns and cities	4.6 Remembering Significant phases in the development of settlements, towns, and cities.
5. Working	5.1 Working in Harsh Conditions 5.1.2 Coping with dangerous jobs and workplaces
8. Developing Australia's cultural life	8.14 Living in the country and rural settlements

4.3. Research questions

In order to meet the research potential of an archaeological site, a range of research questions should guide the proposed excavation methodology and post-excavation analysis. Having regard to the historical research provided in Section 3 and the historical themes noted above, the following research questions have been identified as relevant to the potential archaeological resource at Kayuga Coal Mine (MP20).

- *What is the location of the mine shafts/entrances at the mine? How do they relate to historical plans and descriptions of the mine works?*
- *How were they accessed and what evidence is there for how coal was removed from the mines and transported away for processing?*
- *How were the shafts/entrances constructed?*
- *Is there any evidence of the tools and equipment used by the miners who worked within the mines?*
- *Is there any evidence of on-site processing?*
- *Is there any evidence (i.e. post holes, footings) of the former house, stables, and workmen's house featured on the 1919 plan of the mine and noted in 1914 newspaper articles?*

4.4. The archaeological condition and integrity of the sites

The condition and integrity of an archaeological site have a bearing on its significance. In particular, later ground disturbance can destroy archaeological sites, or introduce later deposits or artefacts that 'contaminate' the archaeological record.

VAHS (2014, p. 275) described the site as containing very few standing features. The Extent Heritage site visit in 2018 generally confirmed this site description; however, there had been a significant decline in the condition of the extant features of the Kayuga Coal Mine (MP20) since the VAHS fieldwork in 2004. Extent Heritage (2020, p. 52) made the following observations:

- The gully dividing the site from south to north was heavily overgrown with vegetation, which may have impacted the re-location of previously identified features.
- The timber posts mortised for rails were not able to be located.
- One of the former timber mine shafts had collapsed, and the associated deep depression was fenced off for safety purposes.
- No piers, stumps or other evidence of the former built structures were observed (e.g. the stables, cottage and house).

- The visible extant features included the remains of timber posts, collapsed timber-lined shaft entrances, exposed coal fines, and the broken bricks on either side of the gully.

Due to the condition of the site, Extent Heritage (2020, p. 53) concluded that there was a low potential for in situ relics to survive at the site, however the mine shafts (constituting 'works' rather than 'relics' under the NSW *Heritage Act 1977*) do have ability to provide information about nineteenth century mining in the local area.

The condition of the mine shafts has been poor for several years. There is obvious evidence of collapse at the mine entrance, posing a significant safety risk. This is a major constraint on the kinds of archaeological investigation that may be undertaken there. This is reflected in the proposed excavation methodology.

4.5. Revised Statement of Significance

Kayuga Coal Mine (MP20) was previously assessed as having high local significance for satisfying three NSW *Heritage Act 1977* assessment criteria. (VAHS 2014, p. 246). Specifically:

- *Criterion (a)*: The site shows evidence of significant human activity associated with very early coal mining in the Upper Hunter Valley.
- *Criterion I*: The site has high potential to yield new or further substantial scientific and/or archaeological information on how the surface activities were managed on a small primitive coalmine.
- *Criterion (f)*: It has the potential to provide information on a human activity that is in danger of being lost. It is the last remains of a small coalmine in the Upper Hunter.

VAHS (2014, p. 246) also stated that:

The site may contain evidence of early farming practice by Elijah Cox as a carrier and orchardist. The site is exceptional as it retains considerable surface evidence of a small-scale coalmine that could date to the 1860s.

The site was reassessed for a Historical Heritage Assessment and Statement of Heritage Impact required for an EIS for the Project and assessed to be of local significance on historical grounds (Criterion [a]) (Extent Heritage 2020, p. 53). Extent Heritage (2020, p.53), however, concluded that the mine should not be assessed against Criterion (f) as its ability to provide information would be more appropriately assessed against Criterion (e). With respect to 'evidence of early farming practice by Elijah Cox', Extent Heritage (2020, p. 53) disagreed with the VAHS report and concluded that there was a low potential for archaeological relics of such activities to survive at the site due to the high levels of disturbance.

Extent Heritage (2020, p. 53) found that:

...MP20 has the potential through its archaeology, to 'tell the story' of early coal mining and the rural way of life in the local area during its period of use (Criteria [a] and [e]). However, the ability of this site's archaeology (as opposed to the 'works' there – the mine shafts) to contribute significantly to substantive research questions is limited and depended on a range of additional factors, especially the taphonomy (site formation processes) that have operated at the site since it was abandoned. Archaeological sites that have been little disturbed have better ability to illustrate past lifeways than disturbed ones.

In addition, the ability of MP20's potential 'relics' (as opposed to the 'works' i.e. the mine shafts) to contribute "new or further substantial scientific and/or archaeological information" is dependent on the existence of other potential sources that can address these same themes. Historical research into this site has already established its broad ownership and history of development.

Extent Heritage (2020, p. 55) also identified the following kinds of relics that the Kayuga Coal Mine (MP20) might contain:

- evidence of dwelling footprints of the former house, stables, and workmen's cottage identified on a 1919 mine map;
- evidence of mine works and equipment;
- refuse pits or dumps; and
- isolated artefacts.

Archaeological evidence such as this can illustrate (Extent Heritage 2020, p. 55):

- Activity areas in relation to coal mining—however, the best evidence for these activities are visible on the surface or at the mine shafts (which are 'works' rather than 'relics').
- A sample of the kinds of equipment used by the mine workers and/or occupants, as well as the technologies used in the operation of a small-scale coal mine—but these are matters well-understood from other sources (e.g. newspapers, historic photographs, etc.).
- Possibly, artefacts discarded in the period that the mines on the property were used.
- An indication of the coal mine's size and form.

Extent Heritage (2020, p. 55) concluded that the potential archaeological relics at the Kayuga Coal Mine (MP20) 'have some potential to contribute to knowledge about the early coal mining activities of the local area'; however, that potential is likely to be limited by:

- levels of disturbance at the site;
- the nature of the site's abandonment and removal of the former structures; and
- the existence of other better sites and sources.

Extent Heritage (2020, p. 55) concluded that the best way to address the research questions that the site might lend itself to would be to focus archaeological investigation on the mine shafts and entrances ('works' under the NSW *Heritage Act 1977*).



This report agrees with Extent Heritage's (2020) assessment. Given the disturbed context of the site, Kayuga Coal Mine (MP20) has limited potential in regard to the farming history of the site, however it has potential to shed light on early coal mining activities in the district.

Archaeological investigation would augment the data that might be obtained from other, often better, resources including journals, newspaper articles, archival documents, local histories and so forth. Further, there may be better sites and sources in the broader region that may be used to address these questions.

5. ARCHAEOLOGICAL INVESTIGATION

This section provides the methodology to guide the proposed archaeological investigations within the study area. Note the proposed archaeological investigation would be restricted to the external areas of the former mine. The underground mine shafts and tunnels would not be excavated during this stage of works for safety reasons, however, subject to these health and safety risks, it may be possible to expose the underground tunnels and shafts during the bulk earthworks phase of the Project (refer to Section 5.5).

5.1. RTK survey

- The excavation team would use real-time kinematic positioning (RTK) to record excavated archaeological features.
- A datum and string line may be established at trenches for convenient recording of levels, but RTK survey would be undertaken across the site to record levels above sea level (ASL).

5.2. Pedestrian survey

- In the first instance, the excavation team would conduct a pedestrian surface survey of the external areas of the mine opening and associated area. This would be done having regard to historical plans and photographs and visible surface features (such as the previously identified chimney base).
- This would be conducted by the archaeologists.
- The purpose of this would be to identify those areas best suited for excavation, as well as determining site safety.
- Locations for possible test excavation of the associated structures formerly located within the study area (i.e. former cottage, stockyards etc.) would be demarcated (i.e. peg and/or flagging tape).

5.3. Surface collection of artefacts

- Following the initial surface survey, a systematic surface collection of any historical relics that may be on the surface would be conducted.
- The locations of all recovered surface artefacts would be recorded using RTK so that spatial patterns can later be analysed (e.g. to establish taphonomic processes, to establish the location of surface artefacts relative to activity areas etc).
- The collected artefacts would be numbered and managed observing the methodology presented in Section 5.4 and Section 5.7.

5.4. Excavation methodology

5.4.1. Coal Mine entrance

The following methodology would be adhered to during the archaeological excavation program:

- In the first instance, and if assessed and deemed safe to excavate, machine excavation would be used to remove the surface vegetation and top A-horizon deposits around the mine entrance. This would only be undertaken if deemed safe and the opening is structurally sound.
- This would involve the removal of up to approximately 100-500 millimetre (mm) deposit to expose any features or relics for recording purposes. The machine excavator would be fitted with a flat bucket. Depending on safety considerations, some manual excavation may be appropriate (shovels, picks, trowels etc).
- Photographic recording at all stages of work would be undertaken. This would include contextual photography, as well as photographs of surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow.
- Capture the study area in further detail utilising drone photography and 360 degree photography to comprehensively record the features (coal mine entrance) and surrounding study area.
- The Drone Operator (Extent Heritage) would have a relevant drone license/accreditation and the drone would be registered. Extent Heritage would utilise their standard drone, which is approximately 250 grams and classed as an Excluded RPA.

5.4.2. Associated structures

The following methodology would be adhered to during the archaeological excavation program within the study area:

- In the first instance, machine excavation would be used to remove the surface vegetation and top A-horizon deposits. Machine excavation would be directed towards establishing the presence or absence of any archaeological features relating to the cottage, stockyard, and workmen's houses as recorded in newspaper accounts and a 1919 map.
- A full open area excavation is not proposed. The machine excavator would be fitted with a flat bucket. A toothed bucket would only be used where the substrate consists of coarse fill or compacted fill. The aim of machine excavation would be the removal of approximately 100 – 200 mm of deposit across each archaeologically sensitive location so that clean deposits are exposed, with manual excavation being used when archaeological features are exposed (e.g. around visible wall stumps, the chimney base etc).
- Excavation trenches would be established over locations with likely surface expressions of sub-surface archaeology (e.g. wall stumps, drains, kerbing, depressions, artefact scatters). These trenches are expected to vary in size between 3 x 3 m and 10 x 10 m.

- Excavation within trenches would mostly proceed manually (pick, shovel and trowel), although mechanical excavation may sometimes be appropriate, this judgment being made on a case by case basis, having regard to the visible surface features.
- Excavation would be undertaken stratigraphically with each archaeological feature being given its own unique identifier (Context number). The progress of excavation would be recorded in words and photographs. Measured drawings would be made of relevant features (walls, drains, post holes etc). Sections would be recorded in words and measured section drawings. On completion of the excavation the archaeological features would have been recorded using RTK so that a whole-of-site measured plan can be generated, including levels ASL.
- If any significant archaeological feature(s) are identified in any area, excavation trenches would be expanded to capture their full extent (or a thoroughly representative sample).
- Archaeological test excavations would cease at an archaeologically sterile layer and/or naturally occurring bedrock.
- The excavation process would include sieving of a sample of the deposits (the quantity of sieved soil to be determined by an archaeologist based on depth, changes in soil texture and colour, etc.).
- Photographic recording at all stages of work would be undertaken. This would include contextual photography, photos of surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow. This photography would be augmented with photogrammetry.

5.5. Monitoring during bulk earthworks

The 1919 plan of the coal mine (Figure 9) suggests there is likely to be underground tunnels below the surface, including at a considerable depth. It would be unsafe to access and excavate these.

As an alternative, it is proposed that monitoring (by an archaeologist) be conducted for the removal of deposits during the bulk earthworks phase of the Project. The bulk earthworks would involve the use of very large machine excavators to a considerable depth and across large areas. Although this would probably cause tunnel and shafts collapses, our archaeological monitor would be present to record any features that may survive, including the length and orientation of mine tunnels and shafts. Given the large scale of the proposed earthworks, and the physical risks involved in accessing the excavated areas, the use of the Extent Heritage drone is proposed to capture images of any exposed mine tunnel/shaft features. For safety reasons, it is not anticipated that artefacts would be recovered as part of these works.

The following methodology is proposed:

- Monitoring would be undertaken by a suitably qualified archaeologist, whose role would be to observe ground disturbance activities as they are undertaken, minimising disruption to those activities.
- The objective of the archaeological monitoring would be to identify, recover, protect and/or document archaeological artefacts or 'works' (tunnels and shafts) that may be exposed during the removal of deposits within the former underground mine network. The progress and

results of the monitoring would be recorded using archaeological best-practice insofar as safety considerations allow, including photographs, drone photography, and other survey methods. The post-excavation report prepared for the activities described in Section 5.4.1 and 5.4.2 above would be updated to include the results of the monitoring undertaken during the bulk earth works.

- Subject to safety considerations, if any relics are exposed during this stage of works, the Unexpected Finds Procedure outlined in Appendix A would be followed. In summary, if an unexpected find is discovered during monitoring works, the attending archaeologist has the authority to STOP WORK immediately in that area. Any unexpected or chance finds must be reported and assessed in accordance with the Unexpected Finds Procedure.
- Any relics exposed during this stage of works would also be subject to the processes set out in Section 5.6 and 5.7.

5.6. Site recording

The following site recording processes would be followed for the excavation of the mine entrances and other features visible on the surface:

- All surface artefacts would be given a unique identifier (ID number) to assist with spatial analysis.
- Spatial data and levels ASL would be recorded by RTK.
- Where significant archaeological features are exposed, measured drawings would be prepared (including in plan and section). This would be augmented by recording in words, photographs (including scale bar and north arrow) and photogrammetry.
- All archaeological deposits and features would be allocated a unique context number and recorded in detail on pro-forma context sheets. This would be supplemented by preparation of a Harris matrix for each trench and sitewide, showing the temporal relationships between features and deposits as well as evidence of taphonomic processes.
- Artefacts exposed by excavation would be removed from site for analysis (see Section 5.6 below).
- Other archaeological features that cannot be moved (e.g. wall stumps, drains, kerbing) would remain on site. They would be disturbed or destroyed by the mining Project but their research potential by that time will have been realised. They would not require backfilling or protection.

These measures would not be possible for the bulk excavation works described in Section 5.5 above. However, as described in that part, drone photography would be carried out to record tunnels and shafts.

5.7. Artefact management

Any artefacts recovered during the excavation program would be subject to the following management protocols:

- All glass and ceramic artefacts recovered during the survey, excavation, and monitoring programs would be bagged in heavy duty polyethylene bags. The outside of the bag would be annotated with permanent marker with the find context noted (name of site, date of excavation, initials of excavator, context number). The bag would also be tagged with the same information, the tag being heavy duty archival quality plastic and the pen used being a permanent marker. The artefacts would be stored in a secure location. These artefacts would be washed with water prior to being bagged and tagged.
- Metal, wood, bone and shell artefacts would be managed in the same way except they would be brushed clean with a dry brush, rather than washed, prior to bagging. Bags would be pierced so that they can breathe.
- A catalogue (excel spreadsheet) would be maintained of all bags of artefacts placed in storage, noting their content.
- Any larger relic types, such as building materials, may be sampled. Fill deposits would also be sampled, with diagnostic and dateable artefacts recovered to assist with phasing.

5.8. Post-excavation analysis

- All relics would be retained for analysis by specialists during the post-excavation phase of the archaeological program. This would occur over a period of c12 months following the close of the excavations. The artefacts would be taken offsite for analysis, probably to the Extent Heritage laboratories in Melbourne.
- The attributes recorded for each artefact would follow Australian historical archaeology best practice with a focus on provenance, date, method of manufacture, fabric, function and form. The objective would be to generate statistically significant conclusions. A record would be made of the integrity of the find context. The attributes recorded would be guided by the research questions (Section 4.3). Their focus is on the spatial arrangement of the school and the ways that it functioned in a difficult rural environment.
- Significant artefacts would be recorded by photographs and measured drawings.
- At the conclusion of the project, the artefacts would be handed over to MACH Energy for permanent storage.

5.9. Post-excavation report

The post-excavation report would include a description of the works performed, the results of the archaeological excavation program, photographs, survey plans, artefact catalogue and artefact illustrations. The report would include a response to the research questions posed in this ARDEM. The results of the excavation would be presented in a post-excavation report, a copy of which would



be provided to Heritage NSW within the NSW Department of Climate Change, Energy, the Environment and Water approximately 12 months from the conclusion of the excavation.

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APPENDIX A. UNEXPECTED FINDS PROCEDURE

Upon discovery of a potential, unexpected archaeological object(s), the following Unexpected Finds Procedure must be followed:

Step	Task	Responsibility
1	Stop work and protect potential historical archaeological object(s)	
1.1	Stop all work in the immediate area of the archaeological object(s) and notify the project manager.	All
1.2	Where practical, use high visibility fencing to establish a 'no-go zone' around the object(s) and inform all site personnel. No further interference – including various works, ground disturbance, touching or moving the object(s) must occur within the 'no-go zone'.	Project Manager
1.3	Photograph the archaeological object(s), including its general location and any distinguishing features.	Project Manager
1.4	If the find is reasonably suspected to be human skeletal remains, notify local police immediately. If the find does not involve human remains or is inconclusive, proceed to the next step.	Project Manager
2	Contact and engage a heritage professional (qualified archaeologist)	
2.1	Contact a heritage professional (qualified archaeologist) to discuss the location and extent of the object(s) and provide photographs taken at Step 1.3.	Project Manager
2.2	Arrange for site access for the heritage professional (qualified archaeologist) to inspect the object(s) as soon as practicable. The timing of a site inspection will be responsive to the demands of the project and determined in consultation with Project Manager. In most cases, a site inspection is required for conducting a preliminary assessment and recording of the object(s).	Project Manager and Heritage Professional
3	Complete preliminary assessment and recording of the potential archaeological object(s).	
3.1	In certain cases, the heritage professional (qualified archaeologist) may determine from the photographs that no site inspection is required because the object has no archaeological potential (if	Project Manager and Heritage Professional

Step	Task	Responsibility
	so proceed to Step 8). Advice should be provided in writing by the archaeologist (e.g. via email) and confirmed by the project manager.	
3.2	The engaged heritage professional (qualified archaeologist) will conduct preliminary assessment and formal recording of the object(s). This assessment should include the assessment of heritage significance of any finds encountered.	Heritage Professional
3.3	Subject to the assessment by the heritage professional (qualified archaeologist), work may recommence at a set distance from the object(s). This is to protect any other associated archaeological material that may exist in the vicinity.	Project Manager and Heritage Professional
4	Protect the archaeological object(s) and notify Heritage NSW	
4.1	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be protected from any impact or harm (e.g. from works, inclement weather or unauthorized human interactions).	Project Manager
4.2	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be reported to the Heritage NSW under section 146 of the <i>Heritage Act 1977</i> (NSW).	Heritage Professional
5	Complete investigation requirements outlined by the heritage professional (archaeologist)	
5.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions Heritage NSW.	Heritage Professional
5.2	Implement the archaeological or heritage management plan. Where impact is expected, this may include a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, obtaining heritage approvals etc., if required.	Heritage Professional
5.3	Assess whether heritage impact is consistent with the project approval or if project approval modification is required.	Project Manager and Heritage Professional
5.4	Where statutory approvals (or project approval modification) are required, impact upon archaeological object(s) must not occur until heritage approvals are issued by the appropriate regulator.	Project Manager and Heritage Professional

Step	Task	Responsibility
5.5	<p>Where statutory approval is not required but where recording is recommended by the heritage professional (qualified archaeologist):</p> <p>Ensure short term and permanent storage locations are identified for archaeological object(s) removed from site.</p> <p>Ensure all archaeological excavation and heritage recording are completed prior to works resuming</p>	Project Manager and Heritage Professional
6	Resume work	
6.1	<p>Seek clearance to resume work from the heritage professional (qualified archaeologist). Clearance would only be given once all archaeological excavation and/or heritage recommendations are complete. Ongoing consultation and monitoring by heritage professionals (qualified archaeologists) and or other stakeholders may also occur for the remaining duration of the development works.</p>	Project Manager and Heritage Professional
6.2	<p>If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.</p>	Project Manager and Heritage Professional
6.3	<p>If additional potential unexpected archaeological object(s) are discovered on site, repeat from Step 1.</p>	Project Manager

APPENDIX D

**ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY –
KAYUGA SCHOOL (MP21)**

EXTENT



MOUNT PLEASANT OPERATION

ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY – KAYUGA SCHOOL (MP21)

Prepared for MACH Energy Australia Pty Ltd

June 2024—FINAL



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EXTENT HERITAGE PTY LTD
ABN 24 608 666 306
ACN 608 666 306
accounts@extent.com.au
extent.com.au

SYDNEY
Level 3/73 Union Street
Pyrmont NSW 2009
T 02 9555 4000

MELBOURNE
Level 1, 52 Holmes Street
Brunswick East VIC 3057
T 03 9388 0622

BRISBANE
Level 2, 109 Edward Street
Brisbane QLD 4000
T 07 3051 0171

HOBART
Level 3, 85 Macquarie Street
Hobart TAS 7000
T 03 6144 5880

Document information

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Author(s):	Hannah Craig-Ward Jessica Cuskelly

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1. INTRODUCTION

1.1. Project background

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by MACH Energy Australia Pty Ltd (MACH Energy) to prepare a historical Archaeological Research Design and Excavation Methodology (ARDEM) Kayuga School site (MP21), identified as the former location of Kayuga School ('the study area'), located in the vicinity of the Mount Pleasant Operation.

The Mount Pleasant Operation is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) northwest of Muswellbrook and approximately 50 km northwest of Singleton. The Mount Pleasant Operation involves the construction and operation of an open cut coal mine and associated rail spur and product coal loading infrastructure. Kayuga School (MP21) is located towards the northern extent of the Mount Pleasant Operation area and may potentially be directly impacted by the proposed mine works (Figure 1).

This ARDEM has been prepared in accordance with, and follows, NSW Heritage's guideline documents (Section 1.2). It presents a proposed methodology for the archaeological investigation of the Kayuga School site (MP21), informed by research questions developed for the potential archaeological resource.

The proposed excavation and potential exhumation would be undertaken by a team of up to five archaeologists supervised by an Excavation Director in accordance with the guidelines and standards prepared by the Heritage Council of NSW and Heritage NSW.

1.2. Statutory framework

Kayuga School (MP21) was identified in the Mount Pleasant Optimisation Project (the Project) Environmental Impact Statement (EIS) (MACH Energy 2021) as a heritage place (archaeological site) that would be impacted by the Project. The EIS recommended that prior to any ground disturbance activities at the location of the former school and residence, the site should be investigated by qualified archaeologists due to its potential to yield data about the history of the local area.

The Project was declared a State Significant Development (SSD) in 2022 (SSD 10418). An excavation permit is not required, pursuant to section 139 of the NSW *Heritage Act 1977*. However, in providing comment on the EIS and proposed mitigative actions, the Heritage Council of NSW requested that an ARDEM is prepared as if an excavation permit were required pursuant to section 139 of the NSW *Heritage Act 1977* (SSD 10418 PA 17).



This ARDEM was prepared by Extent Heritage to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418:

B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

...

(f) describe the measures to be implemented on the site to:

...

(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and

This ARDEM is included as an appendix to the Historic Heritage Management Plan for the Project (SSD 10418).

This ARDEM was prepared in accordance with the principles and procedures established by the following documents:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013 (the Burra Charter) (Australia ICOMOS 2013); and*
- 'Historical Archaeology Code of Practice' (Heritage Council 2006).

1.3. Site location and identification

Kayuga School (MP21) is located towards the northern boundary of the mining lease (ML 1645) and is approximately 6 km northwest of Muswellbrook and approximately 5km southwest of Aberdeen. Historically, the site was located on Portion 27, Parish of Ellis, County of Brisbane (Figure 2 and Figure 3).

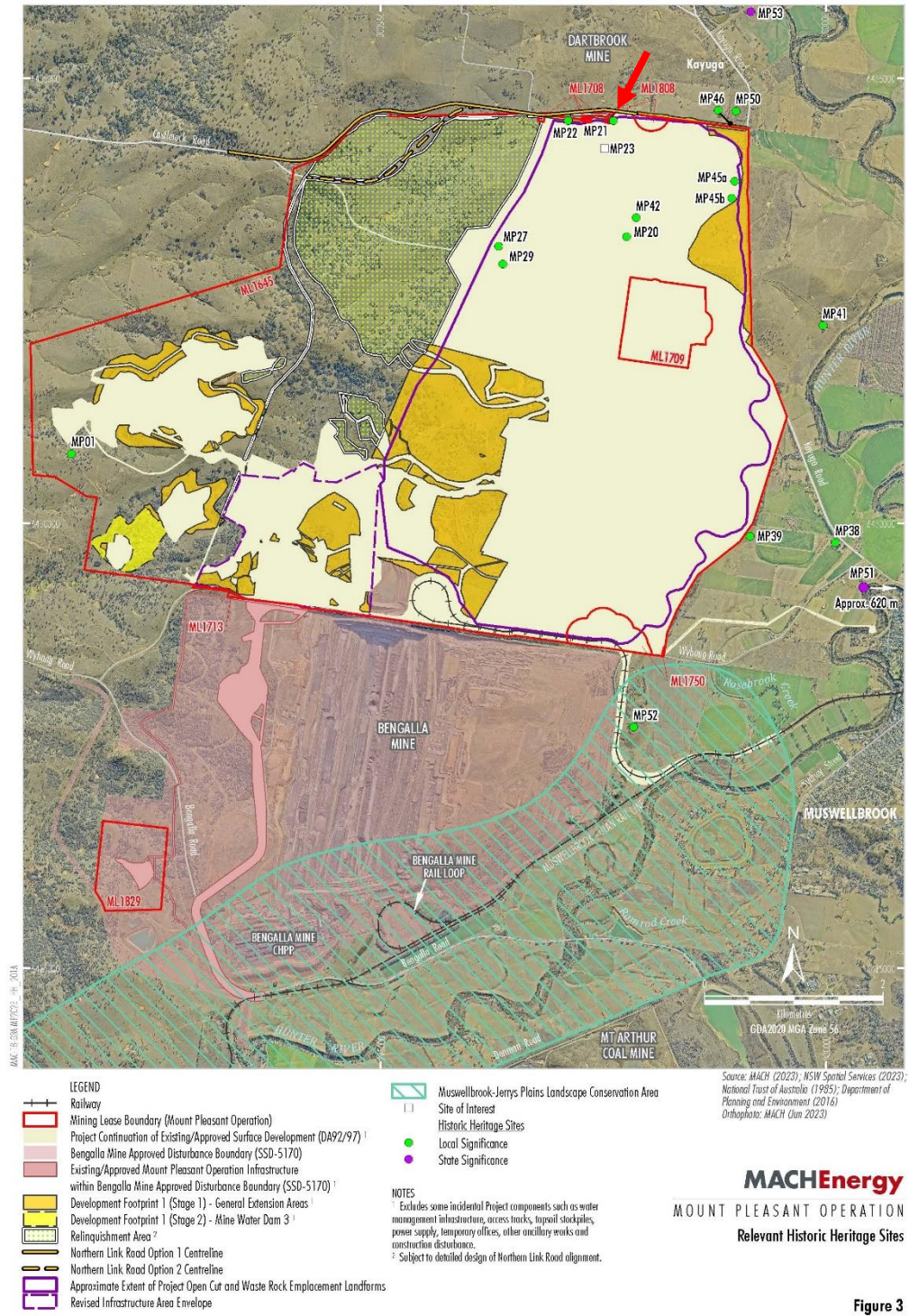


Figure 3

Figure 1. Map illustrating the boundary of the Mount Pleasant Operation Mining Lease with approximate locations of historical heritage places previously assessed. This report concerns only MP21 (denoted by the red arrow).

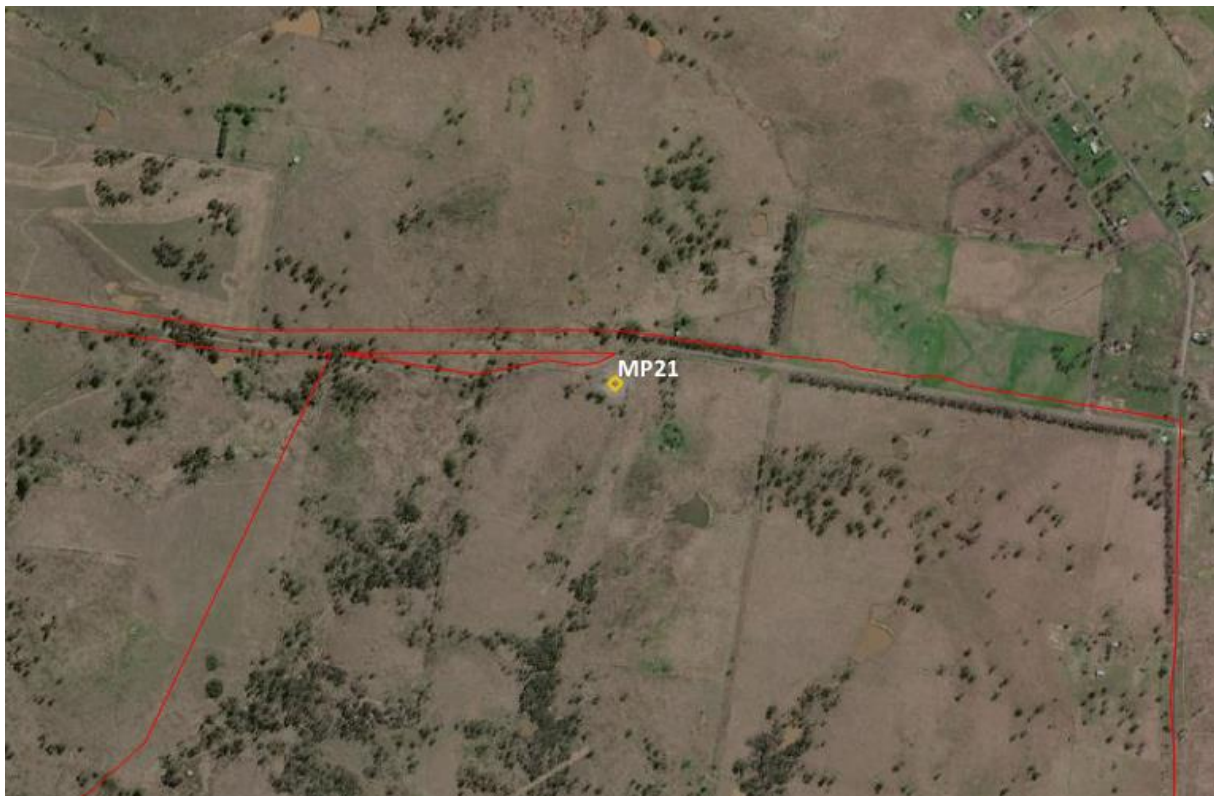


Figure 2. Aerial image showing the former location of Kayuga School (MP21) within the Project area (red outline).

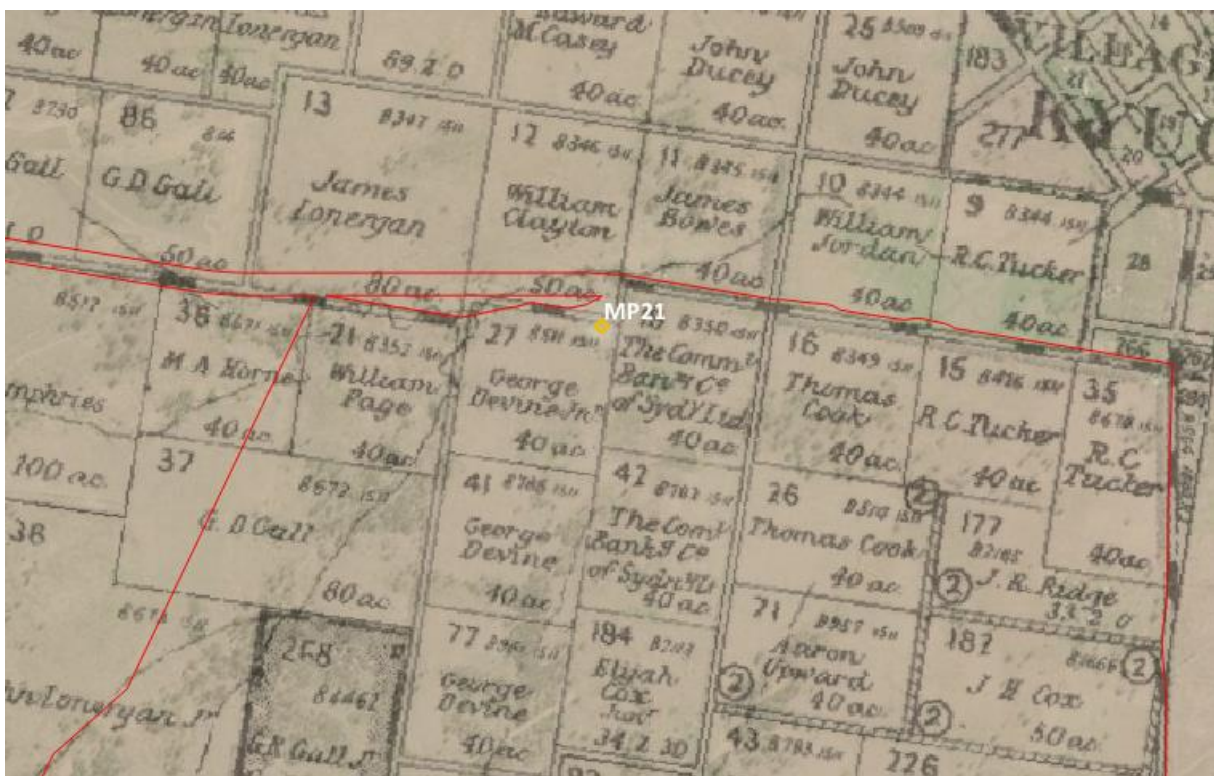


Figure 3. Map showing the position of MP21 within Portion 27 with a historical map overlay (Source: NSW Department of Lands 1938 via National Library of Australia).

1.4. Previous reports and investigations

Kayuga School (MP21) has been subject to previous heritage investigations. This report draws on the following previous heritage reports:

- Veritas Archaeology and History Services (VAHS) 2014. *Mount Pleasant Historic Heritage Study*. Prepared for Rio Tinto Coal Australia.
- Extent Heritage 2020, *Mount Pleasant Optimisation Project, NSW Historical Heritage Assessment and Statement of Heritage Impact*. Prepared for MACH Energy Australia Pty Ltd.

1.5. Limitations

This report uses historical documentation and previously established significance assessments prepared by third party heritage consultants to describe and assess the heritage significance of land that would be affected by the proposal. This ARDEM has been prepared in accordance with the Heritage Council of NSW's *Archaeological Assessment Guidelines* (1996) Heritage Branch of the Department of Planning's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009), the Department of Planning and Environment's *Heritage Code of Practice* (2006) and *Assessing heritage significance Guidelines for assessing places and objects against the Heritage Council of NSW criteria* (2023).

This report does not review the Indigenous cultural heritage values of the subject area. This report aims to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418, and forms part of the appendix to accompany the Historic Heritage Management Plan (SSD 10418).

1.6. Authorship

This report was prepared by Hannah Craig-Ward (Heritage Advisor, Extent Heritage) and reviewed by Jessica Cuskelly (Senior Heritage Advisor, Extent Heritage) and Andrew Sneddon (Director, Extent Heritage) for quality assurance purposes.

2. STUDY AREA

Kayuga School was constructed in 1879, comprising a school building and residence of four rooms (Extent Heritage 2020, p. 57; VAHS 2014, p. 247) (see Figure 4 -Figure 8).

It is an archaeological site comprising a series of features including:

- evidence of the original road alignment which made a sharp turn in front of the school;
- a set of gate posts that were originally the entrance to Portion 12 belonging to William Clayton, as well as a number of posts that may define the school yard including two that have been scarred, which would have been the entrance off old Dorset Road;
- a circular depression that may have been a well or a pit toilet;
- a depression that may have been the site of the weather shed;
- a large depression that may have been of sufficient size to have been a tennis court;
- two depressions side by side, which may have been pit toilets;
- a concrete drain that traverses the grounds to a small pit, which has an outlet of earthenware pipe running to the north;
- a stone area with a number of bricks on the surface north of the drain, which may have been the base of a chimney;
- an underground tank constructed of recycled brick filled with debris;
- an area of broken glass and fragmentary ceramic artefacts to the west of the underground tank; and
- a number of pepper, ironbark and silky oak trees.



Figure 4. View across the site of the former Kayuga School (MP21) (Source: UQCHU 2017, p. 35).



Figure 5. Underground brick tank or well (source: VAHS 2014, p. 256).



Figure 6. Possible area of pit toilets at Kayuga School (MP21) (Source: VAHS 2014, p. 257).

Figure 7. Post mortised for three rails, possible gateway to schoolyard from road (Source: VAHS 2014, p. 257).

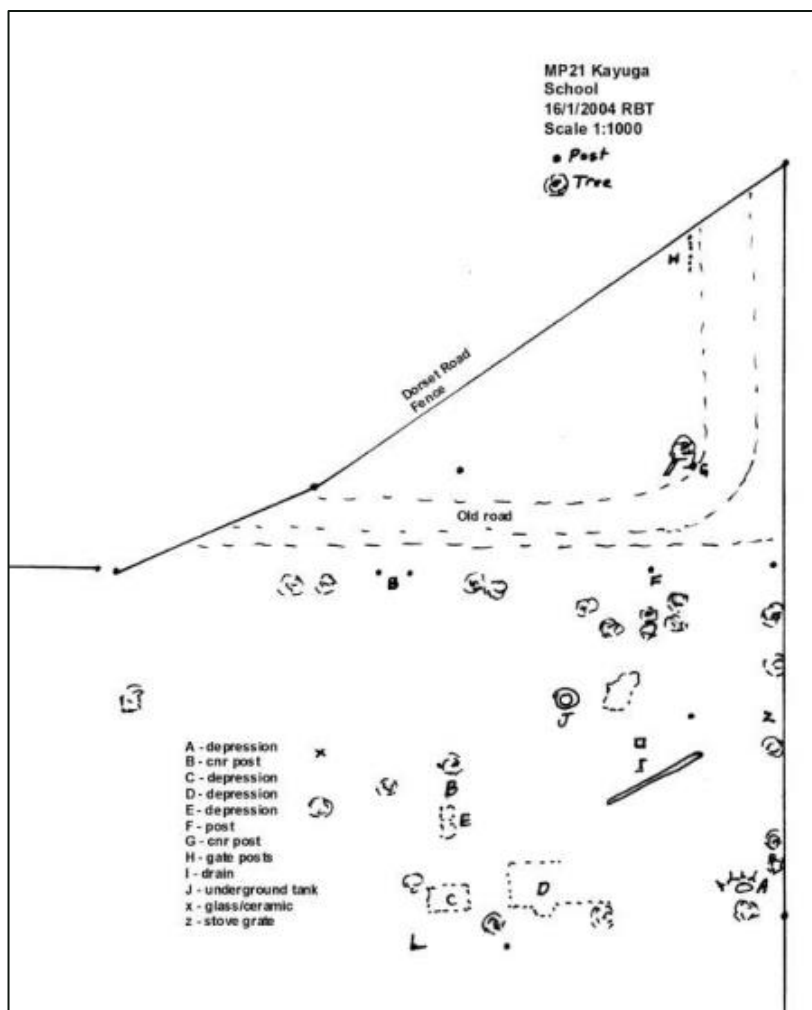


Figure 8. Plan drawing (not to scale) showing the locations of surface features within the study area (Source: VAHS 2014, p. 251).

3. HISTORICAL CONTEXT

This section provides a summary of the development of the Muswellbrook area as well as site specific history. It draws from the historical overview presented in the VAHS report (2014, p. 35-37) as well as Extent Heritage's previous historical heritage assessment (2020, p. 26-27), augmented by additional historical research.

3.1. Muswellbrook

The early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. As early as 1823, explorer Allan Cunningham travelled over the Great Dividing Range almost to the present site of Muswellbrook. By 1824, government surveyor Henry Dangar began to survey and map the Hunter Region, setting aside 640 acres for a village that was to become the township of Muswellbrook (Dangar 1828). Muswellbrook was strategically situated in relation to the Hunter River and was on the main track to the Liverpool Plains, which subsequently became the Great Northern Road (present-day New England Highway) (Extent Heritage 2020, p. 26).

Following Dangar's survey, large grants of land in the area, particularly along the Hunter River, were awarded to wealthy settlers in return for taking convict labourers into their employ (Extent Heritage 2020, p. 26). This early period of settlement saw the establishment of a number of large estates in Muswellbrook, including 'Edinglassie', 'Overton', 'Negoa', and 'Bengalla' estates, among others. These wealthy landowners 'dominated the economic and social life of the district' (VAHS 2014, p. 36). By 1841, Muswellbrook had become a thriving town of 215 residents with multiple shops, several hotels and a flour mill. By the mid-nineteenth century, Muswellbrook's population had grown considerably in response to increased trade, the opening of the railway in 1869 and the increased availability of land under *The Crown Lands Acts* of 1861 (Extent Heritage 2020, p. 26).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses. The fertile nature of the land combined with ease of irrigation and transport to Sydney enabled Muswellbrook's settlers to successfully establish and support a range of agricultural and pastoral industries (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Towards the end of the nineteenth century, the introduction of milking machines and tractors led to the mechanisation of farming, which in turn created a pivotal increase in productivity for these early small-scale farming enterprises. Following the opening of the Kayuga Creamery in 1893, the establishment of large-scale commercial dairying soon provided the economic basis for Muswellbrook. Other creameries and butter factories soon opened at Overton (Blunt's), Muswellbrook and Aberdeen (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Concurrently, the development of Muswellbrook was also defined by the advent of a new, dominant industry: coal mining. As early as 1867, the *Maitland Mercury* reported the opening of a coal mine on the Negoa Estate for the supply of the Muswellbrook blacksmiths (VAHS 2014:46). By the late 1800s, the Weis Brothers were reporting operations of a coal mine at Kayuga on the property of Mr. Elijah Cox, which continued until the early 1930s (Extent Heritage 2020, p. 27; VAHS 2014, p. 37).

In addition, the Muswellbrook Coal Mine is one of the oldest coal mines in NSW that remains operational (Muswellbrook Shire Council 2015a). Established in 1906 as an underground mine, the Muswellbrook Coal Mine shifted its operations to open cut mining in the mid-1940s (Extent Heritage 2020, p. 27).

This combination of a new, dominant industry (i.e. coal mining) and the subdivision of many of the area's larger estates into smaller land holdings suitable for tenant farmers significantly altered Muswellbrook from a small country town to an economically diverse and growing rural/resource extraction centre. Further, it played a significant role in shaping the character of the cultural landscape (Extent Heritage 2020, p. 27).

3.1.1. Kayuga

While a village reserve appeared on early maps of the region, by 1858 the only development was the establishment of a burial ground for the surrounding district (in 1828) (VAHS 2014, p. 40, 43). The first plan of the village was drawn by Surveyor John Rogers in May 1858, however it was redesigned by Surveyor Bennet on 24 September the same year, to better align the streets with the Muswellbrook to Scone road (VAHS 2014, p. 43). Kayuga took its name from Donald MacIntyre's Kayuga Station to the north, and John Hobart Cox's Negoa station was located to the south of the village (VAHS 2014, p. 43).

Village allotments were put up for sale in 1861; however, sales were very slow and Kayuga remained a small township with a post office, hall, school, and church as well as the original cemetery (*The Sydney Morning Herald* 1861, p. 2; VAHS 2014, p. 44).

3.2. Site history

Kayuga School was located on Portion 27, Parish of Ellis, which had been purchased by George Michael Devine Jnr on 20 September 1866 (VAHS 2014, p. 247). A provisional school began in Kayuga in 1867, which was housed in the Methodist Church in the village (VAHS 2014, p. 247). Aaron Upward, a 37-year-old carpenter with no formal training, was the first teacher; however, the Department of Education wished to upgrade the school to a public school and appoint a better-trained teacher (VAHS 2014, p. 247).

George Devine offered to donate two roods of Portion 27 to the Department for the purpose of constructing a public school, and if more land was required, the Department would have to purchase it (VAHS 2014, p. 247). In 1877, J Jones, Inspector of Schools, Maitland, inspected the area and reported it was suitable for a school, with an estimated average attendance of 35-40 students

(VAHS 2014, p. 247). On 11 February 1878, one acre and two roods from Portion 27 were transferred to the Council of Education as the site for a school (VAHS 2014, p. 247; Figure 9). Tenders were called for the construction on 1 June 1878, and the new school opened in January 1879, comprising a school building and residence of four rooms (*Evening News* 1879, p. 7; *The Maitland Mercury* 1878, p. 2; VAHS 2014, p. 247).

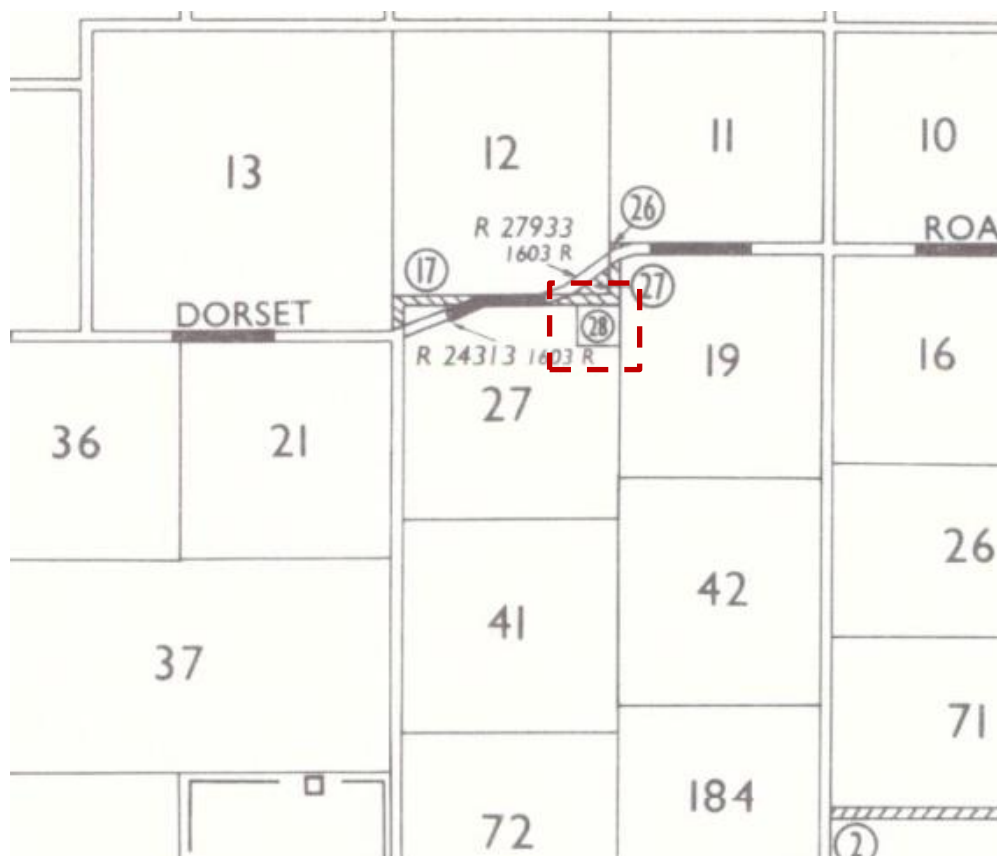


Figure 9. Cropped 1971 Parish of Ellis map with the location of the school outlined. This map also shows the realignment of Dorset Road (Source: New South Wales, Department of Lands 1971 via National Library of Australia).

Over time further additions were made to the school. On 21 December 1880, tenders were called for the erection of a weather shed, and in 1887, a separate kitchen was added (VAHS 2014, p. 247). In 1906, the shingle roof was replaced with corrugated iron, and around this time the back rooms of the teacher's residence were extended eight feet, a new veranda was fitted, a washhouse was erected, and the playground was levelled (VAHS 2014, p. 248). Between 1909 and 1911, tenders were invited for a veranda plus alterations and additions to the school; however, it is not clear whether this construction occurred (VAHS 2014, p. 248). Extensive repairs and renovations were carried out in 1920, and the buildings were painted internally and externally (*The Maitland Weekly Mercury* 1920, p. 3).

In September 1927, a resident reported to *The Muswellbrook Chronicle* (1927a, p. 2) that the school building and playground were in very poor condition, with the buildings being in a 'state of decay and dilapidation'. In November that year, *The Muswellbrook Chronicle* (1927b, p. 3) reported that Mr

Campling, inspector of schools, recently visited Kayuga 'in connection with the agitation for a new school and residence'. In 1929, a new school was constructed in the village; however, the old residence continued to be used until 1933, after which the teacher resided in Muswellbrook (VAHS 2014, p. 248). Due to decreasing enrolments and the small number of pupils attending the school, it was reported in February 1938 that Kayuga Public School was to be closed (*The Maitland Daily Mercury* 1938, p. 10). However, in 1939, the Minister for Education approved the re-opening of the school, with the condition that an average attendance of nine pupils was maintained (*The Muswellbrook Chronicle* 1939, p. 3). It appears that the school continued to run into the mid-1950s as a meeting was held in the Kayuga School to consider tenders for a school bus (*The Muswellbrook Chronicle* 1954, p. 3).



Figure 10. The Kayuga Public School and residence, date unknown. (Source: VAHS 2014, p. 253).



Figure 11. Pupils seated in front of the Kayuga Public School, 1910, with Mr J Morrissey as teacher (Source: VAHS 2014, p. 253).

4. ARCHAEOLOGICAL SIGNIFICANCE

4.1. Assessment criteria and rankings

The significance of heritage places is assessed against a suite of established heritage assessment criteria. The *Burra Charter* (Australia ICOMOS 2013) notes that a place may be of ‘cultural significance’ for its ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Article 1.2). These basic principles have found legislative form in the NSW *Heritage Act 1977*.

Section 4A of the NSW *Heritage Act 1977* states:

- ‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- ‘local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The Heritage Council of NSW provides guidelines for the assessment of heritage significance of an item or place. This is achieved by evaluating the place or items significance in reference to specific criteria, which can be applied at a national, state or local level.¹ Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 1, below). These criteria are a reflection of the more broadly expressed criteria set out in Article 1.2 of the *Burra Charter* (Australia ICOMOS 2013).

¹ State of NSW and Department of Planning and Environment (DPE) 2023, *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, State of NSW and DPE, Sydney.

Table 1. The assessment criteria for heritage significance per the NSW *Heritage Act 1977*.

Criterion	Description
(a)	<i>Historic significance:</i> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
(b)	<i>Historical association:</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 cultural or natural history (or the cultural or natural history of the local area).
(c)	<i>Aesthetic/creative/technical achievement:</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).
(d)	<i>Social, cultural, and spiritual:</i> An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
(e)	<i>Research potential:</i> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
(f)	<i>Rare:</i> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
(g)	<i>Representative:</i> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

Thus, a place may have significance for a range of reasons and the level of significance may vary from local to State. Places may also be ranked further along a scale from little, through moderate to high and exceptional significance (State of NSW and DPE 2023, p. 18). Therefore, a place may be assessed as being, for example, of low local significance or exceptional State significance.

Graded levels of significance are a management tool used to assess the relative significance of elements within an item, place or site and to assist in decision-making regarding elements of a place. The gradings of significance that have been used for elements within the study area are based on guidelines established in the State of NSW and DPE publication, *Assessing Heritage Significance* (see Table 2, below).

Table 2. Gradings of significance definitions (Source: State of NSW and DPE 2023. *Assessing Heritage Significance*. Sydney: Heritage Office).

Grading	Justification	Status
Exceptional	Rare or outstanding element contributing to a place or object's significance.	Fulfils criteria for local and State listing.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance.	Fulfils criteria for local or State listing.

Grading	Justification	Status
	Alterations do not detract from its significance.	
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the place or object's significance	Does not fulfil heritage significance.

4.2. Historical themes

The 'Australian Historical Themes' is a resource developed by the former Australian Heritage Commission (2001, p. 2) to assist in the assessment of historical heritage places. The contribution that the archaeological features at Kayuga School (MP21) may make to the study of these themes is relevant to its potential heritage significance.

The historical themes that have been identified as relevant are presented in Table 3.

Table 3 Relevant historical themes and sub-themes for Kayuga School (MP21) (after Australian Heritage Commission 2001).

Australian Historical Theme	Subthemes
2. Peopling Australia	2.4 Migrating 2.5 Promoting settlement
3. Developing local, regional and national economies	3.16 Struggling with remoteness, hardship and failure
4. Building settlements, towns and cities	4.3 Developing institutions. 4.6 Remembering Significant phases in the development of settlements, towns, and cities.
6. Educating	6.1 Forming associations, libraries and institutes for self-education. 6.2 Establishing schools 6.3 Training people for the workplace 6.5 Educating people in remote places
8. Developing Australia's cultural life	8.1 Organising recreation 8.14 Living in the country and rural settlements

4.3. Research questions

In order to meet the research potential of an archaeological site, a range of research questions should guide the proposed excavation methodology and post-excavation analysis. Having regard to

the historical research provided in Section 3 and the historical themes noted above, the following research questions have been identified as relevant to Kayuga School (MP21):

- *What does the archaeology tell us about the layout and extent of the school and its grounds?*
- *What evidence is there for the domestic quarters (associated teacher's residence)?*
- *How was the school and residence constructed, and using what materials?*
- *Does the archaeological assemblage and features relate to different phases of construction?*
- *What evidence is there for the kinds of activities that were undertaken at the site?*
- *Are children distinctly represented in the archaeological record?*
- *Is there evidence of 'making do' at what was an under-resourced rural school?*
- *What does the archaeology tell us about the facilities at the school, including toilet facilities?*

4.4. The archaeological condition and integrity of the sites

The condition and integrity of an archaeological site have a bearing on its significance. In particular, later ground disturbance can destroy archaeological sites, or introduce later deposits or artefacts that 'contaminate' the archaeological record.

VAHS (2014, p. 248) described the condition of Kayuga School (MP21) as there being 'very little remaining on this site to determine the position of the school and residence'. UQCHU's fieldwork in 2016 confirmed the observations presented in the VAHS report and summarised the site as being 'an archaeological site, characterised by a series of depressions, partly soil-covered remnants of brick walls, circular brick kerbs/wells at ground level, drains etc.' (UQCHU 2017, p. 33).

The depressions, well, wall stumps, drains and kerbs observed at the site in 2016, strongly suggest that there will be undisturbed archaeological evidence below the deposits that have accumulated since the school's demolition. These would have relatively high integrity. They would have the ability to yield information of value to addressing the above research questions. They would constitute 'relics' under the NSW *Heritage Act 1977*.

4.5. Revised Statement of Significance

Kayuga School (MP21) was previously assessed by VAHS (2014, p. 292) as having high local significance for satisfying five NSW *Heritage Act 1977* assessment criteria. Specifically:

- *Criterion (a):* The site is associated with significant human activity being the site of the Kayuga Public School for over fifty years.
- *Criterion (b):* The site has potential to show evidence of significant human occupation being the residence of the school teacher associated with the Public School.
- *Criterion (d):* It is important for its association with an identifiable group i.e. the small-scale farmers and settlers of the area.
- *Criterion (e):* The site has potential to provide evidence of past human cultures that is unavailable elsewhere. Small country schools with residence for the teacher no longer exist in this area.
- *Criterion (f):* The site shows rare evidence of significant human activity that was important to the community.

VAHS (2014, p. 292) concluded that:

Intact archaeological sites of small country schools are becoming rare, especially one that operated on the same location for so long. Site is also unusual in that accommodation was provided for the teacher.

This assessment was slightly revised by UQCHU (2017) who suggested that the significance of the site, as an archaeological site, would be better assessed as meeting Criterion (e) only. This assessment was reaffirmed by Extent Heritage (2020) who concluded that the site has the potential to yield archaeological data of value to reconstructing the form and function of a rural school from 1879 through the early twentieth century.

This report agrees with Extent Heritage's (2020) assessment. Kayuga School is an archaeological site of local significance, applying Criterion (e). Its archaeology would constitute 'relics' under the NSW *Heritage Act 1977*.

5. ARCHAEOLOGICAL INVESTIGATION

This section provides the methodology to guide the proposed archaeological investigations within the study area.

5.1. RTK survey

- The excavation team would use real-time kinematic positioning (RTK) to record excavated archaeological features.
- A datum and string line may be established at trenches for convenient recording of levels, but RTK survey would be undertaken across the site to record ASL.

5.2. Pedestrian survey

- In the first instance, the excavation team would conduct a pedestrian surface survey of the former school and residence area. The purpose of this would be to identify those areas best suited to excavation. This would be done having regard to historical plans and photographs and visible surface features.
- This will be conducted by the excavation director and archaeologists.
- Locations for testing would be demarcated (i.e. peg and/or flagging tape).

5.3. Surface collection of artefacts

- Following the initial surface survey, a systematic surface collection of any historical relics that may be on the surface would be conducted.
- The locations of all recovered surface artefacts would be recorded using RTK so that spatial patterns can later be analysed (e.g. to establish taphonomic processes, to establish the location of surface artefacts relative to activity areas etc).
- The collected artefacts would be numbered and managed observing the methodology presented in Section 5.5 and Section 5.6.

5.4. Excavation methodology

The following methodology would be adhered to during the archaeological excavation program:

- In the first instance, archaeological excavation would be directed towards establishing the presence or absence of any archaeological features relating to the school building and residence.
- The site of the school is very large (c100 metres [m] x 50 m) and full open area excavation is not proposed. However, in the first instance machine excavation would be used to remove the surface vegetation and top A-horizon deposits across much of the site. The machine excavator

would be fitted with a flat bucket. A toothed bucket would only be used where the substrate consists of coarse fill or compacted fill. The aim of machine excavation would be the removal of approximately 100 – 200 mm of deposit across the site so that clean deposits are exposed, with manual excavation being used when archaeological features are exposed (e.g. around visible wall stumps).

- Excavation trenches would be established over locations with likely surface expressions of sub-surface archaeology (e.g. wall stumps, drains, kerbing, depressions, artefact scatters). These trenches are expected to vary in size between 3 x 3 m and 10 x 10 m.
- Excavation within trenches would mostly proceed manually (pick, shovel and trowel), although mechanical excavation may sometimes be appropriate, this judgment being made on a case by case basis, having regard to the visible surface features.
- Excavation would be undertaken stratigraphically with each archaeological feature being given its own unique identifier (Context number). The progress of excavation would be recorded in words and photographs. Measured drawings would be made of relevant features (walls, drains, post holes etc). Sections would be recorded in words and measured section drawings. On completion of the excavation the archaeological features will have been recorded using RTK so that a whole-of-site measured plan can be generated, including levels ASL.
- If any significant archaeological feature(s) are identified in any area, excavation trenches would be expanded to capture their full extent (or a thoroughly representative sample).
- Archaeological test excavations would cease at an archaeologically sterile layer and/or naturally occurring bedrock.
- The excavation process would include sieving of a sample of the deposits (the quantity of sieved soil to be determined by an archaeologist based on depth, changes in soil texture and colour, etc.).
- Photographic recording at all stages of work will be undertaken. This will include contextual photography, surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow. This photography would be augmented with photogrammetry.

5.5. Site recording

The following site recording processes will be followed:

- All surface artefacts would be given a unique identifier (ID number) to assist with spatial analysis.
- Spatial data and levels ASL would be recorded by RTK.
- Where significant archaeological features are exposed, measured drawings would be prepared (including in plan and section). This would be augmented by recording in words, photographs (including scale bar and north arrow) and photogrammetry.
- All archaeological deposits and features would be allocated a unique context number and recorded in detail on pro-forma context sheets. This would be supplemented by preparation of a Harris matrix for each trench and sitewide, showing the temporal relationships between features and deposits as well as evidence of taphonomic processes.

- Artefacts exposed by excavation would be removed from site for analysis (see Section 5.6 below). Other archaeological features that cannot be moved (e.g. wall stumps, drains, kerbing) would remain on site. They would be disturbed or destroyed by the mining Project but their research potential by that time will have been realised. They would not require backfilling or protection.

5.6. Artefact management

Any artefacts recovered during the excavation program would be subject to the following management protocols:

- All glass and ceramic artefacts recovered during the survey and excavation programs would be bagged in heavy duty polyethylene bags. The outside of the bag would be annotated with permanent marker with the find context noted (name of site, date of excavation, initials of excavator, context number). The bag would also be tagged with the same information, the tag being heavy duty archival quality plastic and the pen used being a permanent marker. The artefacts would be stored in a secure location. These artefacts would be washed with water prior to being bagged and tagged.
- Metal, wood, bone and shell artefacts would be managed in the same way except they would be brushed clean with a dry brush, rather than washed, prior to bagging. Bags would be pierced so that they can breathe.
- A catalogue (excel spreadsheet) would be maintained of all bags of artefacts placed in storage, noting their content.
- Any larger relic types, such as building materials, may be sampled. Fill deposits would also be sampled, with diagnostic and dateable artefacts recovered to assist with phasing.

5.7. Post-excavation analysis

- All relics would be retained for analysis by specialists during the post-excavation phase of the archaeological program. This would occur over a period of c12 months following the close of the excavations. The artefacts would be taken offsite for analysis, probably to the Extent Heritage laboratories in Melbourne.
- The attributes recorded for each artefact would follow Australian historical archaeology best practice with a focus on provenance, date, method of manufacture, fabric, function and form. The objective would be to generate statistically significant conclusions. A record would be made of the integrity of the find context. The attributes recorded would be guided by the research questions (above). Their focus is on the spatial arrangement of the school and the ways that it functioned in a difficult rural environment.
- Significant artefacts would be recorded by photographs and measured drawings.
- At the conclusion of the project, the artefacts would be handed over to MACH Energy for permanent storage.

5.8. Post-excavation report

The post-excavation report would include a description of the works performed, the results of the archaeological excavation program, photographs, survey plans, artefact catalogue and artefact illustrations. The report would include a response to the research questions posed in this ARDEM. The results of the excavation would be presented in a post-excavation report, a copy of which would be provided to Heritage NSW within the NSW Department of Climate Change, Energy, the Environment and Water approximately 12 months from the conclusion of the excavation.

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APPENDIX A. UNEXPECTED FINDS PROCEDURE

Upon discovery of a potential, unexpected archaeological object(s), the following Unexpected Finds Procedure must be followed:

Step	Task	Responsibility
1	Stop work and protect potential historical archaeological object(s)	
1.1	Stop all work in the immediate area of the archaeological object(s) and notify the project manager.	All
1.2	Where practical, use high visibility fencing to establish a 'no-go zone' around the object(s) and inform all site personnel. No further interference – including various works, ground disturbance, touching or moving the object(s) must occur within the 'no-go zone'.	Project Manager
1.3	Photograph the archaeological object(s), including its general location and any distinguishing features.	Project Manager
1.4	If the find is reasonably suspected to be human skeletal remains, notify local police immediately. If the find does not involve human remains or is inconclusive, proceed to the next step.	Project Manager
2	Contact and engage a heritage professional (qualified archaeologist)	
2.1	Contact a heritage professional (qualified archaeologist) to discuss the location and extent of the object(s) and provide photographs taken at Step 1.3.	Project Manager
2.2	Arrange for site access for the heritage professional (qualified archaeologist) to inspect the object(s) as soon as practicable. The timing of a site inspection will be responsive to the demands of the project and determined in consultation with Project Manager. In most cases, a site inspection is required for conducting a preliminary assessment and recording of the object(s).	Project Manager and Heritage Professional
3	Complete preliminary assessment and recording of the potential archaeological object(s).	
3.1	In certain cases, the heritage professional (qualified archaeologist) may determine from the photographs that no site inspection is required because the object has no archaeological potential (if	Project Manager and Heritage Professional

Step	Task	Responsibility
	so proceed to Step 8). Advice should be provided in writing by the archaeologist (e.g. via email) and confirmed by the project manager.	
3.2	The engaged heritage professional (qualified archaeologist) will conduct preliminary assessment and formal recording of the object(s). This assessment should include the assessment of heritage significance of any finds encountered.	Heritage Professional
3.3	Subject to the assessment by the heritage professional (qualified archaeologist), work may recommence at a set distance from the object(s). This is to protect any other associated archaeological material that may exist in the vicinity.	Project Manager and Heritage Professional
4	Protect the archaeological object(s) and notify Heritage NSW	
4.1	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be protected from any impact or harm (e.g. from works, inclement weather or unauthorized human interactions).	Project Manager
4.2	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be reported to the Heritage NSW under section 146 of the <i>Heritage Act 1977</i> (NSW).	Heritage Professional
5	Complete investigation requirements outlined by the heritage professional (archaeologist)	
5.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions Heritage NSW.	Heritage Professional
5.2	Implement the archaeological or heritage management plan. Where impact is expected, this may include a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, obtaining heritage approvals etc., if required.	Heritage Professional
5.3	Assess whether heritage impact is consistent with the project approval or if project approval modification is required.	Project Manager and Heritage Professional
5.4	Where statutory approvals (or project approval modification) are required, impact upon archaeological object(s) must not occur until heritage approvals are issued by the appropriate regulator.	Project Manager and Heritage Professional

Step	Task	Responsibility
5.5	<p>Where statutory approval is not required but where recording is recommended by the heritage professional (qualified archaeologist):</p> <p>Ensure short term and permanent storage locations are identified for archaeological object(s) removed from site.</p> <p>Ensure all archaeological excavation and heritage recording are completed prior to works resuming</p>	Project Manager and Heritage Professional
6	Resume work	
6.1	<p>Seek clearance to resume work from the heritage professional (qualified archaeologist). Clearance would only be given once all archaeological excavation and/or heritage recommendations are complete. Ongoing consultation and monitoring by heritage professionals (qualified archaeologists) and or other stakeholders may also occur for the remaining duration of the development works.</p>	Project Manager and Heritage Professional
6.2	<p>If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.</p>	Project Manager and Heritage Professional
6.3	<p>If additional potential unexpected archaeological object(s) are discovered on site, repeat from Step 1.</p>	Project Manager

APPENDIX E

**ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY –
THORNDALE (MP27)**

EXTENT



MOUNT PLEASANT OPERATION

ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY – THORNDALE (MP27)

Prepared for MACH Energy Australia Pty Ltd

June 2024—FINAL



SYDNEY

MELBOURNE

BRISBANE

HOBART

**PEOPLE
CENTRED
HERITAGE**

EXTENT HERITAGE PTY LTD
 ABN 24 608 666 306
 ACN 608 666 306
 accounts@extent.com.au
 extent.com.au

SYDNEY
 Level 3/73 Union Street
 Pyrmont NSW 2009
 T 02 9555 4000

MELBOURNE
 Level 1, 52 Holmes Street
 Brunswick East VIC 3057
 T 03 9388 0622

BRISBANE
 Level 2, 109 Edward Street
 Brisbane QLD 4000
 T 07 3051 0171

HOBART
 Level 3, 85 Macquarie Street
 Hobart TAS 7000
 T 03 6144 5880

Document information

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Author(s):	Hannah Craig-Ward Jessica Cuskelly

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1. INTRODUCTION

1.1. Project background

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by MACH Energy Australia Pty Ltd (MACH Energy) to prepare a historical Archaeological Research Design and Excavation Methodology (ARDEM) for Thorndale (MP27), identified as a potential child burial site ('the study area'), located within the vicinity of the Mount Pleasant Operation.

The Mount Pleasant Operation is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) northwest of Muswellbrook and approximately 50 km northwest of Singleton. The Mount Pleasant Operation involves the construction and operation of an open cut coal mine and associated rail spur and product coal loading infrastructure. Thorndale (MP27) is located in the northern half of the mining lease boundary and may be directly impacted by the proposed mine works (Figure 1).

This ARDEM has been prepared in accordance with, and follows, NSW Heritage's guideline documents (Section 1.2). It presents a proposed methodology for each stage of the excavation of the potential child burials, informed by research questions developed for the potential archaeological resource.

The proposed excavation and potential exhumation would be undertaken by a team of two archaeologists supervised by an Excavation Director in accordance with the guidelines and standards prepared by the Heritage Council of NSW and Heritage NSW.

1.2. Statutory framework

Thorndale (MP27) was identified in the Mount Pleasant Optimisation Project (the Project) Environmental Impact Statement (EIS) (MACH Energy 2021) as a known or potential adverse cultural heritage impact of the Project. The EIS recommended that prior to any ground disturbance activities at the location of the potential burials, the site should be investigated by a qualified archaeologist to establish the presence or absence of any grave or graves.

The Project was declared a State Significant Development (SSD) in 2022 (SSD 10418). An excavation permit is not required, pursuant to section 139 of the NSW *Heritage Act 1977*. However, in providing comment on the EIS and proposed mitigative actions, the Heritage Council of NSW requested that an ARDEM is prepared as if an excavation permit were required pursuant to section 139 of the NSW *Heritage Act 1977* (SSD 10418 PA 17).



This ARDEM was prepared by Extent Heritage to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418:

B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

...

(f) describe the measures to be implemented on the site to:

...

(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and

This ARDEM is included as an appendix to the Historic Heritage Management Plan for the Project (SSD 10418).

The excavation methodologies described in this report are guided by the *Public Health Regulation 2022*, the *NSW Infection Prevention and Control in Healthcare Settings* (NSW Department of Health 2023), and the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* (NHRMC 2019). Furthermore, this ARDEM was prepared in accordance with the principles and procedures established by the following documents:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013 (the Burra Charter) (Australia ICOMOS 2013); and
- 'Historical Archaeology Code of Practice' (Heritage Council 2006).

1.3. Site location and identification

Thorndale (MP27) is located in the northern half of the mining lease (ML 1645) and is approximately 7 km northwest of Muswellbrook and approximately 7.5km southwest of Aberdeen. Historically, the site was located on Portion 38, Parish of Ellis, County of Brisbane (Figure 2 and Figure 3).

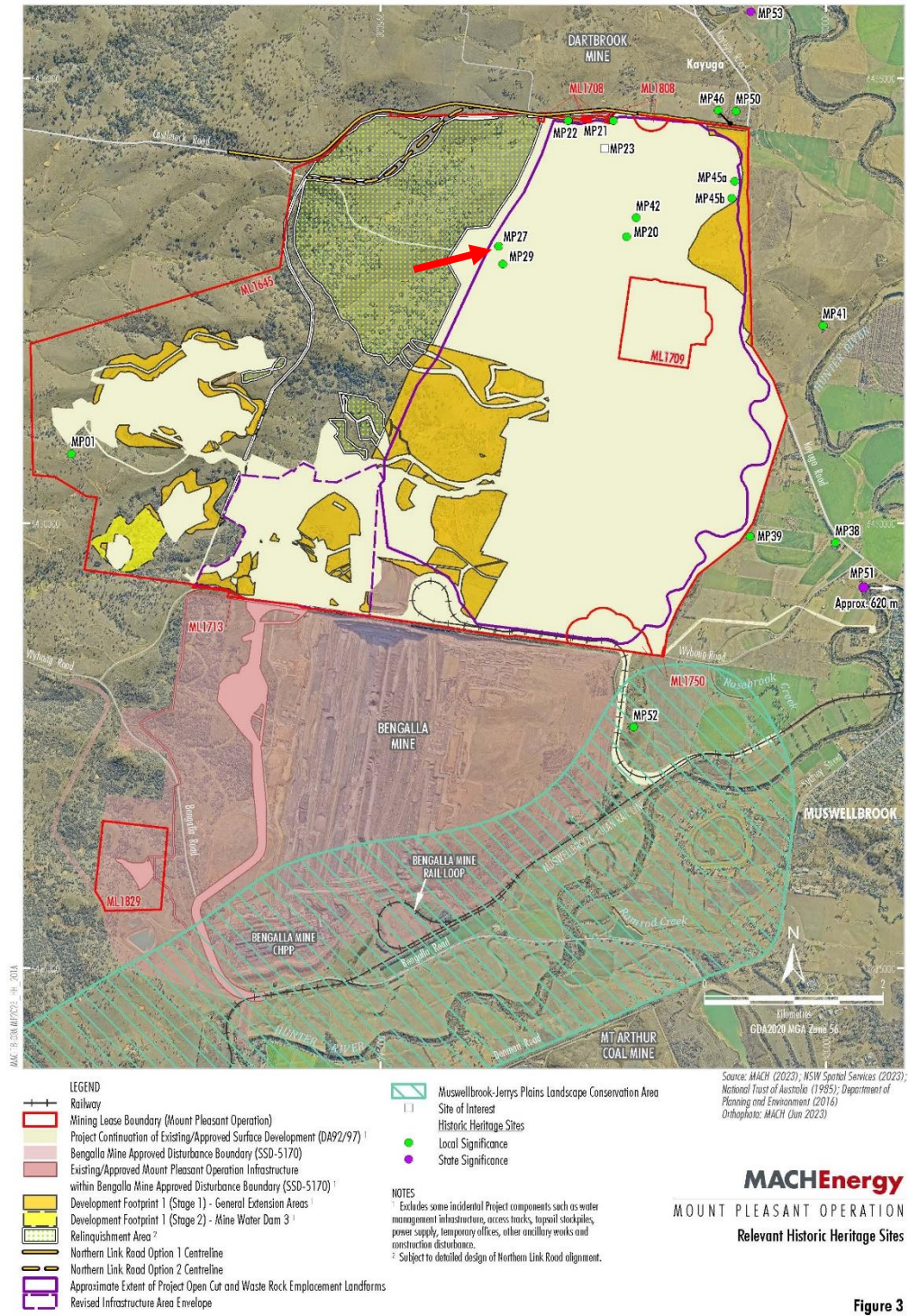


Figure 3

Figure 1. Map illustrating the boundary of the Mount Pleasant Operation Mining Lease with approximate locations of historical heritage places previously assessed. This report concerns only MP27 (denoted by the red arrow).



Figure 2. Satellite imagery showing location of MP27 within the Mining Lease (red outline).



Figure 3. Map showing the position of MP27 within Portion 38 with a historical map overlay (Source: NSW Department of Lands 1938 via National Library of Australia).

1.4. Previous reports and investigations

Thorndale (MP27) has been subject to previous heritage investigations. This report draws on the following previous heritage reports:

- Veritas Archaeology and History Services (VAHS) 2014. *Mount Pleasant Historic Heritage Study*. Prepared for Rio Tinto Coal Australia.
- Extent Heritage 2020, *Mount Pleasant Optimisation Project, NSW Historical Heritage Assessment and Statement of Heritage Impact*. Prepared for MACH Energy Australia Pty Ltd.

1.5. Limitations

This report uses historical documentation and previously established significance assessments prepared by third party heritage consultants to describe and assess the heritage significance of land that would be affected by the proposal. This ARDEM has been prepared in accordance with the Heritage Council of NSW's *Archaeological Assessment Guidelines* (1996) Heritage Branch of the Department of Planning's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009), the Department of Planning and Environment's *Heritage Code of Practice* (2006) and *Assessing heritage significance Guidelines for assessing places and objects against the Heritage Council of NSW criteria* (2023).

This report does not review the Indigenous cultural heritage values of the subject area. This report aims to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418, and forms part of the appendix to accompany the Historic Heritage Management Plan (SSD 10418).

1.6. Authorship

This report was prepared by Hannah Craig-Ward (Heritage Advisor, Extent Heritage) and reviewed by Jessica Cuskelly (Senior Heritage Advisor, Extent Heritage) and Andrew Sneddon (Director, Extent Heritage) for quality assurance purposes.

2. STUDY AREA

Thorndale (MP27) is located in the northern half of the mining lease (ML 1645) and is approximately 7 km northwest of Muswellbrook and approximately 7.5 km southwest of Aberdeen. Historically, the site was located on Portion 38, Parish of Ellis, County of Brisbane.

The site features a farmhouse with several outbuildings, comprising:

- a six-room house constructed by Thomas H. Cooper in the early 1870s, with later additions including a bedroom, kitchen, bathroom, and toilet;
- an underground brick tank located at the rear of the house;
- a car shed constructed from recycled materials (i.e. timber and corrugated iron);
- a machinery shed constructed from materials recycled from an earlier building;
- a large shearing shed constructed of round bush timber frame and recycled corrugated iron with the original catching pens, wool bins and wool press dating to the 1930s preserved inside;
- remains of a fowl house constructed of timber and corrugated iron;
- remains of cow bails constructed of timber and corrugated iron;
- remains of a timber pigsty;
- remains of stockyards;
- a square timber-lined well with windmill; and
- a hay shed constructed of round timber posts, sawn beams and recycled corrugated iron.

A descendant of one of the former tenants, Patt Watts, believed a child from the Lonergan family may have been buried in the front garden at Thorndale (VAHS 2014, p. 335).



Figure 4. The homestead known as 'Thorndale' (MP27). Figure 5. View along the front elevation of Thorndale. Note the extent of overgrown vegetation (Source: Extent Heritage 2020, p. 91). (MP27). (Source: Extent Heritage 2020, p. 91).



Figure 6. The car shed and machinery shed at Thorndale (MP27) (Source: Extent Heritage 2020, p. 92).



Figure 7. The doors of the machinery shed at Thorndale (MP27) (Source: Extent Heritage 2020, p. 92).



Figure 8. Interior view of the shearing shed at Thorndale, 2018 (Source: Extent Heritage 2020, p. 93).



Figure 9. The damaged remains of the shearing shed at Thorndale (MP27) in early 2019 (Source: MACH 2019 in Extent Heritage 2020, p. 93).



Figure 10. Another view of the damaged remains of the shearing shed at MP27, early 2019 (Source: MACH 2019 in Extent Heritage 2020, p. 94).



Figure 11. The remains of the cow bails at MP27, constructed of timber and corrugated iron (Source: Extent Heritage 2020, p. 94).

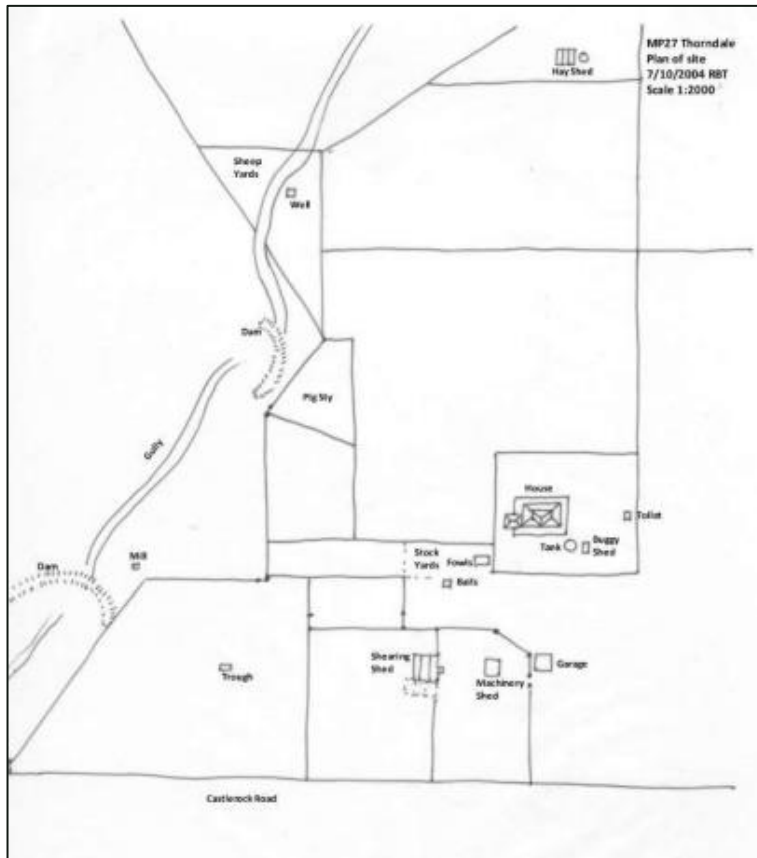


Figure 12. Plan drawing illustrating the features at Thorndale (MP27) in 2004 (Source: VAHS 2014, p. 337).

3. HISTORICAL CONTEXT

This section provides a summary of the development of the Muswellbrook area as well as site specific history. It draws from the historical overview presented in the VAHS report (2014, p. 35-37) as well as Extent Heritage's previous historical heritage assessment (2020, p. 26-27), augmented by additional historical research.

3.1. Muswellbrook

The early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. As early as 1823, explorer Allan Cunningham travelled over The Great Dividing Range almost to the present site of Muswellbrook. By 1824, government surveyor Henry Dangar began to survey and map the Hunter Region, setting aside 640 acres for a village that was to become the township of Muswellbrook (Dangar 1828). Muswellbrook was strategically situated in relation to the Hunter River and was on the main track to the Liverpool Plains, which subsequently became the Great Northern Road (present-day New England Highway) (Extent Heritage 2020, p. 26).

Following Dangar's survey, large grants of land in the area, particularly along the Hunter River, were awarded to wealthy settlers in return for taking convict labourers into their employ (Extent Heritage 2020, p. 26). This early period of settlement saw the establishment of a number of large estates in Muswellbrook, including 'Edinglassie', 'Overton', 'Negoa', and 'Bengalla' estates, among others. These wealthy landowners 'dominated the economic and social life of the district' (VAHS 2014, p. 36). By 1841, Muswellbrook had become a thriving town of 215 residents with multiple shops, several hotels and a flour mill. By the mid-nineteenth century, Muswellbrook's population had grown considerably in response to increased trade, the opening of the railway in 1869 and the increased availability of land under *The Crown Lands Acts* of 1861 (Extent Heritage 2020, p. 26).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses. The fertile nature of the land combined with ease of irrigation and transport to Sydney enabled Muswellbrook's settlers to successfully establish and support a range of agricultural and pastoral industries (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Towards the end of the nineteenth century, the introduction of milking machines and tractors led to the mechanisation of farming, which in turn created a pivotal increase in productivity for these early small-scale farming enterprises. Following the opening of the Kayuga Creamery in 1893, the establishment of large-scale commercial dairying soon provided the economic basis for Muswellbrook. Other creameries and butter factories soon opened at Overton (Blunt's), Muswellbrook and Aberdeen (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Concurrently, the development of Muswellbrook was also defined by the advent of a new, dominant industry: coal mining. As early as 1867, the *Maitland Mercury* reported the opening of a coal mine on the Negoa Estate for the supply of the Muswellbrook blacksmiths (VAHS 2014:46). By the late 1800s, the Weis Brothers were reporting operations of a coal mine at Kayuga on the property of Mr. Elijah Cox, which continued until the early 1930s (Extent Heritage 2020, p. 27; VAHS 2014, p. 37).

In addition, the Muswellbrook Coal Mine is one of the oldest coal mines in NSW that remains operational (Muswellbrook Shire Council 2015). Established in 1906 as an underground mine, the Muswellbrook Coal Mine shifted its operations to open cut mining in the mid-1940s (Extent Heritage 2020, p. 27).

This combination of a new, dominant industry (i.e. coal mining) and the subdivision of many of the area's larger estates into smaller land holdings suitable for tenant farmers significantly altered Muswellbrook from a small country town to an economically diverse and growing rural/resource extraction centre. Further, it played a significant role in shaping the character of the cultural landscape (Extent Heritage 2020, p. 27).

3.2. Kayuga

While a village reserve appeared on early maps of the region, by 1858 the only development was the establishment of a burial ground for the surrounding district (in 1828) (VAHS 2014, p. 40, 43). The first plan of the village was drawn by Surveyor John Rogers in May 1858, however it was redesigned by Surveyor Bennet on 24 September the same year, to better align the streets with the Muswellbrook to Scone road (VAHS 2014, p. 43). Kayuga took its name from Donald MacIntyre's Kayuga Station to the north, and John Hobart Cox's Negoa station was located to the south of the village (VAHS 2014, p. 43).

Village allotments were put up for sale in 1861; however, sales were very slow and Kayuga remained a small township with a post office, hall, school, and church as well as the original cemetery (*The Sydney Morning Herald* 1861, p. 2; VAHS 2014, p. 44).

3.3. Relevant family history

VAHS (2014, p. 332) provides the following occupation timeline for Thorndale (see Table 1, below).

Table 1. Timeline for occupation at Thorndale.

Year	Event
1867	Thomas Humphrey Cooper took up Portions 38 and 39 as Conditional Purchase blocks
1871	The eldest son of T. H. Cooper, Frederick Cooper, married at his parent's residence at the Kayuga property (indicating a residence had been built by this time).
1877	T H Cooper leased the property to J. L. C. Secombe.
1884	Ownership of Portions 38 and 39 were transferred to John Lynch.

Year	Event
1885	John Lynch is listed as living at Thorndale holding 454 acres, seven horses, and 12 cattle.
1889	The property was transferred to a Mr Clatworthy.
1902	The property was transferred to John Lonergan Jr of Coal Creek, Kayuga.
1944	John Lonergan transferred the property to his son John Edward as a gift. The property then passed to a nephew, Des Partridge.

Anecdotal evidence provided by Pat Watts, a daughter Elizabeth Ellen (Nellie) Partridge (nee Lonergan), indicates that a ‘Lonergan child’ may be buried in the front garden of Thorndale (VAHS 2014, p. 335), therefore this section will investigate John Lonergan Jr’s family and residency at the property.

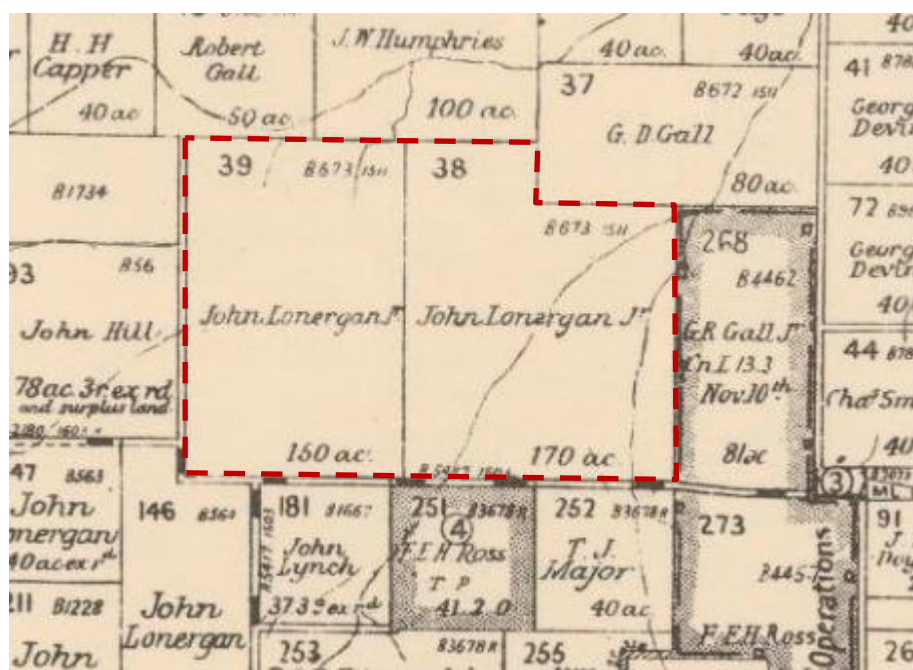


Figure 13. Cropped 1938 Parish of Ellise County of Brisbane map with portions 38 and 39 outlined (Source: New South Wales, Department of Lands 1938 via National Library of Australia).

John Lonergan Jr was the son of John and Elizabeth Lonergan who lived at Coal Creek near Kayuga (*The Catholic Press* 1917, p. 23; *The Maitland Weekly Mercury* 1920, p. 11). In 1902, John Lonergan Snr purchased a farm at Kayuga (previously occupied by Messrs Clatworthy and Cowles) for his sons, John and William (*The Muswellbrook Chronicle* 1902, p. 2; *The Sydney Morning Herald* 1902, p. 20). The property, however, appears to have mostly been occupied by John Jr, who is described in his obituary published in *The Muswellbrook Chronicle* (1946, p. 3) as having ‘carried on grazing pursuits at “Thorndale” for nearly half a century’. Oral history records that John Jr reared a family of five at Thorndale (Tickle 2004, p. 62). He married Bridget Casey in 1911(NSW Marriage Registration

2267/1911; *The Muswellbrook Chronicle* 1911, p. 2), and the NSW Registry of Births, Deaths & Marriages records five children, all of whom survived to adulthood (Table 2).

Table 2. Recorded children of John Lonergan Jr and Bridget Casey (Source: NSW Registry of Births, Deaths & Marriages 2024).

Year	Name	Registration	Father	Mother	District
1911	John	43027/1911	John	Bridget	Muswellbrook
1913	Bridget M	29005/1913	John	Bridget	Muswellbrook
1917	Elizabeth E	12285/1917	John	Bridget	Muswellbrook
1919	Edward R	9064/1919	John	Bridget	Muswellbrook
1920	Patrick J	51436/1919	John	Bridget	Muswellbrook

Available online records of local newspapers such as *The Muswellbrook Chronicle* (via Trove) were searched for birth and death notices of any Lonergan children. Only two notices reporting the death of Dorothy (Doris) Lonergan, a daughter of William Lonergan, who died aged 9 years and 9 months from pneumonia were published in both *The Maitland Mercury* (1924, p. 6) and *The Muswellbrook Chronicle* (1924, p. 2). She was buried in the Catholic portion of the Muswellbrook Cemetery (*The Muswellbrook Chronicle* 1924, p. 2).

If a Lonergan child was buried in the front garden at Thorndale, it is possible that this was an unrecorded birth and death. Given the gap between the births of Bridget and Elizabeth (approximately 5 years) compared to the 1–2-year gap between other siblings, it is possible a child was born between 1913 and 1917, yet were not recorded, perhaps due to a premature death. In any case, there is no record of such in the available online resources.

The anecdotal evidence reported in VAHS (2014, p. 335) is not included in an available oral history interview with Pat Watts in 2004 (Tickle 2004, p. 102-110). Pat was the daughter of Elizabeth Ellen (Nellie) Partridge, who was a daughter of John and Bridget (Tickle 2004, p. 102). Further, additional information from Nellie Partridge, provided as an addendum to the interview, does not mention the burial of a child (Tickle 2004, p. 110).

4. ARCHAEOLOGICAL SIGNIFICANCE

4.1. Assessment criteria and rankings

The significance of heritage places is assessed against a suite of established heritage assessment criteria. The *Burra Charter* (Australia ICOMOS 2013) notes that a place may be of ‘cultural significance’ for its ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Article 1.2). These basic principles have found legislative form in the NSW *Heritage Act 1977*.

Section 4A of the NSW *Heritage Act 1977* states:

- ‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- ‘local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The Heritage Council of NSW provides guidelines for the assessment of heritage significance of an item or place. This is achieved by evaluating the place or items significance in reference to specific criteria, which can be applied at a national, state or local level.¹ Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 3, below). These criteria are a reflection of the more broadly expressed criteria set out in Article 1.2 of the *Burra Charter* (Australia ICOMOS 2013).

¹ State of NSW and Department of Planning and Environment (DPE) 2023, *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, State of NSW and DPE, Sydney.

Table 3. The assessment criteria for heritage significance per the NSW *Heritage Act 1977*.

Criterion	Description
(a)	<i>Historic significance:</i> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
(b)	<i>Historical association:</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 cultural or natural history (or the cultural or natural history of the local area).
(c)	<i>Aesthetic/creative/technical achievement:</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).
(d)	<i>Social, cultural, and spiritual:</i> An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
(e)	<i>Research potential:</i> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
(f)	<i>Rare:</i> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
(g)	<i>Representative:</i> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

Thus, a place may have significance for a range of reasons and the level of significance may vary from local to State. Places may also be ranked further along a scale from little, through moderate to high and exceptional significance (State of NSW and DPE 2023, p. 18). Therefore, a place may be assessed as being, for example, of low local significance or exceptional State significance.

Graded levels of significance are a management tool used to assess the relative significance of elements within an item, place or site and to assist in decision-making regarding elements of a place. The gradings of significance that have been used for elements within the study area are based on guidelines established in the State of NSW and DPE publication, *Assessing Heritage Significance* (see Table 4, below).

Table 4. Gradings of significance definitions (Source: State of NSW and DPE 2023. *Assessing Heritage Significance*. Sydney: Heritage Office).

Grading	Justification	Status
Exceptional	Rare or outstanding element contributing to a place or object's significance.	Fulfils criteria for local and State listing.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance.	Fulfils criteria for local or State listing.

Grading	Justification	Status
	Alterations do not detract from its significance.	
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the place or object's significance	Does not fulfil heritage significance.

4.2. Historical themes

The 'Australian Historical Themes' is a resource developed by the former Australian Heritage Commission (2001, p. 2) to assist in the assessment of historical heritage places. The contribution that the potential child burial at Thorndale (MP27) may make to the study of these themes is relevant to its potential heritage significance.

The historical themes that have been identified as relevant are presented in Table 5.

Table 5 Relevant historical themes and sub-themes for Thorndale (MP27) (after Australian Heritage Commission 2001).

Australian Historical Theme	Subthemes
2. Peopling Australia	2.4 Migrating 2.5 Promoting settlement
3. Developing local, regional and national economies	3.5 Developing primary production 3.5.1 Grazing animals 3.16 Struggling with remoteness, hardship and failure
4. Building settlements, towns and cities	4.6 Remembering Significant phases in the development of settlements, towns, and cities.
5. Working	5.1 Working in Harsh Conditions 5.8 Working on the land
8. Developing Australia's cultural life	8.14 Living in the country and rural settlements
9. Marking the Phases of Life	9.7 Dying 9.7.1 Dealing with human remains 9.7.2 Mourning the dead 9.7.3 Remembering the dead

4.3. Research questions

In order to meet the research potential of an archaeological site, a range of research questions should guide the proposed excavation methodology and post-excavation analysis. Having regard to the historical research provided in Section 3 and the historical themes noted above, the following research questions have been identified as relevant to the potential burials at Thorndale (MP27):

- *Who was the deceased? What was their place in the settler community?*
- *What is the date of the burial/s?*
- *Do the grave goods, grave markings, coffin and/or coffin furniture reveal information about local burial practices?*
- *How does the manner of burial compare to burial practices elsewhere in the (a) district, (b) State and (c) country? Should any differences exist, how might these be explained? For example, by reference to the limited available resources within settler communities, religious affiliations, other cultural affiliations (e.g. the masons), other cultural mores?*
- *What was the race, sex, age at death and physical attributes of the deceased?*
- *What was the cause of death and what does this tell us about settler society in this location and in this period?*
- *Is there evidence of ante-mortem medical attention on the body? What does this tell us about medical practices in the period at this location?*
- *Why was the deceased buried at this location (for example, as opposed to in a formal consecrated cemetery)?*
- *How does the deceased fit into historical narratives of this region? For example, how do they relate to droving, pastoralism, and other activities?*
- *How does treatment of the deceased's body differ from other recorded examples? Are there discernible differences based on age, sex, manner of death? If the deceased was an infant or child does the manner of interment shed any light on local attitudes to infants and children or the still born?*

4.4. The archaeological condition and integrity of the sites

The condition and integrity of an archaeological site have a bearing on its significance. In particular, later ground disturbance can destroy archaeological sites, or introduce later deposits or artefacts that 'contaminate' the archaeological record.

VAHS (2014, p. 334) described the house and shed as not having been 'utilised or maintained for some years.' Furthermore, the house was 'structurally unsound due to neglect' (VAHS 2014, p. 363). At the time of Extent Heritage's site visit in 2018, the house was in a 'very poor condition and the collapse of the roof appeared to be imminent due to extensive overgrown vegetation and further termite damage' (Extent Heritage 2020, p. 87). The following other observations were made (Extent Heritage 2020, p. 87-88):

- The car shed was in a very poor state of repair due to termite damage, especially the sawn and split slab walls.
- The machinery shed was relatively intact, however the sliding doors were becoming detached.
- Conservation of the shearing shed following storm damage in 2019 was not possible, and what remained was demolished for safety reasons. Some of the remnant paraphernalia of the shearing shed was donated to the Denman Heritage Museum.
- The remains of the cow bails have collapsed.
- A pile of asbestos (Super Six) roof sheeting may be the remnants of a collapsed shed of a later date.
- The timber-lined well was not located nor inspected.
- No surface evidence of a possible burial site was observed in the former front garden area of 'Thorndale', however this area was overgrown with vegetation and had poor visibility.

Due to the poor condition of the site, Extent Heritage (2020, p. 69) assessed that MP27 has low potential to contain 'relics' as defined by the NSW *Heritage Act 1977*.

As the exact location of the burial is unknown, it is difficult to assess the level of disturbance it may have been subject to. The overgrown condition of the site observed in 2018 makes it difficult to assess the level of disturbance the potential burial may have been subjected to. If any disturbance was contained to the surface, then it is likely that any disturbance of the human remains and grave goods is likely to be confined to those arising out of natural processes (decomposition of human remains, physical deterioration of grave goods due to moisture, rust, etc.).

4.5. Revised Statement of Significance

Thorndale (MP27) was previously assessed by VAHS (2014, p. 363) as having high local significance from satisfying three NSW *Heritage Act 1977* assessment criteria. Specifically:

- *Criterion (a)*: The site shows evidence of significant human activity, from one family over an extended period.
- *Criterion (d)*: The site is important for its association with an identifiable group, i.e. early conditional purchase settlers.
- *Criterion (e)*: There is the potential to yield new or further archaeological information on the house construction and plan.
- *Criterion (f)*: There is the potential to provide evidence of a way of life that has been lost. The site represents a mixed farming operation that would have been almost self-sufficient.

VAHS (2014, p. 363) also concluded that:

The site is important as it represents the site of one family's development over almost 80 years. There is sufficient evidence remaining to determine what function each area on the site performed. There is the possibility to gain valuable information from the house site.

Extent Heritage (2020, p. 88) generally agreed with this assessment and also concluded that site MP27 is of local significance, however they disagreed with the use of Criterion (f) by the VAHS report, which appeared to have confused it with Criterion (e).

Extent Heritage (2020, p. 69) concluded:

- Adopting an optimistic interpretation of the potential archaeological resource at MP27, the kinds of archaeological artefacts that may survive include:
 - a sample of the kinds of domestic and work tools used by the occupants during its period of use—but these are matters already well-understood for rural inhabitants of this area from other sources (e.g. journals, newspapers, other sites, etc.). In addition, the site has been abandoned for many years and as a result, there is a range of farming bric-a-brac scattered across the site making it difficult to distinguish between in situ artefacts and those brought from elsewhere; and
 - refuse pits and dumps.
- MP27 has low potential to contain 'relics' as defined by the NSW *Heritage Act 1977*.
- The potential archaeological remains at MP27 would not satisfy the criteria for aesthetic or technical significance (Criterion [c]). In archaeological terms, the site has no known association with people of note (Criterion [b]). It is not rare or uncommon (Criterion [f]).

However, due to the anecdotal data provided by one former owner that there may be a child burial on the grounds of the house, Extent Heritage (2020, p. 89) also recommended a cautious approach and further investigation to ascertain the presence of the burial through a limited program of test excavation.

This report agrees with Extent Heritage's (2020) assessment.

Applying the criteria contained in the *NSW Heritage Act 1977*, the sites are of 'archaeological significance'. Specifically, they have some potential to yield information that will contribute to an understanding of NSW's cultural history of a local area (Criterion [e] above).

In particular, the sites have the potential to shed light on the circumstances of a specific early settler family in the district, and to broader regional questions concerning early settlement conditions, pastoral activities, health, and mortuary practices. The site, however, is in poor condition which lessens its potential to yield useful data.

Further, the research questions that the sites may address can also be answered by reference to other, often better, resources including journals, newspaper articles, archival documents (death certificates etc.), local histories and so forth. There are also other similar sites in the broader region that may be used to address these questions.

Thorndale (MP27) is assessed to be of local significance but its potential archaeology (with the exception of the potential burial) is assessed as not satisfying the definition of a 'relic' under the *NSW Heritage Act 1977*.

5. EXCAVATION METHODOLOGY

The proposed exhumation methodology for Thorndale (MP27) is summarised in Figure 14 below. The more detailed excavation methodologies are presented in Sections 5.1 and 5.8.



Figure 14 Flowchart of General Exhumation Methodology (UQCHU 2015, p. 5).

5.1. Stage 1 – Machine excavation in surrounds of the house

Given that the exact location of the potential burials is unknown, the first stage of this archaeological investigation will be to establish the presence of grave cuts. Anecdotal data indicate that if there was a burial near the house it was in the ‘garden’ in front of the house.

- A pedestrian survey will be conducted to prior to any excavation to identify potential burial locations. This will capture the extent of the former dwelling and the surrounds to the front, in

the garden area (as anecdotal evidence described in Section 3.3 indicates the burials were there). The purpose of this would be to identify any potential burial locations.

- Following the initial survey a systematic surface collection of any historical relics that may be on the surface will be conducted.
- Excavation will initially be carried out with a mechanical excavator fitted with a flat bucket. A toothed bucket would not be used for this scope of works.
- Machine excavation will involve the large-scale removal of the top A-horizon and vegetation on the present-day surface (c. 300 mm), for the purpose of exposing the area to identify any potential evidence of grave cut(s).
- All machine excavation will be monitored by archaeologists and will be in clear communication with the machine excavator driver.
- Once the initial c.300 millimetres (mm) is cleared, instructions will be given to proceed with another 100 mm until determined by the discretion of the on-site project archaeologists for works to cease.
- Where an in situ feature or relic is located, mechanical excavation will cease. The feature will then be exposed and cleaned by hand using picks, shovels, and trowels, and recorded.
- If any evidence of a grave cut is identified, the excavation will progress to Stage 2.
- If no grave cut is identified in the garden area, the archaeological investigation will cease, and a final report will be prepared documenting the results of the excavation.
- An unexpected finds procedure (see Appendix A) will also be employed in the possibility of any relics being exposed during this excavation.
- Photographic recording at all stages of work will be undertaken. This will include contextual photography, surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow.

5.2. Stage 2 – Excavation

If stratigraphic evidence of child burials is exposed by Stage 1 (e.g. evidence of a grave cut in the form of changes in the colour or texture of deposits) more controlled machine excavation would begin, followed by manual excavation. The following process would be followed:

- The excavators would wear standard PPE only for this phase of the excavation.
- The excavated soils would be temporarily piled in a spoil heap 10–20 m from the grave site.
- If one or more grave cuts have been identified, works would proceed in company with a Health Authority representative as required by NSW *Public Health Regulation 2022*.
- The excavation of deposits within the grave cut/s would be undertaken in 100-150 mm spits, by hand, using picks, shovels and trowels. Deposits within any grave cut would initially be excavated to a depth of c500 mm. Full PPE and Risk Management measures would be used.
- The spoil from within grave cuts would be piled on a separate spoil heap, covered by a tarp during works and at the end of every work day. Any tools used in excavating within grave cuts would be labelled, and would be disinfected and cleaned to Department of Health Infection Prevention and Control in Healthcare Settings (NSW Department of Health 2023) at the end of each work day. Full PPE and Risk Management measures would be used.

- Once a depth of c500 mm is reached in any grave cut by archaeological excavation, a machine excavator would be used to 'bench' the excavation area. This would be done on the assumption that the burial/s would be up to c1.8m deep and the excavators would require room at depth to work on any coffin and human remains. Benching would require the removal of deposits over an area of some 7 x 7 m by machine around the cut/s (and not including any deposits contained within a grave cut). The deposits would be piled on a separate spoil heap 10-20 m from the grave.
- Once the first bench has been machine excavated, the archaeologists would return to the grave cut/s and remove another c500 mm of deposit in 100-150 mm spits, by hand using picks, shovels and trowels. A second bench would then be excavated by machine. The spoil from within and without the grave/s would be kept in their separate spoil heaps. Machine excavation for benching would only capture soils exterior to a grave cut.
- This process would continue to the coffin top (assuming there is one) or on encountering human remains.
- The excavation process would include sieving of a sample of the deposits (the quantity of sieved soil to be determined by an archaeologist based on depth/proximity to presumed burial, changes in soil texture and colour, etc.).
- It is not intended that soil samples or other samples (e.g. charcoal for dating purposes) would be taken.

5.3. Stage 3 – Exhumation of human remains and burial materials

The aim would be to lift and remove any identified coffin lid in one piece. However, given the estimated age of the burial/s it is possible that any coffin will have deteriorated and will need to be removed in pieces, if there is one at all. If able to be removed in one piece, the lid would be placed in a body bag for storage and transportation. If it is necessary to remove the lid in pieces, each piece (or collection of small pieces) would be placed in individual clipseal bags (to assist the archaeologists with possible laboratory analysis) and then placed within a body bag for storage and transportation.

- During this phase of the excavation, the archaeologists would also draw and photograph archaeological features for the purpose of post-excavation reporting.
- The surrounding soil materials would be sieved to ensure that all coffin furniture and related metal pieces (nails, studs, handles etc.) are found. Plastic disposable sieves would be used (and disposed of afterwards).
- All artefacts would be collected, bagged and labelled, and placed in the body bag with the coffin remains (*Public Health Regulations 2022*), or in a separate body bag if that is necessary (e.g. if they are fragile).
- Once the coffin lid has been removed, the objective would be to expose any skeletal remains. This may entail the removal of remnant clothing, but is unlikely given the estimated age and context of the burials. Any textiles that are removed must be bagged in clipseal bags, and labelled to assist the archaeologist with post-excavation recording, and placed within the body bag.

- Once the skeletal remains have been exposed, they would be 'articulated' by the archaeologists using fine-scale equipment (i.e. cleaned to a level sufficient to illustrate the disposition of the body). Photographs and measured drawings of the exposed skeletal remains would be undertaken.
- The skeletal remains would only be removed once they have been fully exposed. Depending on their physical condition, individual elements would be separately bagged in clipseal bags for health and safety purposes and placed within a body bag for storage and transportation. Given the typically fragile condition of human remains this body bag is likely to be separate from the one used for the coffin and grave goods.
- Deposits at the bottom of the coffin would be hand sieved to ensure that all human and material remains have been recovered (e.g. teeth, dentures, jewellery, buttons, etc.). Any finds would be added to a body bag, in separate labelled bags. Plastic disposable sieves would be used (and disposed of afterwards).
- After appropriate photography and measured drawing has been completed, the sides and base of the coffin would be removed, following the same procedures as for the lid.
- Excavation would continue by hand beneath the bottom of the coffin, after its removal (in a series of three 200mm spits or until it is clear that culturally sterile deposits have been reached) to ensure that no additional older burials exist within the grave.
- The spoil from within the grave/s would be piled on a separate spoil heap, covered by a tarp during works and at the end of every work day.
- Any tools used in excavating during this phase of the process would be labelled, and would be disinfected and cleaned to Health Department Infectious Disease control standards at the end of each work day. Full PPE and Risk Management measures (Section 5.2, separate Risk Management Plan) would to be used.
- Where the excavation of a coffin or human remains extends across multiple days, the exposed archaeology will be covered overnight (under a tarp/plastic sheeting) held down with clean soil, with another tarp or plastic sheet over the grave cut to minimise damage caused by rain.

5.4. Stages 4 and 5 – Transportation and storage of human remains and burial materials

All skeletal materials, grave goods, and coffin pieces would be placed into a Department of Health approved body bag or coffin for transportation, observing the requirements of the NSW *Infection and Control in Healthcare Settings* (NSW Department of Health 2023).

The transportation of these remains and artefacts would be by an undertaker (in an approved hearse) who would collect the body bag/s and take them to their morgue.

5.5. Stage 6 – Post-exhumation site rehabilitation

Excavated graves would be back-filled using the excavated materials in sequence. The following procedure would be observed:

- The dirt removed from the immediate surrounds of the coffin (from in it and on all sides) would be used to fill the pit first;
- Sieved soil would be placed into the pit next;
- Soils removed from the grave cut would then be used; and
- All other excavated soil would be returned to the pit.

The bucket on the machine excavator would be hosed down on completion of the backfilling, and would then be doused with disinfectant.

5.6. Stage 7 (or ongoing) – Analysis of human remains and burial materials

In order to maximise the research potential of the archaeological excavation, it is proposed that artefacts recovered from the burial be:

- Cleaned by brushing (soft paint brush) where that is sufficient to remove excess dirt; and/or
- Washed in a plastic disposable basin of water, using a soft plastic scrubbing brush.

This would usually occur c5 m outside the area of excavation by an archaeologist in full PPE. The artefacts would be photographed, measured and possibly drawn before being placed in the body bag. The water waste would be poured out 5-10 m from the grave site into the ground.

If additional cleaning and recording is required (e.g. to take measurements of skeletal remains) this would occur in the morgue, under the supervision of the undertaker.

Standard archaeological recording forms for the excavation of human burials would be used:

- General Recording Forms including context numbers (cut, fill, skeleton, coffin etc); description of deposits and features; grave orientation; levels; nature and extent of disturbance; stratigraphic relationships.
- Coffin Recording Forms including context numbers; shape, dimensions and characteristics; description of fabric, methods of construction etc; associated artefacts.
- Skeleton Recording Forms including context numbers; description of the attitude of the skeleton (head facing, prone, supine or crouched); limbs straight or flexed at side or bent across body etc); stratigraphic relationships; preservation; skeletal diagram showing elements present using *Archaeological Site Manual* (Museum of London 1994).
- Photographic recording would be undertaken in accordance with:
 - Former NSW Heritage Office and Department of Urban Affairs and Planning 1998, *How to Prepare Archival Records of Heritage Items*.
 - Former NSW Department of Planning 2006, *Photographic Recording of Heritage Items Using Film or Digital Capture – Heritage Information Series*.

At a minimum this will include images of the grave cut, the coffin, the skeleton and the empty grave.

Measured drawings will be made of relevant archaeological features, especially skeletal remains, preferably at a scale of 1:10 (or higher if appropriate).

5.7. Stage 8 – Reburial of human remains and grave goods

Depending on the express wishes of any identified descendants of the deceased, it is intended that the remains be reburied at a local cemetery.

The reburial process would be carried out by an accredited undertaker, with each individual being interred within a metal-lined coffin.

5.8. Stage 9 – Post-excavation report

The post-excavation report would include a description of the works performed, the results of the archaeological excavation program, photographs, survey plans, artefact catalogue and artefact illustrations. The report would include a response to the research questions posed in this ARDEM. The results of the excavation would be presented in a post-excavation report, a copy of which would be provided to Heritage NSW within the NSW Department of Climate Change, Energy, the Environment and Water approximately 12 months from the conclusion of the excavation (subject to the wishes of any descendants).

6. STAKEHOLDER CONSULTATION

Based on the historical research described in Section 3 above, attempts will be made to identify living relatives of the deceased. Where historical research and subsequent enquiries fail to identify descendants, an advertisement may be placed in a local newspaper seeking information.

Others who may be consulted include:

- The local police – will be informed as a courtesy prior to works proceeding;
- The Regional Council; and
- Clergy of an appropriate denomination.

The Department of Health will also be notified and involved.

Reburial of the deceased will be undertaken in accordance with the reasonable wishes of any descendant family members and relatives who are identified during the archival search process, or failing the identification of the deceased, with appropriate civil or religious burial customs.

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APPENDIX A. UNEXPECTED FINDS PROCEDURE

Upon discovery of a potential, unexpected archaeological object(s), the following Unexpected Finds Procedure must be followed:

Step	Task	Responsibility
1	Stop work and protect potential historical archaeological object(s)	
1.1	Stop all work in the immediate area of the archaeological object(s) and notify the project manager.	All
1.2	Where practical, use high visibility fencing to establish a 'no-go zone' around the object(s) and inform all site personnel. No further interference – including various works, ground disturbance, touching or moving the object(s) must occur within the 'no-go zone'.	Project Manager
1.3	Photograph the archaeological object(s), including its general location and any distinguishing features.	Project Manager
1.4	If the find is reasonably suspected to be human skeletal remains, notify local police immediately. If the find does not involve human remains or is inconclusive, proceed to the next step.	Project Manager
2	Contact and engage a heritage professional (qualified archaeologist)	
2.1	Contact a heritage professional (qualified archaeologist) to discuss the location and extent of the object(s) and provide photographs taken at Step 1.3.	Project Manager
2.2	Arrange for site access for the heritage professional (qualified archaeologist) to inspect the object(s) as soon as practicable. The timing of a site inspection will be responsive to the demands of the project and determined in consultation with Project Manager. In most cases, a site inspection is required for conducting a preliminary assessment and recording of the object(s).	Project Manager and Heritage Professional
3	Complete preliminary assessment and recording of the potential archaeological object(s).	
3.1	In certain cases, the heritage professional (qualified archaeologist) may determine from the photographs that no site inspection is required because the object has no archaeological potential (if	Project Manager and Heritage Professional

Step	Task	Responsibility
	so proceed to Step 8). Advice should be provided in writing by the archaeologist (e.g. via email) and confirmed by the project manager.	
3.2	The engaged heritage professional (qualified archaeologist) will conduct preliminary assessment and formal recording of the object(s). This assessment should include the assessment of heritage significance of any finds encountered.	Heritage Professional
3.3	Subject to the assessment by the heritage professional (qualified archaeologist), work may recommence at a set distance from the object(s). This is to protect any other associated archaeological material that may exist in the vicinity.	Project Manager and Heritage Professional
4	Protect the archaeological object(s) and notify Heritage NSW	
4.1	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be protected from any impact or harm (e.g. from works, inclement weather or unauthorized human interactions).	Project Manager
4.2	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be reported to the Heritage NSW under section 146 of the <i>Heritage Act 1977</i> (NSW).	Heritage Professional
5	Complete investigation requirements outlined by the heritage professional (archaeologist)	
5.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions Heritage NSW.	Heritage Professional
5.2	Implement the archaeological or heritage management plan. Where impact is expected, this may include a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, obtaining heritage approvals etc., if required.	Heritage Professional
5.3	Assess whether heritage impact is consistent with the project approval or if project approval modification is required.	Project Manager and Heritage Professional
5.4	Where statutory approvals (or project approval modification) are required, impact upon archaeological object(s) must not occur until heritage approvals are issued by the appropriate regulator.	Project Manager and Heritage Professional

Step	Task	Responsibility
5.5	<p>Where statutory approval is not required but where recording is recommended by the heritage professional (qualified archaeologist):</p> <p>Ensure short term and permanent storage locations are identified for archaeological object(s) removed from site.</p> <p>Ensure all archaeological excavation and heritage recording are completed prior to works resuming</p>	Project Manager and Heritage Professional
6	Resume work	
6.1	<p>Seek clearance to resume work from the heritage professional (qualified archaeologist). Clearance would only be given once all archaeological excavation and/or heritage recommendations are complete. Ongoing consultation and monitoring by heritage professionals (qualified archaeologists) and or other stakeholders may also occur for the remaining duration of the development works.</p>	Project Manager and Heritage Professional
6.2	<p>If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.</p>	Project Manager and Heritage Professional
6.3	<p>If additional potential unexpected archaeological object(s) are discovered on site, repeat from Step 1.</p>	Project Manager

APPENDIX F

**ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY –
DEVINE’S (MP23)**

EXTENT



MOUNT PLEASANT OPERATION

ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY – DEVINE'S (MP23)

Prepared for MACH Energy Australia Pty Ltd

June 2024—FINAL



SYDNEY

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EXTENT HERITAGE PTY LTD
ABN 24 608 666 306
ACN 608 666 306
accounts@extent.com.au
extent.com.au

SYDNEY
Level 3/73 Union Street
Pyrmont NSW 2009
T 02 9555 4000

MELBOURNE
Level 1, 52 Holmes Street
Brunswick East VIC 3057
T 03 9388 0622

BRISBANE
Level 2, 109 Edward Street
Brisbane QLD 4000
T 07 3051 0171

HOBART
Level 3, 85 Macquarie Street
Hobart TAS 7000
T 03 6144 5880

Document information

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1. INTRODUCTION

1.1. Project background

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by MACH Energy Australia Pty Ltd (MACH Energy) to prepare a historical Archaeological Research Design and Excavation Methodology (ARDEM) for Devine's (MP23), identified as a potential child burial site ('the study area'), located in the vicinity of the Mount Pleasant Operation.

The Mount Pleasant Operation is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton. The Mount Pleasant Operation involves the construction and operation of an open cut coal mine and associated rail spur and product coal loading infrastructure. Devine's (MP23) is located towards the northern extent of the Mount Pleasant Operation and may be directly impacted by the proposed mine works (Figure 1).

This ARDEM has been prepared in accordance with, and follows, NSW Heritage's guideline documents (Section 1.2). It presents a proposed methodology for each stage of the excavation of the potential child burials, informed by research questions developed for the potential archaeological resource.

The proposed excavation and potential exhumation would be undertaken by a team of two archaeologists supervised by an Excavation Director in accordance with the guidelines and standards prepared by the Heritage Council of NSW and Heritage NSW.

1.2. Statutory framework

Devine's (MP23) was identified in the Mount Pleasant Optimisation Project (the Project) Environmental Impact Statement (EIS) (MACH Energy 2021) as a known or potential adverse cultural heritage impact of the Project. The EIS recommended that prior to any ground disturbance activities at the location of the potential burials, the site should be investigated by a qualified archaeologist to establish the presence or absence of any grave or graves.

The Project was declared a State Significant Development (SSD) in 2022 (SSD 10418). An excavation permit is not required, pursuant to section 139 of the NSW *Heritage Act 1977*. However, in providing comment on the EIS and proposed mitigative actions, the Heritage Council of NSW requested that an ARDEM is prepared as if an excavation permit were required pursuant to section 139 of the NSW *Heritage Act 1977* (SSD 10418 PA 17).

This ARDEM was prepared by Extent Heritage to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418:

B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

...

(f) describe the measures to be implemented on the site to:

...

(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and

This ARDEM is included as an appendix to the Historic Heritage Management Plan for the Project (SSD 10418).

The excavation methodologies described in this report are guided by the NSW *Public Health Regulation 2022*, the NSW *Infection Prevention and Control in Healthcare Settings* (NSW Department of Health 2023), and the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* (NHRMC 2019). Furthermore, this ARDEM was prepared in accordance with the principles and procedures established by the following documents:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013* (the Burra Charter) (Australia ICOMOS 2013); and
- 'Historical Archaeology Code of Practice' (Heritage Council 2006).

1.3. Site location and identification

Devine's (MP23) is located towards the northern boundary of the mining lease (ML 1645) and is approximately 6 km northwest of Muswellbrook and approximately 5 km southwest of Aberdeen. Historically, the site was located on Portion 27, Parish of Ellis, County of Brisbane (Figure 2 and Figure 3).

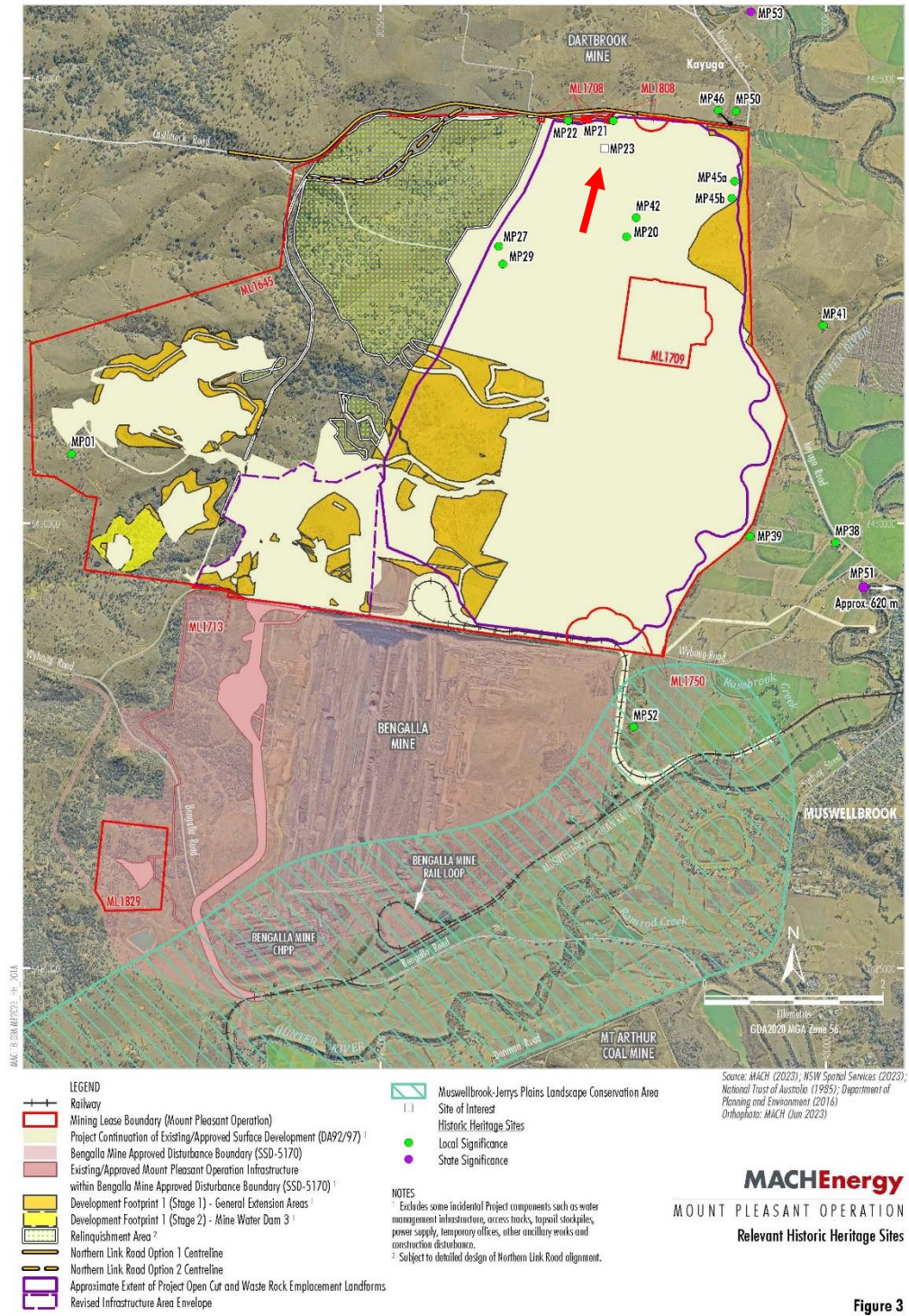


Figure 3

Figure 1. Map illustrating the boundary of the Mount Pleasant Operation Mining Lease with approximate locations of historical heritage places previously assessed. This report concerns only MP23 (denoted by the red arrow).



Figure 2. Aerial image showing location of Devine's (MP23) within the Project area (red outline).

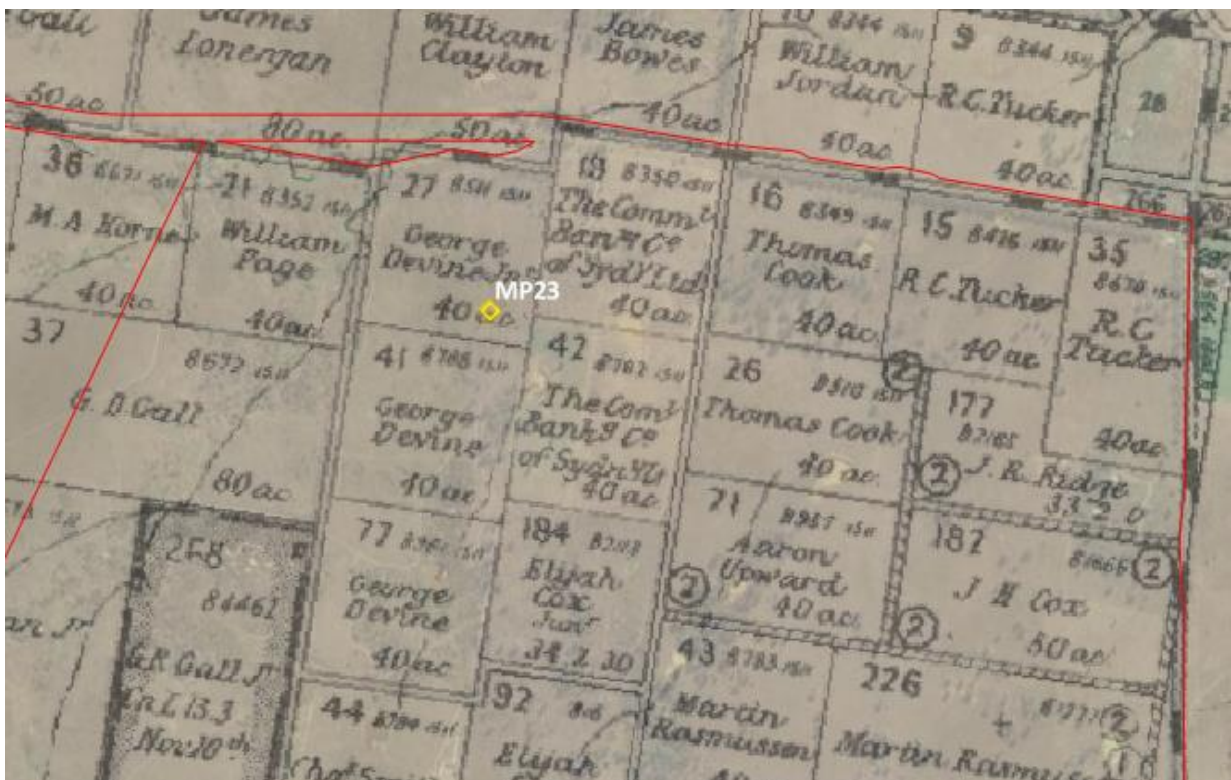


Figure 3. Map showing the position of MP23 within Portion 27 with a historical map overlay (Source: NSW Department of Lands 1938 via National Library of Australia).

1.4. Previous reports and investigations

Devine's (MP23) has been subject to previous heritage investigations. This report draws on the following previous heritage reports:

- Veritas Archaeology and History Services (VAHS) 2014. *Mount Pleasant Historic Heritage Study*. Prepared for Rio Tinto Coal Australia.
- Extent Heritage 2020, *Mount Pleasant Optimisation Project, NSW Historical Heritage Assessment and Statement of Heritage Impact*. Prepared for MACH Energy Australia Pty Ltd.

1.5. Limitations

This report uses historical documentation and previously established significance assessments prepared by third party heritage consultants to describe and assess the heritage significance of land that would be affected by the proposal. This ARDEM has been prepared in accordance with the Heritage Council of NSW's *Archaeological Assessment Guidelines* (1996) Heritage Branch of the Department of Planning's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009), the Department of Planning and Environment's *Heritage Code of Practice* (2006) and *Assessing heritage significance Guidelines for assessing places and objects against the Heritage Council of NSW criteria* (2023).

This report does not review the Indigenous cultural heritage values of the subject area. This report aims to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418, and forms part of the appendix to accompany the Historic Heritage Management Plan (SSD 10418).

1.6. Authorship

This report was prepared by Hannah Craig-Ward (Heritage Advisor, Extent Heritage) and reviewed by Jessica Cuskelly (Senior Heritage Advisor, Extent Heritage) and Andrew Sneddon (Director, Extent Heritage) for quality assurance purposes.

2. STUDY AREA

Devine's was originally a farming property featuring a slab cottage with five rooms and kitchen, two sheds, a dam, and fencing (VAHS 2014, p. 274) (see Figure 4 to Figure 8). The site is known by the name of the original inhabitants of the property, the Devine family.

It is an archaeological site comprising a series of features including:

- an underground brick tank lined with plaster;
- five depressions with two potentially being the location of pit toilets;
- a raised area (possibly the site of a former tennis court or a building with a dirt floor);
- two piles of bricks and stones, which may have been the base of a chimney;
- an artefact scatter of farming bric-a-brac including the remains of a cast iron stove, a plough, a camp oven, bed frames, and glass;
- remnant fencing including timber posts and rails;
- remains of a track, driveway or dirt road running through the site; and
- mature pepper and pomegranate trees.

A former resident at the site, Pat Watts, believed twin children from the Cracknell family were buried to the west of the house (VAHS 2014, p. 274).



Figure 4. Scattered farming bric-a-brac located at Devine's (MP23) (Source: Extent Heritage 2018).



Figure 5. Broken bricks and stones which may have once been a chimney base (Source: Extent Heritage 2018).



Figure 6. The underground tank at Devine's, constructed of brick and lined with plaster (Source: Extent Heritage 2018).



Figure 7. Mature fruit trees at Devine's (Source: Extent Heritage 2018).

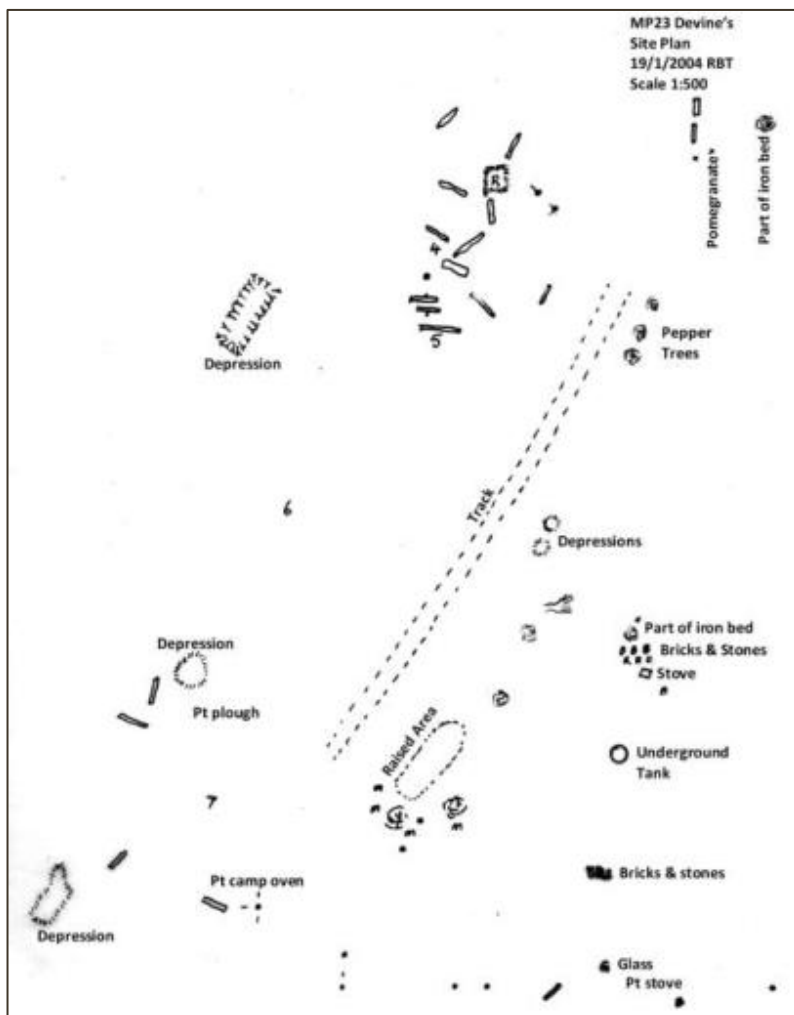


Figure 8. Site plan (not to scale) showing location of identified features in 2004 at Devine's (MP23) (Source: VAHS 2014, p. 278).

3. HISTORICAL CONTEXT

This section provides a summary of the development of the Muswellbrook area as well as site specific history. It draws from the historical overview presented in the VAHS report (2014, p. 35-37) as well as Extent Heritage's previous historical heritage assessment (2020, p. 26-27), augmented by additional historical research.

3.1. Muswellbrook

Early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. As early as 1823, explorer Allan Cunningham travelled over The Great Dividing Range almost to the present site of Muswellbrook. By 1824, government surveyor Henry Dangar began to survey and map the Hunter Region, setting aside 640 acres for a village that was to become the township of Muswellbrook (Dangar 1828). Muswellbrook was strategically situated in relation to the Hunter River and was on the main track to the Liverpool Plains, which subsequently became the Great Northern Road (present-day New England Highway) (Extent Heritage 2020, p. 26).

Following Dangar's survey, large grants of land in the area, particularly along the Hunter River, were awarded to wealthy settlers in return for taking convict labourers into their employ (Extent Heritage 2020, p. 26). This early period of settlement saw the establishment of a number of large estates in Muswellbrook, including 'Edinglassie', 'Overton', 'Negoa', and 'Bengalla' estates, among others. These wealthy landowners 'dominated the economic and social life of the district' (VAHS 2014, p. 36). By 1841, Muswellbrook had become a thriving town of 215 residents with multiple shops, several hotels and a flour mill. By the mid-nineteenth century, Muswellbrook's population had grown considerably in response to increased trade, the opening of the railway in 1869 and the increased availability of land under *The Crown Lands Acts* of 1861 (Extent Heritage 2020, p. 26).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses. The fertile nature of the land combined with ease of irrigation and transport to Sydney enabled Muswellbrook's settlers to successfully establish and support a range of agricultural and pastoral industries (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Towards the end of the nineteenth century, the introduction of milking machines and tractors led to the mechanisation of farming, which in turn created a pivotal increase in productivity for these early small-scale farming enterprises. Following the opening of the Kayuga Creamery in 1893, the establishment of large-scale commercial dairying soon provided the economic basis for Muswellbrook. Other creameries and butter factories soon opened at Overton (Blunt's), Muswellbrook and Aberdeen (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Concurrently, the development of Muswellbrook was also defined by the advent of a new, dominant industry: coal mining. As early as 1867, the *Maitland Mercury* reported the opening of a coal mine on the Negoa Estate for the supply of the Muswellbrook blacksmiths (VAHS 2014:46). By the late 1800s, the Weis Brothers were reporting operations of a coal mine at Kayuga on the property of Mr. Elijah Cox, which continued until the early 1930s (Extent Heritage 2020, p. 27; VAHS 2014, p. 37).

In addition, the Muswellbrook Coal Mine is one of the oldest coal mines in NSW that remains operational (Muswellbrook Shire Council 2015). Established in 1906 as an underground mine, the Muswellbrook Coal Mine shifted its operations to open cut mining in the mid-1940s (Extent Heritage 2020, p. 27).

This combination of a new, dominant industry (i.e. coal mining) and the subdivision of many of the area's larger estates into smaller land holdings suitable for tenant farmers significantly altered Muswellbrook from a small country town to an economically diverse and growing rural/resource extraction centre. Further, it played a significant role in shaping the character of the cultural landscape (Extent Heritage 2020, p. 27).

3.2. Kayuga

While a village reserve appeared on early maps of the region, by 1858 the only development was the establishment of a burial ground for the surrounding district (in 1828) (VAHS 2014, p. 40, 43). The first plan of the village was drawn by Surveyor John Rogers in May 1858, however it was redesigned by Surveyor Bennet on 24 September the same year, to better align the streets with the Muswellbrook to Scone road (VAHS 2014, p. 43). Kayuga took its name from Donald MacIntyre's Kayuga Station to the north, and John Hobart Cox's Negoa station was located to the south of the village (VAHS 2014, p. 43).

Village allotments were put up for sale in 1861; however, sales were very slow and Kayuga remained a small township with a post office, hall, school, and church as well as the original cemetery (*The Sydney Morning Herald* 1861, p. 2; VAHS 2014, p. 44).

3.3. Relevant family history

3.3.1. The Devine Family

George Michael Devine Snr was born c.1814 in Aberdeenshire, Scotland and emigrated to Australia where he married Charlotte Worthington in Parramatta, Sydney in 1845 (NSW Marriage Registration 79/1845 V184579 77). George Snr and Charlotte had twelve children together, eleven of whom survived to adulthood, and between 1860 and 1871 the family moved to Kayuga. Their son, George Michael Devine Jnr purchased Portion 27, Parish of Ellis, (comprising 40 acres) on 20 September 1866 (VAHS 2014, p. 274). At the time he was only 16 years old, and his parents owned several small parcels of land within the village of Kayuga. A house was built on Portion 27, and George Jnr later acquired Portions 41 and 72 (VAHS 2014, p. 274; Figure 9).

Table 1. Children of George Michael Divine Snr and Charlotte Worthington (Source: NSW Registry of Births, Deaths & Marriages 2024).

Year	Name	Registration	Father	Mother	District
1848	William	2664/1848 V18482664	George	Charlotte	CT
1850	George M	3016/1850 V18503016 35	George	Charlotte	CT
1852	Henry	3029/1852 V18523029 38A	George	Charlotte	CT
1855	Oliver E	1925/1855 V18551925 160	George	Charlotte	CT
1857	Anne M	7890/1857	George	Charlotte	Maitland
1860	John W	9498/1860	George	Charlotte	Murrurundi
1861	Mary A	12821/1861	George	Charlotte	Scone
1861	Isabella*	-	-	-	-
1863	Charlotte	6973/1863	George	Charlotte	Cassilis
1865	Susan	7877/1864	George	Charlotte	Cassilis
1868	Ernest A	8220/1868	George	Charlotte	Cassilis
1871	Charles A	13858/1871	George	Charlotte	Muswellbrook

*Note: No birth registration for Isabella exists, however a death registration records her year of death as 1863 in Cassilis (NSW Registry of Births, Deaths & Marriages 2024, Death Registration No. 3357/1863).



Figure 9. Cropped 1915 Parish of Ellis County of Brisbane map with George Devine’s portions outlined (Source: New South Wales, Department of Lands 1915 via NSW Land Registry Services 2020 Historical Land Records Viewer).

George Snr died 21 June 1871, leaving his estate of 3 acres 2 roods and 22.5 perches, being allotments 1, 2 and 7 Section 10 in Kayuga village to his ten children with his wife retaining a life interest (VAHS 2014, p. 274). No buildings had been constructed on these allotments, however, and the family likely resided in the house on Portion 27 (VAHS 2014, p. 274).

It appears that George Jnr did not marry or have children and lived in the property until his death in 1932 (*The Muswellbrook Chronicle* 1832, p. 2; VAHS 2014, p. 274). According to his obituary published in *The Muswellbrook Chronicle* (1932, p. 2), George followed farming pursuits as well as being a storekeeper, and was the secretary and later director of the Kayuga Creamery. When the property on Portion 27 was valued for death duties in June 1932, it was described as comprising a slab cottage of five rooms and kitchen along with two sheds, a dam, and fencing (VAHS 2014, p. 274). In this year the property was sold at auction to Patrick Vincent Casey (VAHS 2014, p. 275).

In 1966 the property was then transferred to Bridget Mary Lonergan, Patrick’s wife, and then to Wayne and Pat Watts (Bridget’s niece) in 1985 (Tickle 2004, p. 104; VAHS 2014, p. 275).

3.3.2. The Cracknell Family

Susan Devine, the sister of George Jnr, married Donald Cracknell, the son of Edward and Margaret Cracknell in 1890. The Edward and Margaret Cracknell were in the employ of the Macintyre family of Kayuga station until their deaths (Edward in 1874 and Margaret in 1912) and their son Donald operated the dairy farm between 1904 and 1915 (*The Maitland Mercury and Hunter River General Advertiser* 1874, p. 1; *The Muswellbrook Chronicle* 1904, p. 2; 1912, p. 2; 1915, p. 3).

In VAHS (2014, p. 274), anecdotal evidence from Pat Watts suggests that twin children from the Cracknell family were buried on Portion 27; however, this is not included in the available oral history interview with Wayne and Pat Watts in 2004 (Tickle 2004, p. 102 – 110). If these burials were to exist, given the familial relationship between George Jnr and Susan, it is possible that these were children of Susan and Donald, or descendants, born between 1890 and 1932.

Susan and Donald had three recorded children together (Table 2) and lived in Kayuga for the duration of their lives. All three recorded children lived to adulthood; however, Donald Jr was killed in action in France in 1916, aged 23 (*The Muswellbrook Chronicle* 1916, p. 2).

Table 2. Recorded children of Donald Cracknell and Susan Devine (Source: NSW Registry of Births, Deaths & Marriages 2024).

Year	Name	Registration	Father	Mother	District
1890	Stanley G	23348/1890	Donald	Susan	Muswellbrook
1893	Donald	224462/1893	Donald	Susan	Muswellbrook
1898	Clement	23577/1898	Donald	Susan	Muswellbrook



If the burials belong to children of Susan and Donald Cracknell, it is possible that these were unrecorded births (if the children were stillborn or only lived a few days). Given the gap between the births of Donald and Clement (five years), it is possible the twins were born between 1893 and 1898.

The Births and Deaths Registrations were reviewed as well as online newspaper depositories such as Trove were searched for birth and death notices of potential children, however no such notices of twins were identified.

4. ARCHAEOLOGICAL SIGNIFICANCE

4.1. Assessment criteria and rankings

The significance of heritage places is assessed against a suite of established heritage assessment criteria. The *Burra Charter* (Australia ICOMOS 2013) notes that a place may be of ‘cultural significance’ for its ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Article 1.2). These basic principles have found legislative form in the NSW *Heritage Act 1977*.

Section 4A of the NSW *Heritage Act 1977* states:

- ‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- ‘local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The Heritage Council of NSW provides guidelines for the assessment of heritage significance of an item or place. This is achieved by evaluating the place or items significance in reference to specific criteria, which can be applied at a national, state or local level.¹ Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 3, below). These criteria are a reflection of the more broadly expressed criteria set out in Article 1.2 of the *Burra Charter* (Australia ICOMOS 2013).

¹ State of NSW and Department of Planning and Environment (DPE) 2023, *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, State of NSW and DPE, Sydney.

Table 3. The assessment criteria for heritage significance per the NSW *Heritage Act 1977*.

Criterion	Description
(a)	<i>Historic significance:</i> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
(b)	<i>Historical association:</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 cultural or natural history (or the cultural or natural history of the local area).
(c)	<i>Aesthetic/creative/technical achievement:</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).
(d)	<i>Social, cultural, and spiritual:</i> An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
(e)	<i>Research potential:</i> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
(f)	<i>Rare:</i> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
(g)	<i>Representative:</i> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

Thus, a place may have significance for a range of reasons and the level of significance may vary from local to State. Places may also be ranked further along a scale from little, through moderate to high and exceptional significance (State of NSW and DPE 2023, p. 18). Therefore, a place may be assessed as being, for example, of low local significance or exceptional State significance.

Graded levels of significance are a management tool used to assess the relative significance of elements within an item, place or site and to assist in decision-making regarding elements of a place. The gradings of significance that have been used for elements within the study area are based on guidelines established in the State of NSW and DPE publication, *Assessing Heritage Significance* (see Table 4, below).

Table 4. Gradings of significance definitions (Source: State of NSW and DPE 2023. *Assessing Heritage Significance*. Sydney: Heritage Office).

Grading	Justification	Status
Exceptional	Rare or outstanding element contributing to a place or object's significance.	Fulfils criteria for local and State listing.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance.	Fulfils criteria for local or State listing.

Grading	Justification	Status
	Alterations do not detract from its significance.	
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the place or object's significance	Does not fulfil heritage significance.

4.2. Historical themes

The 'Australian Historical Themes' is a resource developed by the former Australian Heritage Commission (2001, p. 2) to assist in the assessment of historical heritage places. The contribution that the potential child burials at Devine's (MP23) may make to the study of these themes is relevant to its potential heritage significance.

The historical themes that have been identified as relevant are presented in Table 5.

Table 5 Relevant historical themes and sub-themes for Devine's (MP23) (after Australian Heritage Commission 2001).

Australian Historical Theme	Subthemes
2. Peopling Australia	2.4 Migrating 2.5 Promoting settlement
3. Developing local, regional and national economies	3.5 Developing primary production 3.5.1 Grazing animals 3.16 Struggling with remoteness, hardship and failure
4. Building settlements, towns and cities	4.6 Remembering Significant phases in the development of settlements, towns, and cities.
5. Working	5.1 Working in Harsh Conditions 5.8 Working on the land
8. Developing Australia's cultural life	8.14 Living in the country and rural settlements
9. Marking the Phases of Life	9.7 Dying 9.7.1 Dealing with human remains 9.7.2 Mourning the dead 9.7.3 Remembering the dead

4.3. Research questions

In order to meet the research potential of an archaeological site, a range of research questions should guide the proposed excavation methodology and post-excavation analysis. Having regard to the historical research provided in Section 3 and the historical themes noted above, the following research questions have been identified as relevant to the potential burials at Devine's (MP23):

- *Who was the deceased? What was their place in the settler community?*
- *What is the date of the burial/s?*
- *Do the grave goods, grave markings, coffin and/or coffin furniture reveal information about local burial practices?*
- *How does the manner of burial compare to burial practices elsewhere in the (a) district, (b) State and (c) country? Should any differences exist, how might these be explained? For example, by reference to the limited available resources within settler communities, religious affiliations, other cultural affiliations (e.g. the masons), other cultural mores?*
- *What was the race, sex, age at death and physical attributes of the deceased?*
- *What was the cause of death and what does this tell us about settler society in this location and in this period?*
- *Is there evidence of ante-mortem medical attention on the body? What does this tell us about medical practices in the period at this location?*
- *Why was the deceased buried at this location (for example, as opposed to in a formal consecrated cemetery)?*
- *How does the deceased fit into historical narratives of this region? For example, how do they relate to droving, pastoralism, and other activities?*
- *How does treatment of the deceased's body differ from other recorded examples? Are there discernible differences based on age, sex, manner of death? If the deceased was an infant or child does the manner of interment shed any light on local attitudes to infants and children or the still born?*

4.4. The archaeological condition and integrity of the sites

The condition and integrity of an archaeological site have a bearing on its significance. In particular, later ground disturbance can destroy archaeological sites, or introduce later deposits or artefacts that 'contaminate' the archaeological record.

VAHS (2014, p. 275) described the site as containing 'very little left to understand how the site functioned'. Following Extent Heritage's site visit in 2018, it was reported that the condition of the visible surface remains had declined further (Extent Heritage 2020, p. 68).

Extent Heritage (2020, p. 68) found:

- Only small and scattered quantities of bricks and stones of an uncertain date were visible on the surface, suggesting that the structure that once stood in this location (if there was one) had been demolished in a 'controlled' manner and its bricks deliberately removed for reuse elsewhere.
- Some surface timber elements, however, it was not clear if the timbers formed part of a shed or they may have formed part of a fence or yards.
- No sufficient evidence confirming VAHS (2014, p. 275) identification of two depressions which may have been the former locations of pit toilets.
- The open underground tank had been filled with debris and fenced off for safety purposes.
- No surface evidence of a burial site to the west of the house was observed.

Due to the high level of surface disturbance, Extent Heritage (2020, p. 69) disagreed with VAHS' significance assessment that Devine's has a high potential to yield archaeological information that would constitute a 'relic' under the NSW *Heritage Act 1977*. Extent Heritage (2020, p. 71) assessed the house remains as not meeting the criteria for either State or local significance.

As the exact location of the (potential) burials is unknown, it is difficult to assess the level of disturbance they may have been subject to. Given the condition of the site observed in 2018, it appears that the majority of the disturbance to the site has occurred from the dismantling and demolition of the previous buildings. If this disturbance was confined to the surface, then it is likely that any disturbance of the human remains and grave goods will have been confined to those arising out of natural processes (decomposition of human remains, physical deterioration of grave goods due to moisture, rust, etc.).

4.5. Revised Statement of Significance

Devine's (MP23) was previously assessed by VAHS (2014, p. 292) as having high local significance for satisfying three NSW *Heritage Act 1977* assessment criteria. Specifically:

- *Criterion (a)*: The site shows evidence of significant human activity, possibly from 1860s to 1920s.
- *Criterion (b)*: The site is associated with a group of people (Devine family) who lived on the site for over 60 years and played a major role in the development of the district.
- *Criterion (e)*: The site has high potential to yield new or further substantial archaeological information.

This assessment was revised by Extent Heritage (2020) due to the condition of the site in 2018. It was determined that the extant archaeological remains at MP23 have some potential to contribute knowledge about the rural way of life in the local area, but that potential is likely to be limited by levels of disturbance at the site, the removal of the former structures, and the existence of other better sites and resources (Extent Heritage 2020, p. 69).

Extent Heritage (2020, p. 69) concluded:

- In archaeological terms:
 - the site at MP23 is unlikely to contribute knowledge that cannot be (and has not already been) obtained from other resources including previous research into rural NSW homes of the period and in the local area, the recollections of local residents, historic photographs and other archival material;
 - the site at MP23 is unlikely to contribute knowledge that cannot be obtained from other better-preserved sites, including late nineteenth and early twentieth century homes that remain in the local area; and
 - given the above observations, it is unlikely that the site at MP23 would make a meaningful contribution to substantive research questions relating to Australian history, including those relating to the rural way of life in the Muswellbrook area.
- The potential archaeological resource at MP23 has low potential to contain 'relics' as defined by the NSW *Heritage Act 1977*. Further, the underground water tank at the site does not meet the definition of a 'relic' under the NSW *Heritage Act 1977*.
- The potential archaeological remains at MP23 would not satisfy the criteria for aesthetic or technical significance (Criterion [c]). There is no reported strong community association with the location (Criterion [d]). It is not rare or uncommon (Criterion [f]).



However, due to the anecdotal data provided by one former owner that there may be two child burials on the grounds of the house, Extent Heritage (2020, p. 69, 221) also recommended a cautious approach and further investigation to ascertain the presence of the burials through archaeological investigation prior to any ground disturbance.

This report agrees with Extent Heritage's (2020) assessment. Given the disturbed context of the site, Devine's has limited potential to shed light on the circumstances of a specific early settler family in the district, and to broader regional questions concerning early settlement conditions, pastoral activities, health, and mortuary practices.

Furthermore, the research questions that Devine's may address can also be answered by reference to other, often better, resources including journals, newspaper articles, archival documents (death certificates etc.), local histories and so forth. Further, there are other similar sites in the broader region that may be better for addressing these questions.

5. EXCAVATION METHODOLOGY

The proposed exhumation methodology for Devine’s (MP23) is summarised in Figure 10 below. The more detailed excavation methodologies are presented in Sections 5.1- 5.8.



Figure 10 Flowchart of General Exhumation Methodology (UQCHU 2015, p. 5)

5.1. Stage 1 – Machine excavation in surrounds of the house

Given that the exact location of the potential burials is unknown, the first stage of this archaeological investigation will be to establish the presence of grave cuts in the surrounds of and to the west of the location of the former house.

- A pedestrian survey will be conducted prior to any excavation to identify potential burial locations. This will capture the extent of the former dwelling and the surrounds to the west (as

anecdotal evidence described in Section 3.3.2 indicates the burials were to the west of the house). The purpose of this would be to identify any potential burial locations.

- Following the initial survey a systematic surface collection of any historical relics that may be on the surface will be conducted.
- Excavation will initially be carried out with a mechanical excavator fitted with a flat bucket. The use of a toothed bucket is not permissible for this scope of works. This excavation would take place in a buffer of c20 m around the house and to no more than c50 m to its west.
- Machine excavation will involve the large-scale removal of the top A-horizon and vegetation on the present-day surface (c. 300 mm), for the purpose of exposing the area to identify any potential evidence of grave cut(s).
- All machine excavations will be monitored by archaeologists and will be in clear communication with the machine excavator driver.
- Once the initial c.300 millimetre (mm) is cleared, instructions will be given to proceed with another 100-200 mm until determined by the discretion of the on-site project archaeologists for works to cease.
- Where an in situ feature or relic is located, mechanical excavation will cease. The feature will then be exposed and cleaned by hand using picks, shovels, and trowels, and recorded.
- If any evidence of a grave cut is identified, the excavation will progress to Stage 2 (Section 5.2, below).
- If no grave cut is identified, the archaeological investigation will cease, and a final report will be prepared documenting the results of the excavation.
- An unexpected finds procedure (see Appendix A) will also be employed in the possibility of any relics being exposed during this excavation.
- Photographic recording at all stages of work will be undertaken. This will include contextual photography, surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow.

5.2. Stage 2 – Excavation

If stratigraphic evidence of child burials is exposed by Stage 1 (e.g. evidence of a grave cut in the form of changes in the colour or texture of deposits) more controlled machine excavation would begin, followed by manual excavation. The following process would be followed:

- The excavators would wear standard PPE only for this phase of the excavation.
- The excavated soils would be temporarily piled in a spoil heap 10–20 m from the grave site.
- If one or more grave cuts have been identified, works would proceed in company with a Health Authority representative as required by *NSW Public Health Regulation 2022*.
- The excavation of deposits within the grave cut/s would be undertaken in 100-150 mm spits, by hand, using picks, shovels and trowels. Deposits within any grave cut would initially be excavated to a depth of c500 mm. Full PPE and Risk Management measures (Section 5.2) would be used.
- The spoil from within grave cuts would be piled on a separate spoil heap, covered by a tarp during works and at the end of every work day. Any tools used in excavating within grave cuts

would be labelled, and would be disinfected and cleaned to Department of Health Infection Prevention and Control in Healthcare Settings (NSW Department of Health 2023) at the end of each work day. Full PPE and Risk Management measures (Section 5.2 below) would be used.

- Once a depth of c500 mm is reached in any grave cut by archaeological excavation, a machine excavator would be used to 'bench' the excavation area. This would be done on the assumption that the burial/s would be up to c1.8 m deep and the excavators would require room at depth to work on any coffin and human remains. Benching would require the removal of deposits over an area of some 7 x 7 m by machine around the cut/s (and not including any deposits contained within a grave cut). The deposits would be piled on a separate spoil heap 10-20 m from the grave.
- Once the first bench has been machine excavated, the archaeologists would return to the grave cut/s and remove another c500 mm of deposit in 100-150 mm spits, by hand using picks, shovels and trowels. A second bench would then be excavated by machine. The spoil from within and without the grave/s would be kept in their separate spoil heaps. Machine excavation for benching would only capture soils exterior to a grave cut.
- This process would continue to the coffin top (assuming there is one) or on encountering human remains.
- The excavation process would include sieving of a sample of the deposits (the quantity of sieved soil to be determined by an archaeologist based on depth/proximity to presumed burial, changes in soil texture and colour, etc.).
- It is not intended that soil samples or other samples (e.g. charcoal for dating purposes) would be taken.

5.3. Stage 3 – Exhumation of human remains and burial materials

The aim would be to lift and remove any identified coffin lid in one piece. However, given the estimated age of the burial/s it is possible that any coffin will have deteriorated and will need to be removed in pieces, if there is one at all. If able to be removed in one piece, the lid would be placed in a body bag for storage and transportation. If it is necessary to remove the lid in pieces, each piece (or collection of small pieces) would be placed in individual clipseal bags (to assist the archaeologists with possible laboratory analysis) and then placed within a body bag for storage and transportation.

- During this phase of the excavation, the archaeologists would also draw and photograph archaeological features for the purpose of post-excavation reporting.
- The surrounding soil materials would be sieved to ensure that all coffin furniture and related metal pieces (nails, studs, handles etc.) are found. Plastic disposable sieves would be used (and disposed of afterwards).
- All artefacts would be collected, bagged and labelled, and placed in the body bag with the coffin remains (NSW *Public Health Regulations 2022*), or in a separate body bag if that is necessary (e.g. if they are fragile).
- Once the coffin lid has been removed, the objective would be to expose any skeletal remains. This may entail the removal of remnant clothing, but is unlikely given the estimated age and context of the burials. Any textiles that are removed must be bagged in clipseal bags, and

labelled to assist the archaeologist with post-excavation recording, and placed within the body bag.

- Once the skeletal remains have been exposed, they would be 'articulated' by the archaeologists using fine-scale equipment (i.e. cleaned to a level sufficient to illustrate the disposition of the body). Photographs and measured drawings of the exposed skeletal remains would be undertaken.
- The skeletal remains would only be removed once they have been fully exposed. Depending on their physical condition, individual elements would be separately bagged in clipseal bags for health and safety purposes and placed within a body bag for storage and transportation. Given the typically fragile condition of human remains this body bag is likely to be separate from the one used for the coffin and grave goods.
- Deposits at the bottom of the coffin would be hand sieved to ensure that all human and material remains have been recovered (e.g. teeth, dentures, jewellery, buttons, etc.). Any finds would be added to a body bag, in separate labelled bags. Plastic disposable sieves would be used (and disposed of afterwards).
- After appropriate photography and measured drawing has been completed, the sides and base of the coffin would be removed, following the same procedures as for the lid.
- Excavation would continue by hand beneath the bottom of the coffin, after its removal (in a series of three 200 mm spits or until it is clear that culturally sterile deposits have been reached) to ensure that no additional older burials exist within the grave.
- The spoil from within the grave/s would be piled on a separate spoil heap, covered by a tarp during works and at the end of every work day.
- Any tools used in excavating during this phase of the process would be labelled, and would be disinfected and cleaned to Health Department Infectious Disease control standards at the end of each work day. Full PPE and Risk Management measures (Section 5.2, separate Risk Management Plan) would to be used.
- Where the excavation of a coffin or human remains extends across multiple days, the exposed archaeology will be covered overnight (under a tarp/plastic sheeting) held down with clean soil, with another tarp or plastic sheet over the grave cut to minimise damage caused by rain.

5.4. Stages 4 and 5 – Transportation and storage of human remains and burial materials

All skeletal materials, grave goods, and coffin pieces would be placed into a Department of Health approved body bag or coffin for transportation, observing the requirements of the NSW *Infection Prevention and Control in Healthcare Settings* (NSW Department of Health 2023).

The transportation of these remains and artefacts would be by an undertaker (in an approved hearse) who would collect the body bag/s and take them to their morgue.

5.5. Stage 6 – Post-exhumation site rehabilitation

Excavated graves would be back-filled using the excavated materials in sequence. The following procedure would be observed:

- The dirt removed from the immediate surrounds of the coffin (from in it and on all sides) would be used to fill the pit first;
- Sieved soil would be placed into the pit next;
- Soils removed from the grave cut would then be used; and
- All other excavated soil would be returned to the pit.

The bucket on the machine excavator would be hosed down on completion of the backfilling, and would then be doused with disinfectant.

5.6. Stage 7 (or ongoing) – Analysis of human remains and burial materials

In order to maximise the research potential of the archaeological excavation, it is proposed that artefacts recovered from the burial be:

- Cleaned by brushing (soft paint brush) where that is sufficient to remove excess dirt; and/or
- Washed in a plastic disposable basin of water, using a soft plastic scrubbing brush.

This would usually occur c5 m outside the area of excavation by an archaeologist in full PPE. The artefacts would be photographed, measured and possibly drawn before being placed in the body bag. The water waste would be poured out 5-10 m from the grave site into the ground.

If additional cleaning and recording is required (e.g. to take measurements of skeletal remains) this would occur in the morgue, under the supervision of the undertaker.

Standard archaeological recording forms for the excavation of human burials would be used:

- General Recording Forms including context numbers (cut, fill, skeleton, coffin etc); description of deposits and features; grave orientation; levels; nature and extent of disturbance; stratigraphic relationships.
- Coffin Recording Forms including context numbers; shape, dimensions and characteristics; description of fabric, methods of construction etc; associated artefacts.
- Skeleton Recording Forms including context numbers; description of the attitude of the skeleton (head facing, prone, supine or crouched); limbs straight or flexed at side or bent across body etc); stratigraphic relationships; preservation; skeletal diagram showing elements present using the *Archaeological Site Manual* (Museum of London 1994).
- Photographic recording would be undertaken in accordance with:
 - Former NSW Heritage Office and Department of Urban Affairs and Planning 1998, *How to Prepare Archival Records of Heritage Items*.

- Former NSW Department of Planning 2006, *Photographic Recording of Heritage Items Using Film or Digital Capture – Heritage Information Series*.

At a minimum this will include images of the grave cut, the coffin, the skeleton and the empty grave.

Measured drawings will be made of relevant archaeological features, especially skeletal remains, preferably at a scale of 1:10 (or higher if appropriate).

5.7. Stage 8 – Reburial of human remains and grave goods

Depending on the express wishes of any identified descendants of the deceased, it is intended that the remains be reburied at a local cemetery.

The reburial process would be carried out by an accredited undertaker, with each individual being interred within a metal-lined coffin.

5.8. Stage 9 – Post-excavation report

The post-excavation report would include a description of the works performed, the results of the archaeological excavation program, photographs, survey plans, artefact catalogue and artefact illustrations. The report would include a response to the research questions posed in this ARDEM. The results of the excavation would be presented in a post-excavation report, a copy of which would be provided to Heritage NSW within the NSW Department of Climate Change, Energy, the Environment and Water approximately 12 months from the conclusion of the excavation (subject to the wishes of any descendants).

6. STAKEHOLDER CONSULTATION

Based on the historical research described in Section 3 above, attempts will be made to identify living relatives of the deceased. Where historical research and subsequent enquiries fail to identify descendants, an advertisement may be placed in a local newspaper seeking information.

Others who may be consulted include:

- The local police – will be informed as a courtesy prior to works proceeding;
- The Regional Council; and
- Clergy of an appropriate denomination.

The Department of Health will also be notified and involved.

Reburial of the deceased will be undertaken in accordance with the reasonable wishes of any descendant family members and relatives who are identified during the archival search process, or failing the identification of the deceased, with appropriate civil or religious burial customs.

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APPENDIX A. UNEXPECTED FINDS PROCEDURE

Upon discovery of a potential, unexpected archaeological object(s), the following Unexpected Finds Procedure must be followed:

Step	Task	Responsibility
1	Stop work and protect potential historical archaeological object(s)	
1.1	Stop all work in the immediate area of the archaeological object(s) and notify the project manager.	All
1.2	Where practical, use high visibility fencing to establish a 'no-go zone' around the object(s) and inform all site personnel. No further interference – including various works, ground disturbance, touching or moving the object(s) must occur within the 'no-go zone'.	Project Manager
1.3	Photograph the archaeological object(s), including its general location and any distinguishing features.	Project Manager
1.4	If the find is reasonably suspected to be human skeletal remains, notify local police immediately. If the find does not involve human remains or is inconclusive, proceed to the next step.	Project Manager
2	Contact and engage a heritage professional (qualified archaeologist)	
2.1	Contact a heritage professional (qualified archaeologist) to discuss the location and extent of the object(s) and provide photographs taken at Step 1.3.	Project Manager
2.2	Arrange for site access for the heritage professional (qualified archaeologist) to inspect the object(s) as soon as practicable. The timing of a site inspection will be responsive to the demands of the project and determined in consultation with Project Manager. In most cases, a site inspection is required for conducting a preliminary assessment and recording of the object(s).	Project Manager and Heritage Professional
3	Complete preliminary assessment and recording of the potential archaeological object(s).	
3.1	In certain cases, the heritage professional (qualified archaeologist) may determine from the photographs that no site inspection is required because the object has no archaeological potential (if	Project Manager and Heritage Professional

Step	Task	Responsibility
	so proceed to Step 8). Advice should be provided in writing by the archaeologist (e.g. via email) and confirmed by the project manager.	
3.2	The engaged heritage professional (qualified archaeologist) will conduct preliminary assessment and formal recording of the object(s). This assessment should include the assessment of heritage significance of any finds encountered.	Heritage Professional
3.3	Subject to the assessment by the heritage professional (qualified archaeologist), work may recommence at a set distance from the object(s). This is to protect any other associated archaeological material that may exist in the vicinity.	Project Manager and Heritage Professional
4	Protect the archaeological object(s) and notify Heritage NSW	
4.1	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be protected from any impact or harm (e.g. from works, inclement weather or unauthorized human interactions).	Project Manager
4.2	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be reported to the Heritage NSW under section 146 of the <i>Heritage Act 1977</i> (NSW).	Heritage Professional
5	Complete investigation requirements outlined by the heritage professional (archaeologist)	
5.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions Heritage NSW.	Heritage Professional
5.2	Implement the archaeological or heritage management plan. Where impact is expected, this may include a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, obtaining heritage approvals etc., if required.	Heritage Professional
5.3	Assess whether heritage impact is consistent with the project approval or if project approval modification is required.	Project Manager and Heritage Professional
5.4	Where statutory approvals (or project approval modification) are required, impact upon archaeological object(s) must not occur until heritage approvals are issued by the appropriate regulator.	Project Manager and Heritage Professional

Step	Task	Responsibility
5.5	<p>Where statutory approval is not required but where recording is recommended by the heritage professional (qualified archaeologist):</p> <p>Ensure short term and permanent storage locations are identified for archaeological object(s) removed from site.</p> <p>Ensure all archaeological excavation and heritage recording are completed prior to works resuming</p>	Project Manager and Heritage Professional
6	Resume work	
6.1	<p>Seek clearance to resume work from the heritage professional (qualified archaeologist). Clearance would only be given once all archaeological excavation and/or heritage recommendations are complete. Ongoing consultation and monitoring by heritage professionals (qualified archaeologists) and or other stakeholders may also occur for the remaining duration of the development works.</p>	Project Manager and Heritage Professional
6.2	<p>If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.</p>	Project Manager and Heritage Professional
6.3	<p>If additional potential unexpected archaeological object(s) are discovered on site, repeat from Step 1.</p>	Project Manager

APPENDIX G

**ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY –
WELLS (MP13, MP23, MP25)**

EXTENT



MOUNT PLEASANT OPERATION

ARCHAEOLOGICAL RESEARCH DESIGN AND EXCAVATION METHODOLOGY

HUMPHRIES (MP13), DEVINE'S (MP23) AND GALL'S FARM (MP25) WELLS

Prepared for MACH Energy Australia Pty Ltd
June 2024—FINAL



SYDNEY

MELBOURNE

BRISBANE

HOBART

PEOPLE CENTRED HERITAGE

EXTENT HERITAGE PTY LTD
 ABN 24 608 666 306
 ACN 608 666 306
 accounts@extent.com.au
 extent.com.au

SYDNEY
 Level 3/73 Union Street
 Pyrmont NSW 2009
 T 02 9555 4000

MELBOURNE
 Level 1, 52 Holmes Street
 Brunswick East VIC 3057
 T 03 9388 0622

BRISBANE
 Level 2, 109 Edward Street
 Brisbane QLD 4000
 T 07 3051 0171

HOBART
 Level 3, 85 Macquarie Street
 Hobart TAS 7000
 T 03 6144 5880

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1. INTRODUCTION

1.1. Project background

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by MACH Energy Australia Pty Ltd (MACH Energy) to prepare a historical Archaeological Research Design and Excavation Methodology (ARDEM) for the following wells at three locations:

- MP13 – Humphries farm;
- MP23 – Devine’s farm; and
- MP25 – Gall’s farm.

These wells are located in the vicinity of the Mount Pleasant Operation. The Mount Pleasant Operation is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton. The Mount Pleasant Operation involves the construction and operation of an open cut coal mine and associated rail spur and product coal loading infrastructure.

This ARDEM provides a methodology for the archaeological investigation of the wells at these three locations, and their contents, but does not provide a methodology for the archaeological investigation of any other potential ‘relics’ at the sites (as these would be covered by an agreed Chance Finds Procedure).

This ARDEM has been prepared in accordance with and follows Heritage NSW’s guideline documents (Section 1.2). It presents a proposed methodology for each stage of the excavation of the wells at Humphries (MP13), Devine’s (MP23) and Gall’s Farm (MP25), informed by research questions developed for the potential archaeological resource.

The proposed excavation would be undertaken by a team of two to three suitably qualified archaeologists supervised by an Excavation Director in accordance with the guidelines and standards prepared by the Heritage Council of NSW and Heritage NSW.

1.2. Statutory framework

Humphries (MP13) and Devine's (MP23) were identified in the Mount Pleasant Optimisation Project (the Project) Environmental Impact Statement (EIS) (MACH Energy 2021) as archaeological sites that would be impacted by the Project. The EIS recommended that prior to any ground disturbance activities, the wells at Devine's and Humphries should be investigated due to their potential to contain 'relics' as defined under the NSW *Heritage Act 1977*. Subsequently, from the comments received from Heritage NSW during the public exhibition of the EIS, MACH Energy has indicated that the well at the Gall's Farm (MP25) site might be suitable for archaeological excavation as well, although it has been assessed by Extent Heritage as not being of local or state significance.

The three wells were assessed by Extent Heritage (2020) as being archaeological sites with low potential to contain 'relics' as defined by the NSW *Heritage Act 1977* (MACH Energy 2021). Further, they were assessed as being of neither local nor state significance. These assessments are reproduced in Section 4.5.

This ARDEM was prepared by Extent Heritage to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418:

B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

...

(f) describe the measures to be implemented on the site to:

...

(v) undertake additional archaeological investigation of sites anecdotally reported to contain human burials; and

This ARDEM is included as an appendix to the Historic Heritage Management Plan for the Project (SSD 10418).

The Project was declared a State Significant Development (SSD) in 2022 (SSD 10418). An excavation permit is not required, pursuant to section 139 of the NSW *Heritage Act 1977*. However, in providing comment on the EIS and proposed mitigative actions, Heritage NSW requested that an ARDEM be prepared as if an excavation permit were required pursuant to section 139 of the *Heritage Act 1977* (SSD 10418 PA 17).

This ARDEM was prepared in accordance with the principles and procedures established by the following documents:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013* (the Burra Charter) (Australia ICOMOS 2013); and
- 'Historical Archaeology Code of Practice' (Heritage Council 2006).



1.3. Site location and identification

The study area for this ARDEM constitutes the three well location: Humphries (MP13), Devine's (MP23) and Gall's Farm (MP25).

Both Devine's (MP23) and Gall's Farm (MP25) are located towards the northern extent of the Mount Pleasant Operation and would be physically impacted by the proposed mine works. Humphries (MP13) is located towards the southern boundary, along Wybong Road, and will also be directly impacted by the proposed works. However, consistent with the conclusions of the previous Historical Heritage Assessment conducted by Extent Heritage (2020), the site was assessed as not of state or local significance, and it was appropriate for Project works to proceed without the involvement of an archaeologist. Nevertheless, MACH Energy has indicated that it may be possible to investigate the well at MP13. This ARDEM has been prepared based on the assumption that the well at Humphries (MP13) is still present in the landscape and can be safely archaeologically excavated.

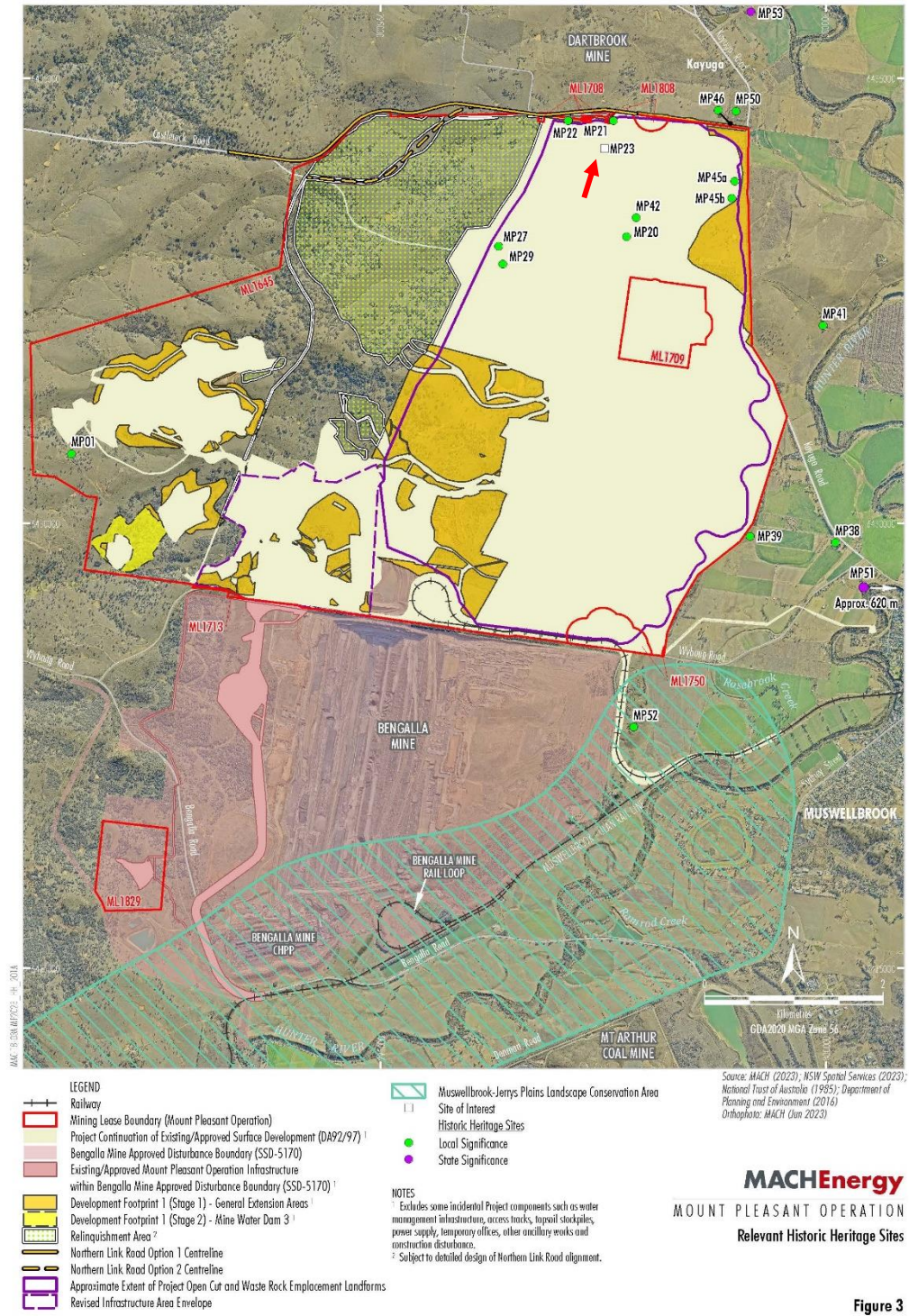


Figure 1. Map illustrating the boundary of the Mount Pleasant Operation Mining Lease with approximate locations of historical heritage places previously assessed. Note, Humphries (MP13) and Devine's (MP25) is not included on this map due to its being assessed as not having significance in the EIS.

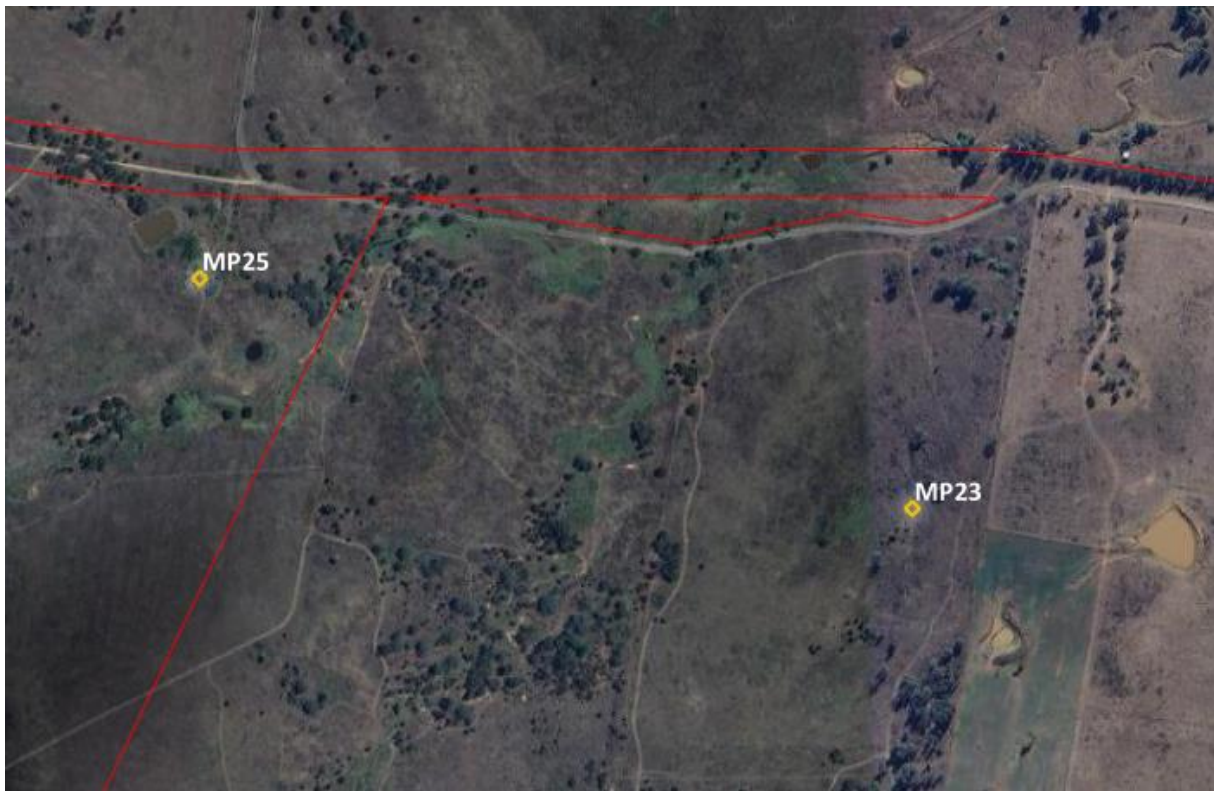


Figure 2. Aerial imagery showing a close-up of the location of Gall's Farm (MP25) and Devine's (MP23) within the Project area (red outline).

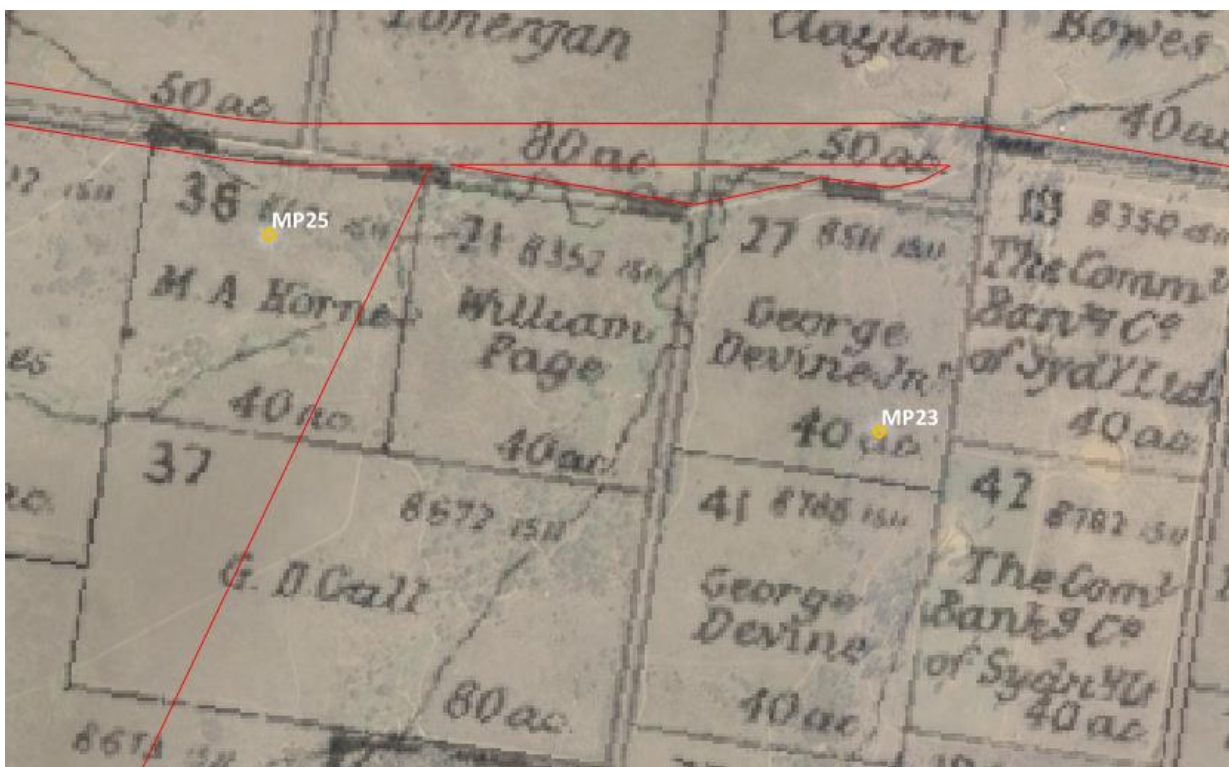


Figure 3. Map showing the position of MP25 and MP23 relative to their historical portions (Source: NSW Department of Lands 1938 via National Library of Australia)



Figure 4. Aerial image showing the location of Humphries (MP13) within the Project area (red outline).

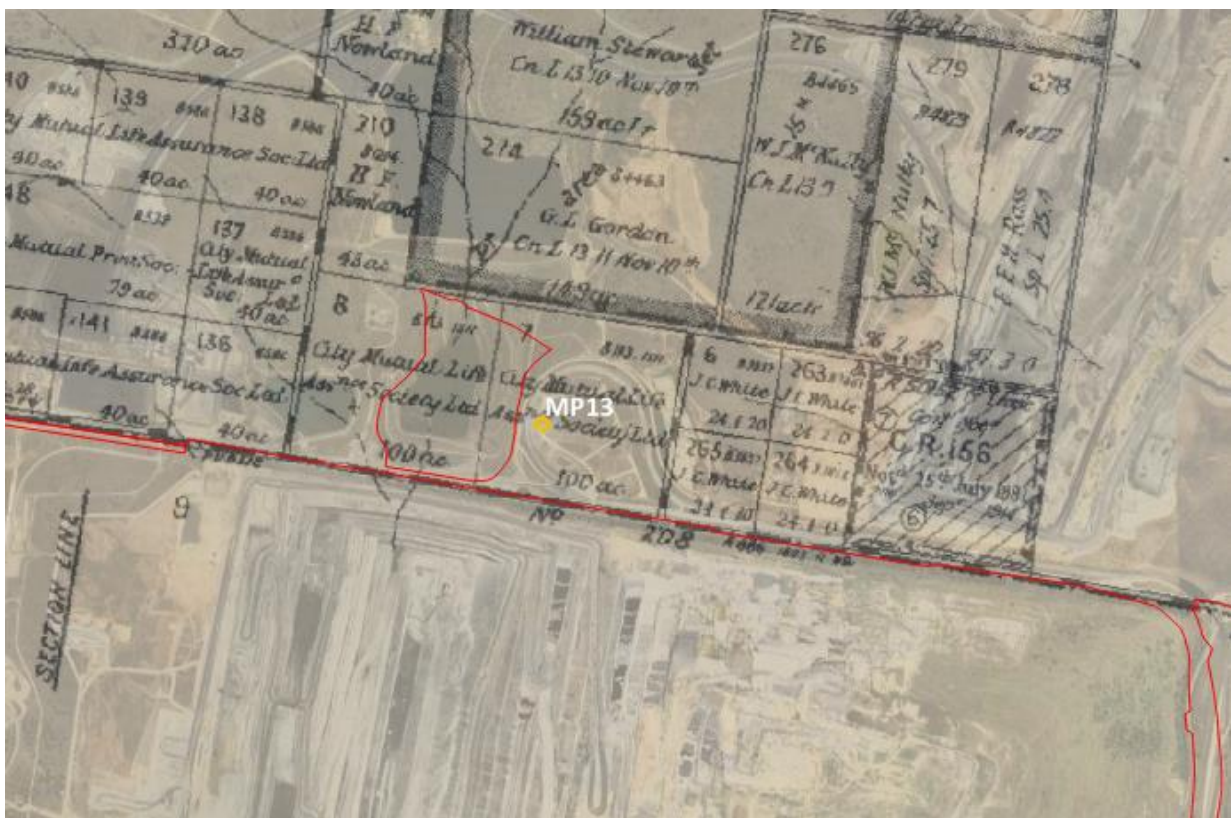


Figure 5. Map showing the position of MP13 relative to its historical portion (Source: NSW Department of Lands 1938 via National Library of Australia).

1.4. Previous reports and investigations

The three sites (MP13, MP23, and MP25) have been subject to previous heritage investigations. This report draws on the following previous heritage reports:

- Veritas Archaeology and History Services (VAHS) 2014. *Mount Pleasant Historic Heritage Study*. Prepared for Rio Tinto Coal Australia.
- Extent Heritage 2020. *Mount Pleasant Optimisation Project, NSW Historical Heritage Assessment and Statement of Heritage Impact*. Prepared for MACH Energy Australia Pty Ltd.

1.5. Limitations

This report uses historical documentation and previously established significance assessments prepared by third party heritage consultants to describe and assess the heritage significance of land that would be affected by the proposal. This ARDEM has been prepared in accordance with the Heritage Council of NSW's *Archaeological Assessment Guidelines* (1996) Heritage Branch of the Department of Planning's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009), the Department of Planning and Environment's *Heritage Code of Practice* (2006) and *Assessing heritage significance Guidelines for assessing places and objects against the Heritage Council of NSW criteria* (2023).

This report does not review the Indigenous cultural heritage values of the subject area. This report aims to satisfy Part B, Condition B73(f)(v) of Development Consent SSD 10418, and forms part of the appendix to accompany the Historic Heritage Management Plan (SSD 10418).

1.6. Authorship

This report was prepared by Hannah Craig-Ward (Heritage Advisor, Extent Heritage) and reviewed by Jessica Cuskelly (Senior Heritage Advisor, Extent Heritage) and Andrew Sneddon (Director, Extent Heritage) for quality assurance purposes.

2. STUDY AREA

The Mount Pleasant Operation is located in the Upper Hunter Valley of NSW, approximately 3 km northwest of Muswellbrook and approximately 50 km northwest of Singleton.

The study area for this ARDEM constitutes the three well locations.

2.1.1. Humphries (MP13)

Humphries (MP13) is located towards the southern boundary of the mining lease (ML 1645), along Wybong Road (Figure 4) and is approximately 5.6 km east of Muswellbrook and approximately 10 km southwest of Aberdeen. Historically, the site was located on Portion 7 and 8, Parish of Ellis, County of Brisbane (Figure 5).

The well at Humphries (MP13) was described as a timber-lined well by VAHS (2014, p. 172).



Figure 6. The remains of a timber-lined well at MP13 (Source: VAHS 2014, p. 181).

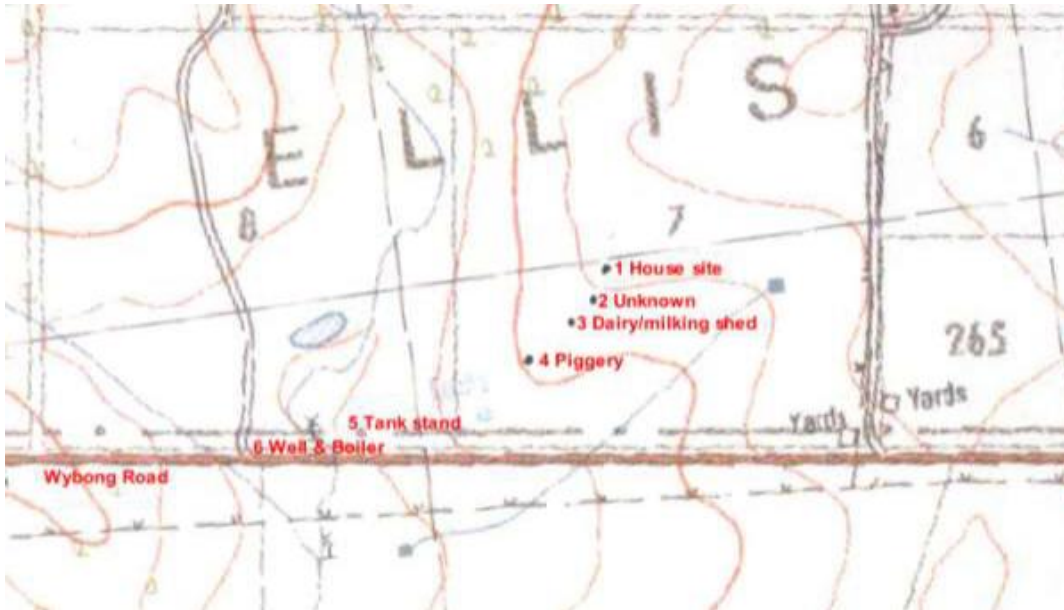


Figure 7. Part of a topographical map with annotations by Veritas indicating the position of features within the landscape on Portion 7 and 8.

2.1.2. Devine's (MP23)

Devine's (MP23) is located towards the northern boundary of the mining lease (ML 1645) and is approximately 6 km northwest of Muswellbrook and approximately 5 km southwest of Aberdeen. Historically, the site was located on Portion 27, Parish of Ellis, County of Brisbane (Figure 3).

Devine's was originally a farming property featuring a slab cottage with five rooms and kitchen, two sheds, a dam, and fencing (VAHS 2014, p. 274). The site is known by the name of the original inhabitants of the property, the Devine family.

The well comprises an underground brick tank lined with render (Figure 8).



Figure 8. The underground tank at Devine's, constructed of brick and lined with render (Source: Extent Heritage 2018).

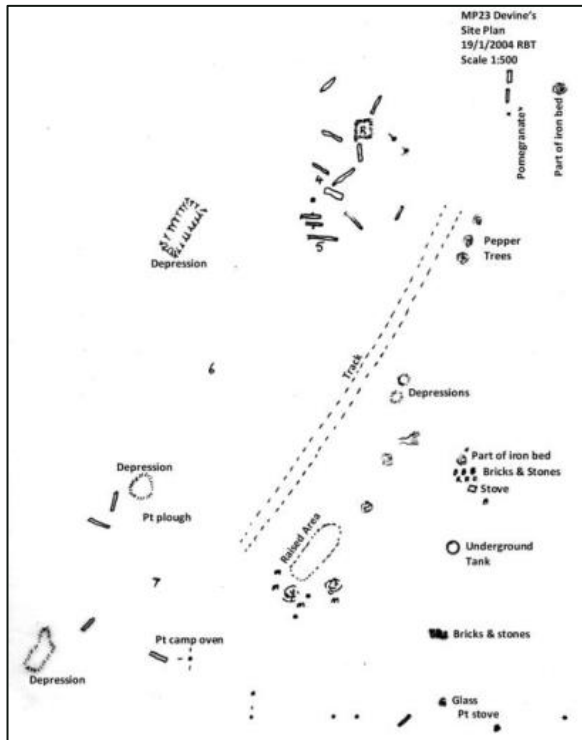


Figure 9. Site plan (not to scale) showing location of identified features including the underground tank in 2004 at Devine's (MP23) (Source: VAHS 2014, p. 278).

2.1.3. Gall's Farm (MP25)

Gall's Farm (MP25) is located towards the northern extent of the mining lease (ML 1645) and is approximately 6.9 km northwest of Muswellbrook and approximately 5.5 km southwest of Aberdeen. Historically, the site was located on Portion 36, Parish of Ellis, County of Brisbane (Figure 3).

The well was located beneath a windmill and near to the remains of a wooden trough (VAHS 2014, p. 302) (Figure 10 and Figure 11). The construction method was not specified.



Figure 10. The collapsed windmill and the remains of Figure 11. The well under the windmill at MP25, which is the wooden trough at MP25 (Source: Extent Heritage 2020, p. 80) filled with debris and soil deposits (Source: Extent Heritage 2020, p. 56).

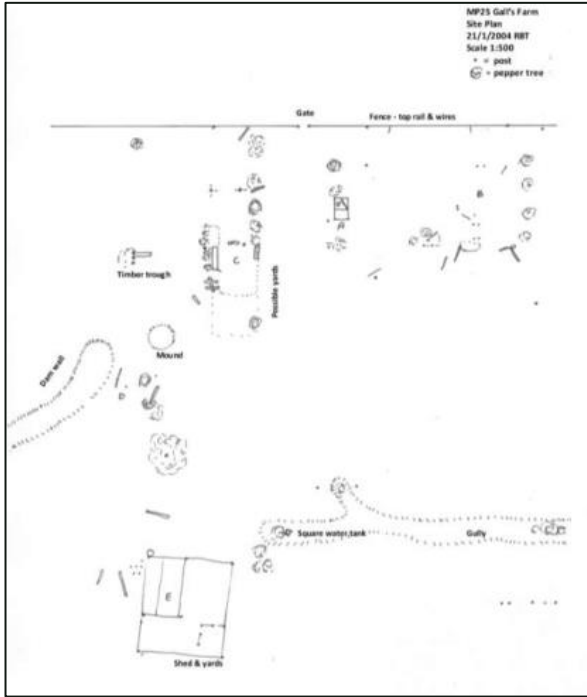


Figure 12. Plan drawing (not to scale) showing the location of surface features at Gall's Farm (MP25), 2004 (Source: VAHS 2014, p. 238).

3. HISTORICAL CONTEXT

This section provides a summary of the development of the Muswellbrook area as well as site specific history. It draws from the historical overview presented in the VAHS report (2014, p. 35-37) as well as Extent Heritage's previous historical heritage assessment (2020, p. 26-27), augmented by additional historical research.

3.1. Muswellbrook

The early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. As early as 1823, explorer Allan Cunningham travelled over The Great Dividing Range almost to the present site of Muswellbrook. By 1824, government surveyor Henry Dangar began to survey and map the Hunter Region, setting aside 640 acres for a village that was to become the township of Muswellbrook (Dangar 1828). Muswellbrook was strategically situated in relation to the Hunter River and was on the main track to the Liverpool Plains, which subsequently became the Great Northern Road (present-day New England Highway) (Extent Heritage 2020, p. 26).

Following Dangar's survey, large grants of land in the area, particularly along the Hunter River, were awarded to wealthy settlers in return for taking convict labourers into their employ (Extent Heritage 2020, p. 26). This early period of settlement saw the establishment of a number of large estates in Muswellbrook, including 'Edinglassie', 'Overton', 'Negoa', and 'Bengalla' estates, among others. These wealthy landowners 'dominated the economic and social life of the district' (VAHS 2014, p. 36). By 1841, Muswellbrook had become a thriving town of 215 residents with multiple shops, several hotels and a flour mill. By the mid-nineteenth century, Muswellbrook's population had grown considerably in response to increased trade, the opening of the railway in 1869 and the increased availability of land under *The Crown Lands Acts* of 1861 (Extent Heritage 2020, p. 26).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses. The fertile nature of the land combined with ease of irrigation and transport to Sydney enabled Muswellbrook's settlers to successfully establish and support a range of agricultural and pastoral industries (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Towards the end of the nineteenth century, the introduction of milking machines and tractors led to the mechanisation of farming, which in turn created a pivotal increase in productivity for these early small-scale farming enterprises. Following the opening of the Kayuga Creamery in 1893, the establishment of large-scale commercial dairying soon provided the economic basis for Muswellbrook. Other creameries and butter factories soon opened at Overton (Blunt's), Muswellbrook and Aberdeen (Extent Heritage 2020, p. 26; VAHS 2014, p. 36).

Concurrently, the development of Muswellbrook was also defined by the advent of a new, dominant industry: coal mining. As early as 1867, the *Maitland Mercury* reported the opening of a coal mine on the Negoa Estate for the supply of the Muswellbrook blacksmiths (VAHS 2014:46). By the late 1800s, the Weis Brothers were reporting operations of a coal mine at Kayuga on the property of Mr. Elijah Cox, which continued until the early 1930s (Extent Heritage 2020, p. 27; VAHS 2014, p. 37).

In addition, the Muswellbrook Coal Mine is one of the oldest coal mines in NSW that remains operational (Muswellbrook Shire Council 2015a). Established in 1906 as an underground mine, the Muswellbrook Coal Mine shifted its operations to open cut mining in the mid-1940s (Extent Heritage 2020, p. 27).

This combination of a new, dominant industry (i.e. coal mining) and the subdivision of many of the area's larger estates into smaller land holdings suitable for tenant farmers significantly altered Muswellbrook from a small country town to an economically diverse and growing rural/resource extraction centre. Further, it played a significant role in shaping the character of the cultural landscape (Extent Heritage 2020, p. 27).

3.2. Kayuga

While a village reserve appeared on early maps of the region, by 1858 the only development was the establishment of a burial ground for the surrounding district (in 1828) (VAHS 2014, p. 40, 43). The first plan of the village was drawn by Surveyor John Rogers in May 1858, however it was redesigned by Surveyor Bennet on 24 September the same year, to better align the streets with the Muswellbrook to Scone road (VAHS 2014, p. 43). Kayuga took its name from Donald MacIntyre's Kayuga Station to the north, and John Hobart Cox's Negoa station was located to the south of the village (VAHS 2014, p. 43).

Village allotments were put up for sale in 1861, however sales were very slow and Kayuga remained as a small township with a post office, hall, school, and church as well as the original cemetery (*The Sydney Morning Herald* 1861, p. 2; VAHS 2014, p. 44).

3.3. Humphries (MP13) site history

Portions 7 and 8 were pre-emptive leases taken up by George Seabrook in 1862 (VAHS 2014, p. 170). A map by a surveyor, John Neill, dated 3 February 1863, indicated a house and yard constructed on Portion 8 by this time (Figure 5). Ownership of the property was transferred to Mary Ann Seabrook in May 1866 (Extent Heritage 2020, p. 45; VAHS 2014, p. 170).

In 1872, ownership was transferred to Harriet Nowland, followed by her daughter, Harriet Farlow Nowland on 8 January 1874 (Extent Heritage 2020, p. 45; VAHS 2014, p. 170). When Harriet F. Nowland applied for the administration of the estate of her mother in 1880, she gave her address as Bollibon, Muswellbrook (VAHS 2014, p. 170). In 1885, property records listed H F Nowland as the occupier, recording a property of 600 acres, 4 horses, 21 cattle, and 450 sheep (Extent Heritage 2020, p. 45; VAHS 2014, p. 170).



Figure 13. Part of John Neill's 1863 plan showing Portion 8 with a house and yard marked top left (Source: VAHS 2014, p. 168).

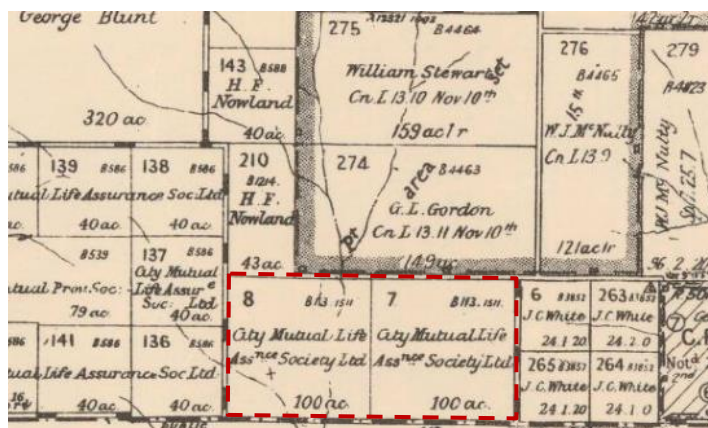


Figure 14 Cropped 1938 Parish of Ellis, County of Brisbane map with Portions 7 and 8 outlined (Source: NSW Department of Lands 1938 via National Library of Australia)

In 1904, Edward Higgins, Parkinson advertised the auction of a portion of Miss H F Nowland's estate comprising of 360 acres (Extent Heritage 2020, p. 45; VAHS 2014, p. 170). In 1906, Harriet died, and the Bollibon Estate was advertised for auction (Extent Heritage 2020, p. 45; VAHS 2014, p. 170). The advertisement described the estate as comprising 283 acres, 'dwelling house and outbuildings, yard, subdivided into several paddocks, including lucerne paddock, 3 dams and splendid well (*The Muswellbrook Chronicle* 1906a, p. 7). The sale also included stock, furniture, and farming implements, and offered 'a splendid opportunity to secure a fine property admirably adapted for dairying, only five miles from Muswellbrook, and one mile from Overton Butter Factory (*The Muswellbrook Chronicle* 1906a, p. 7). The estate was purchased by Thomas Blunt of Overton, and Portions 7 and 8 were transferred in January 1907 (Extent Heritage 2020, p. 45; VAHS 2014, p. 171).

In 1912, Thomas Blunt disposed of his property, Overton, to William F. Robey, which included Portion 8 (Extent Heritage 2020, p. 45; VAHS 2014, p. 171). Portions 7 and 8 were then sold by W. F. Robey to John M. C. Humphries and Kenneth W. Humphries, as tenants in common, graziers of Muswellbrook (Extent Heritage 2020, p. 45; VAHS 2014, p. 171). On 1 July 1920, the Humphries split their properties and K. W. Humphries purchased Portions 7 and 8 (Extent Heritage 2020, p. 45; VAHS 2014, p. 171).

3.4. Devine's (MP23) site history

George Michael Devine Snr was born c.1814 in Aberdeenshire, Scotland and emigrated to Australia where he married Charlotte Worthington in Parramatta, Sydney in 1845 (NSW Marriage Registration 79/1845 V184579 77). George Snr and Charlotte had twelve children together, eleven of whom survived to adulthood, and between 1860 and 1871 the family moved to Kayuga. Their son, George Michael Devine Jnr purchased Portion 27, Parish of Ellis, (comprising 40 acres) on 20 September 1866 (VAHS 2014, p. 274). At the time he was only 16 years old, and his parents owned several small parcels of land within the village of Kayuga. A house was built on Portion 27, and George Jnr later acquired Portions 41 and 72 (VAHS 2014, p. 274).



Figure 15. Cropped 1915 Parish of Ellis County of Brisbane map with Portion 27 outlined (Source: New South Wales, Department of Lands 1915 via NSW Land Registry Services 2020 Historical Land Records Viewer).

George Snr died 21 June 1871, leaving his estate of 3 acres 2 roods and 22.5 perches, being allotments 1, 2 and 7 Section 10 in Kayuga village to his ten children with his wife retaining a life interest (VAHS 2014, p. 274). No buildings had been constructed on these allotments, however, and the family likely resided in the house on Portion 27 (VAHS 2014, p. 274).

It appears that George Jnr did not marry or have children and lived in the property until his death in 1932 (*The Muswellbrook Chronicle* 1832, p. 2; VAHS 2014, p. 274). According to his obituary published in *The Muswellbrook Chronicle* (1932, p. 2), George followed farming pursuits as well as being a storekeeper, and was the secretary and later director of the Kayuga Creamery. When the property on Portion 27 was valued for death duties in June 1932, it was described as comprising a slab cottage of five rooms and kitchen along with two sheds, a dam, and fencing (VAHS 2014, p. 274). In this year the property was sold at auction to Patrick Vincent Casey (VAHS 2014, p. 275).

In 1966 the property was then transferred to Bridget Mary Lonergan, Patrick's wife, and then to Wayne and Pat Watts (Bridget's niece) in 1985 (Tickle 2004, p. 104; VAHS 2014, p. 275).

3.5. Gall's Farm (MP25) site history

Portion 36 was originally purchased from the Crown by Mary Ann Horne on 21 November 1867 (VAHS 2014, p. 299). Mary lived at the property with her husband, Charles Ambrose Horne until his death on 9 February 1877 (VAHS 2014, p. 299). Mary died the following year, and an advertisement was posted for the auction of the late Mary Ann Horne's estate, which described a 200-acre property

with a 4-room cottage with shingled roof and verandah, detached kitchen and servant's room, stockyards, milking bails, flower garden, fruit trees, and 20 acres of wheat (Extent Heritage 2020, p. 74; VAHS 2014, p. 299). The property was divided into paddocks and secured by a substantial fence, and included in the sale were seventeen head of cattle, 10 head of horses, and various farming implements as well as poultry (Extent Heritage 2020, p. 74; *The Maitland Mercury and Hunter River General Advertiser* 1878, p. 8; VAHS 2014, p. 299). The property sold, however it appeared that the purchaser was unable to complete the sale (VAHS 2014, p. 299).

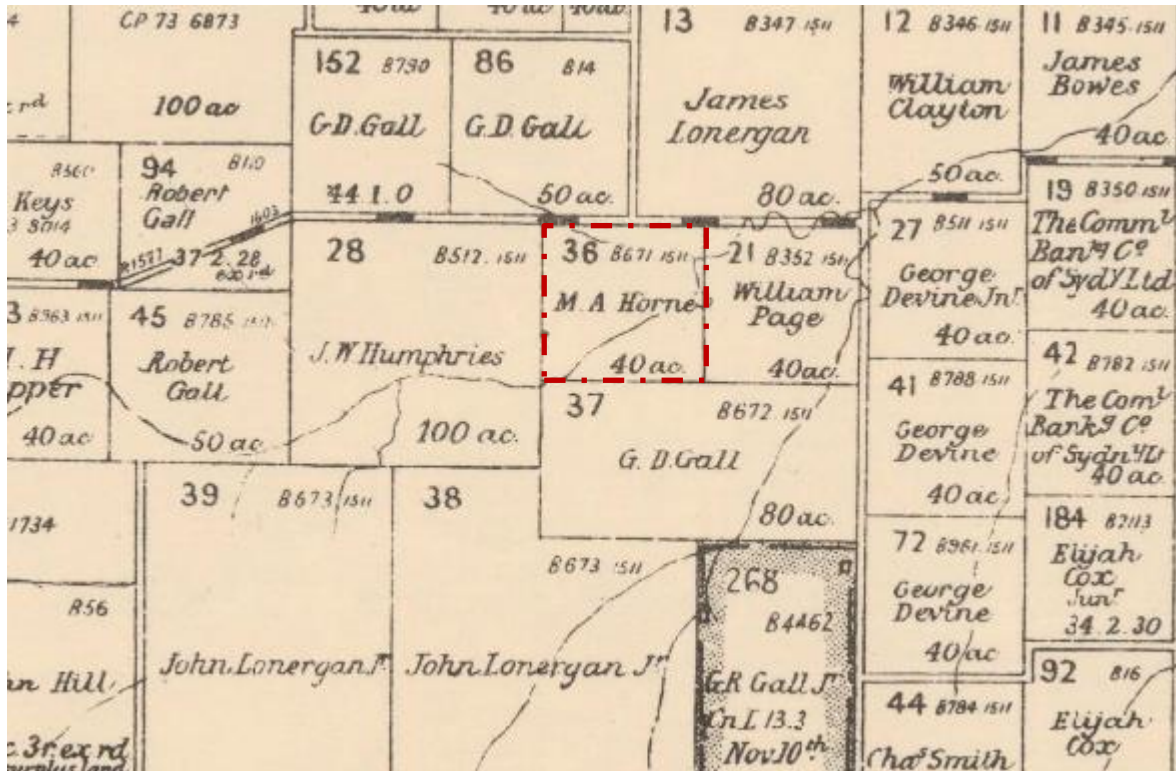


Figure 16. Cropped 1938 Parish of Ellis, County of Brisbane map with Portion 36 outlined (Source: NSW Department of Lands 1938 via National Library of Australia)

On 22 February 1879, the estate was advertised for auction again, which now described a 213-acre property (fitting with Portions 36, 37, 86 and 152), with no stock or improvements (*The Maitland Mercury and Hunter River General Advertiser* 1879, p. 7; VAHS 2014, p. 299). The property was purchased by Abraham Clark, a butcher of Muswellbrook (Extent Heritage 2020, p. 74; VAHS 2014, p. 299). In 1880, Abraham sold Portion 36 to Henry Dell, a grazier of Muswellbrook, who held onto the land until 15 March 1886 when he sold the property to Robert Gall, a farmer of Kayuga (Extent Heritage 2020, p. 74; VAHS 2014, p. 299).

Robert Gall had arrived in Sydney, 1857, and settled in the Shoalhaven area where he and his wife, Jane, had their first two children (VAHS 2014, p. 299). The family relocated to Dartbrook (northwest of Kayuga) in 1860, where Robert took over management of Dartbrook (station) (VAHS 2014, p. 299). When the family moved to Kayuga, Robert's estate was made up of Portions 28, 36, 37, 45, 86, 94, 152 and 202, and was known as 'Chirnside' (*Australian Town and Country Journal* 1887, p. 11; VAHS 2014, p. 300). In 1896, Robert died at his residence following a lengthy illness (*The Maitland Daily*

Mercury 1896, p. 4). Jane Gall died in 1904, and Portion 36 came into the possession of their son, George Davidson Gall (*The Muswellbrook Chronicle* 1904, p. 2; VAHS 2014, p. 301). The first rates notices for Muswellbrook Shire in 1907-1909 listed the estate of the late Robert Gall being 407 acres comprising Portions 45, 94, and 202; Thomas Gall (son) held 100 acres being Portion 28; and George Davidson Gall had 213 acres 1 rood being Portions 36, 37, 86, and 152 (VAHS 2014, p. 301).

In 1906, a man, James Bowles, died from an accidental fall while deepening a well on the property of George Gall (*The Muswellbrook Chronicle* 1906a, p. 2; 1906b, p. 2). The well was described as being approximately 45 feet deep (c.14 m) (*The Muswellbrook Chronicle* 1906b, p. 2). It is not known if this is the well that was identified by VAHS in 2004.

Between 1921 and 1924, the Gall family sold various portions to members of the Lonergan family (Extent Heritage 2020, p. 74; VAHS 2014, p. 301). George Davidson Gall sold the last of the land, including Portion 36, to Bridget Lonergan, the wife of John Lonergan of Thorndale, on 17 July 1925 (VAHS 2014, p. 301).

On 23 September 1946, Bridget Lonergan transferred Portion 36 to Patrick Joseph Lonergan, after which, the property then passed to Wayne and Pat Watts (VAHS 2014, p. 301-302).

4. ARCHAEOLOGICAL SIGNIFICANCE

4.1. Assessment criteria and rankings

The significance of heritage places is assessed against a suite of established heritage assessment criteria. The *Burra Charter* (Australia ICOMOS 2013) notes that a place may be of ‘cultural significance’ for its ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ (Article 1.2). These basic principles have found legislative form in the NSW *Heritage Act 1977*.

Section 4A of the NSW *Heritage Act 1977* states:

- ‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- ‘local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The Heritage Council of NSW provides guidelines for the assessment of heritage significance of an item or place. This is achieved by evaluating the place or item’s significance in reference to specific criteria, which can be applied at a national, state or local level.¹ Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 1, below). These criteria are a reflection of the more broadly expressed criteria set out in Article 1.2 of the Australia ICOMOS *Burra Charter* (Australia ICOMOS 2013a).

¹ State of NSW and Department of Planning and Environment (DPE) 2023, *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, State of NSW and DPE, Sydney.

Table 1. The assessment criteria for heritage significance per the NSW *Heritage Act 1977*.

Criterion	Description
(a)	<i>Historic significance:</i> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
(b)	<i>Historical association:</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 cultural or natural history (or the cultural or natural history of the local area).
(c)	<i>Aesthetic/creative/technical achievement:</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).
(d)	<i>Social, cultural, and spiritual:</i> An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
(e)	<i>Research potential:</i> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
(f)	<i>Rare:</i> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
(g)	<i>Representative:</i> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

Thus, a place may have significance for a range of reasons and the level of significance may vary from local to State. Places may also be ranked further along a scale from little, through moderate to high and exceptional significance (State of NSW and DPE 2023, p. 18). Therefore, a place may be assessed as being, for example, of low local significance or exceptional State significance.

Graded levels of significance are a management tool used to assess the relative significance of elements within an item, place or site and to assist in decision-making regarding elements of a place. The gradings of significance that have been used for elements within the study area are based on guidelines established in the State of NSW and DPE publication, *Assessing Heritage Significance* (see Table 2, below).

Table 2. Gradings of significance definitions (Source: State of NSW and DPE 2023. *Assessing Heritage Significance*. Sydney: Heritage Office).

Grading	Justification	Status
Exceptional	Rare or outstanding element contributing to a place or object's significance.	Fulfils criteria for local and State listing.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance.	Fulfils criteria for local or State listing.

Grading	Justification	Status
	Alterations do not detract from its significance.	
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.	Fulfil criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the place or object's significance	Does not fulfil heritage significance.

4.2. Historical themes

The 'Australian Historical Themes' is a resource developed by the former Australian Heritage Commission (2001, p. 2) to assist in the assessment of historical heritage places. The contribution that the wells may make to the study of these themes is relevant to its potential heritage significance.

The historical themes that have been identified as relevant are presented in Table 3.

Table 3 Relevant historical themes and sub-themes for MP13, MP23 and MP25 (after Australian Heritage Commission 2001).

Australian Historical Theme	Subthemes
2. Peopling Australia	2.4 Migrating 2.5 Promoting settlement
3. Developing local, regional and national economies	3.5 Developing primary production 3.16 Struggling with remoteness, hardship and failure
4. Building settlements, towns and cities	4.6 Remembering Significant phases in the development of settlements, towns, and cities.
5. Working	5.1 Working in Harsh Conditions
8. Developing Australia's cultural life	8.14 Living in the country and rural settlements

4.3. Research questions

In order to meet the research potential of an archaeological site, a range of research questions should guide the proposed excavation methodology and post-excavation analysis. Having regard to the historical research provided in Section 2 and the historical themes noted above, the following research questions have been identified as relevant to the potential archaeological resource at Humphries (MP13), Devine's (MP23), and Gall's Farm (MP25).

- *How were the wells constructed? What can they tell us about water extraction technologies during the nineteenth and twentieth centuries?*

- *What can the presence of any artefacts tell us about discard practices in remote/rural areas?*
- *Is it possible to observe any temporal phases of discard or material change associated with different periods of occupation?*
- *What can the artefacts tell us about the inhabitants of the site?*

4.4. The archaeological condition and integrity of the sites

The condition and integrity of an archaeological site have a bearing on its significance. In particular, later ground disturbance can destroy archaeological sites, or introduce later deposits or artefacts that 'contaminate' the archaeological record.

4.4.1. Humphries (MP13)

VAHS (2014, p. 172) described MP13 as an archaeological site with six visible features. The Extent Heritage site visit in 2018 confirmed this site description. Extent Heritage (2020, p. 46) provided the following summary of each area from the VAHS report:

- Remains of a house: This area includes a number of bricks scattered over the area that may have been the base of a chimney. To the north, there are two places with piers that most likely were tank stands. There is also some concrete with netting from the inside of a corrugated iron tank. Other artefacts include an iron bed frame and a fuel stove. A number of pepper trees are also located to the west.
- Ruins of unknown building: A concrete slab with a spoon drain. The area has been fenced in more recent times with netting.
- Remains of a dairy/milking shed: A concrete slab extended to the east with two drains in the floor. At the western end of the slab are blocks that indicate machinery was previously mounted here.
- Remains of a piggery: This area contains concrete floors and troughs; however, it is highly disturbed.
- A stand built for two tanks constructed from round bush timber and recycled split rails.
- A timber-lined well and a steam boiler partly buried in the soil.

Due to the condition of the site, Extent Heritage (2020, p. 48) concluded that the remains at MP13 had low potential to satisfy the definition of 'relics' contained in the NSW *Heritage Act 1977*. Further, Humphries (MP13) fails to meet the criteria for either State or local significance.

4.4.2. Devine's (MP23)

VAHS (2014, p. 275) described the site as containing 'very little left to understand how the site functioned'. Following Extent Heritage's site visit in 2018, it was reported that the condition of the visible surface remains had declined further (Extent Heritage 2020, p. 68).

Extent Heritage (2020, p. 68) found:

- Only small and scattered quantities of bricks and stones of an uncertain date were visible on the surface, suggesting that the structure that once stood in this location (if there was one) had been demolished in a 'controlled' manner and its bricks deliberately removed for reuse elsewhere.
- Some surface timber elements, however, it was not clear if the timbers formed part of a shed or they may have formed part of a fence or yards.
- No sufficient evidence confirming VAHS' (2014, p. 275) identification of two depressions which may have been the former locations of pit toilets.
- The open underground tank had been filled with debris and fenced off for safety purposes.
- No surface evidence of a burial site to the west of the house was observed.

Due to the high level of surface disturbance, Extent Heritage (2020, p. 69) disagreed with VAHS' significance assessment that Devine's has a high potential to yield archaeological information that would constitute a 'relic' under the NSW *Heritage Act 1977*. Extent Heritage (2020, p. 71) assessed the house remains as not meeting the criteria for either State or local significance.

4.4.3. Gall's Farm (MP25)

The Extent Heritage site visit in September 2018 generally confirmed the site description provided in the VAHS report; however, there had been a decline in the condition of the extant features at MP25 since the VAHS period of fieldwork. In summary:

- the remains of the former dairy (Area A) were not able to be located;
- the surface visibility of the remains of the house (Area B) was significantly impacted by dense vegetation and long grass;
- one wall of the concrete-lined sheep dip (Area C) had collapsed inwards;
- the remains of the cow bails (Area C) and the associated timber posts were further deteriorated since the VAHS period of fieldwork;
- a shed containing one of the grain stripper machines (Area E) had collapsed over the floor, which remains partly supported on timber piers;
- the square water tank was not located but was likely concealed by dense vegetation;
- the windmill had collapsed, and the well had been filled with debris; and
- the remains of the gallows for butchering cattle were not observed.

Based on the condition of the site, Extent Heritage (2020, p. 78) assessed Gall's Farm (MP25) as failing to meet the criteria for either State or local significance, and concluded it has low potential to contain artefacts that would satisfy the definition of 'relics' as defined by the NSW *Heritage Act 1977*.

4.5. Revised Statement of Significance

4.5.1. Humphries (MP13)

Humphries (MP13) was previously assessed as having moderate local significance for satisfying the following criteria:

- *Criterion (a):* The site shows evidence of significant human activity in the development of a mechanised dairy in the early 1900s.
- *Criterion (b):* The site may be associated with a significant person, i.e. Thomas Blunt who was instrumental in introducing mechanisation to the farming industry, developing dairying and butter production on a large scale.
- *Criterion (e):* Site has potential to yield further substantial archaeological information on an early mechanised dairy.
- *Criterion (f):* The site demonstrates a process that is in danger of being lost, i.e. small family-operated dairy.

The VAHS report (2014:182) also concludes:

The site represents an attempt to manage a dairy on non-irrigated land. It has evidence of mechanisation of the milking process and secondary use of skimmed milk. Due to these features, it is of importance to the history of the dairy industry and land use. There is very little evidence as to the accommodation type, size or material and this should be examined further.

The site was reassessed for a Historical Heritage Assessment and Statement of Heritage Impact required for an EIS for the Project and assessed to not be of local significance. Extent Heritage (2020, p. 46) concluded that the site (being the highly deteriorated remains of a relatively common form of small-scale dairy facility with house, from the late nineteenth-early twentieth century) is of limited historical significance (Criterion [a]), even at the local level.

Extent Heritage (2020, p. 46) also disagreed with the VAHS assessment of the site as being significant for its association with Thomas Blunt (Criterion [b]). The history produced by the VAHS report indicates that Mr. Blunt purchased the property in 1906 and sold it on in 1912. The association with Thomas Blunt amounted to no more than six years, at a time when he was principally associated with his main venture at Overton. Furthermore, Extent Heritage (2020, p. 47) disagreed with the use by the VAHS report of Criterion (f) in its heritage assessment above. Criterion (f) relates to places that are 'uncommon, rare or endangered' rather than to places that may 'demonstrate a process'. This aspect of the assessment would be better placed against Criterion (e). In any event, evidence of dairying activity in the region from the late nineteenth and early twentieth centuries is not rare.

Extent Heritage (2020, p. 48) concluded that the archaeological remains at MP13 have limited potential to contribute to new knowledge about the settlement of the local area. It was noted that this potential was limited by:

- levels of disturbance at the site;
- the nature of the site's abandonment; and
- the existence of other better-preserved sites and sources.

The remains at MP13 have low potential to satisfy the definition of 'relics' contained in the NSW *Heritage Act 1977*. Further, the potential archaeological remains of the site would not satisfy the criteria for aesthetic or technical significance (Criterion [c]). In archaeological terms, the site has no known association with people of note (Criterion [b]). There is no reported strong community association with the location (Criterion [d]). It is not rare or uncommon (Criterion [f]).

This report agrees with Extent Heritage's (2020) assessment. However, while the disused timber-lined well would not constitute a relic under the NSW *Heritage Act 1977*, being rather a 'work' under the legislation, there is some potential that relics may have been discarded and be present within the lower deposits of the well. Therefore, this ARDEM includes a methodology for its investigation, should the well still exist.

4.5.2. Devine's (MP23)

Devine's (MP23) was previously assessed by VAHS (2014, p. 292) as having high local significance for satisfying three NSW *Heritage Act 1977* assessment criteria. Specifically:

- *Criterion (a)*: The site shows evidence of significant human activity, possibly from 1860s to 1920s.
- *Criterion (b)*: The site is associated with a group of people (Devine family) who lived on the site for over 60 years and played a major role in the development of the district.
- *Criterion (e)*: The site has high potential to yield new or further substantial archaeological information.

This assessment was revised by Extent Heritage (2020) due to the condition of the site in 2018. It was determined that the extant archaeological remains at MP23 have some potential to contribute knowledge about the rural way of life in the local area, but that potential is likely to be limited by levels of disturbance at the site, the removal of the former structures, and the existence of other better sites and resources (Extent Heritage 2020, p. 69).

Extent Heritage (2020, p. 69) concluded:

- In archaeological terms:
 - the site at MP23 is unlikely to contribute knowledge that cannot be (and has not already been) obtained from other resources including previous research into rural NSW homes of the period and in the local area, the recollections of local residents, historic photographs and other archival material;
 - the site at MP23 is unlikely to contribute knowledge that cannot be obtained from other better-preserved sites, including late nineteenth and early twentieth century homes that remain in the local area; and

- given the above observations, it is unlikely that the site at MP23 would make a meaningful contribution to substantive research questions relating to Australian history, including those relating to the rural way of life in the Muswellbrook area.
- The potential archaeological resource at MP23 has low potential to contain 'relics' as defined by the NSW *Heritage Act 1977*. Further, the underground water tank at the site does not meet the definition of a 'relic' under the NSW *Heritage Act 1977*.

The potential archaeological remains at MP23 would not satisfy the criteria for aesthetic or technical significance (Criterion [c]). There is no reported strong community association with the location (Criterion [d]). It is not rare or uncommon (Criterion [f]).

This report agrees with Extent Heritage's (2020) assessment. Given the disturbed context of the site, Devine's has limited potential to shed light on the circumstances of a specific early settler family in the district, and to broader regional questions concerning early settlement conditions, pastoral activities, health, and mortuary practices.

Furthermore, the research questions that Devine's may address can also be answered by reference to other, often better, resources including journals, newspaper articles, archival documents (death certificates etc.), local histories and so forth. Further, there are other similar sites in the broader region that may be better for addressing these questions.

While the underground brick well does not constitute a 'relic' under the NSW *Heritage Act 1977*, there is some potential that artefacts may have been discarded in it, particularly during phases of abandonment at the property. Therefore, this ARDEM includes a methodology for its investigation, should the feature still exist.

4.5.3. Gall's Farm (MP25)

The VAHS (2014, p. 322) report concluded that MP25 is of high local significance for satisfying the following criteria:

- *Criterion (a)*: The site shows evidence of significant human activity with at least five areas with different functions.
- *Criterion (d)*: The site is important for its association with an identifiable group, i.e. early conditional purchase settlers.
- *Criterion (e)*: There is the potential to yield new or further archaeological information on the house construction and plan.
- *Criterion (f)*: There is the potential to provide evidence of a way of life that has been lost. The site represents a mixed farming operation that would have been almost self-sufficient.

The VAHS report (2014:322) also concludes:

The site is important as it progressed from a small conditional purchase selection to a reasonably prosperous farm. There is sufficient evidence remaining to determine what function each area on the site performed. There is the possibility to gain valuable information from the house site.

The site was reassessed for a Historical Heritage Assessment and Statement of Heritage Impact required for an EIS for the Project and assessed to not be of local significance. Extent Heritage (2020, p. 76) acknowledged that the property once had a modest role to play in the local area's history as part of the closer settler movement (Criteria [a] and [d]), however presently it is an archaeological site best assessed for its significance by applying Criterion (e) (i.e. potential to yield information). It was noted that the VAHS report appeared to confuse Criteria [e] and [f] in this regard (Extent Heritage 2020, p. 76). Further, it was assessed that applying Criterion (e), the site at MP25 would have limited potential to yield scientific information that could be used to address substantive research questions.

Extent Heritage (2020, p. 78) also noted that:

Historical research into this site has already established its broad ownership and development history. Should any of the above artefacts exist, it is unlikely they would yield information that has not been obtained for rural NSW in this region through other sites and resources. In other words, information would be of narrow, site-specific interest, rather than of State, or even wider local, interest.

Extent Heritage (2020, p. 78) concluded that, in archaeological terms:

- the site at MP25 is unlikely to contribute knowledge that cannot be (and has not already been) obtained from other resources including previous research into rural NSW homes of the period and in the local area, the recollections of local residents, historic photographs and other archival material;
- the site at MP25 is unlikely to contribute knowledge that cannot be obtained from other better-preserved sites, including late nineteenth and early twentieth century homes that remain in the local area; and
- given the above observations, it is unlikely that the site at MP25 would make a meaningful contribution to substantive research questions relating to Australian history, including those relating to the rural way of life in the Muswellbrook area.

Further, the potential archaeological remains of the site would not satisfy the criteria for aesthetic or technical significance (Criterion [c]). The site has no known association with people of note (Criterion [b]). It is not a good representative example of a class of place in the local area (Criterion [g]).

This report agrees with Extent Heritage's (2020) assessment. The remains of the well connected to the collapsed windmill would not constitute a 'relic' under the NSW *Heritage Act 1977*. Rather, it would meet the definition of a 'work' under that Act and would be managed as a structure of low significance. However, there is some potential for objects have been discarded or to have accumulated within the interior of the well which would satisfy the definition of a 'relic' under the NSW *Heritage Act 1977*. Therefore, this ARDEM includes a methodology for its investigation.

5. ARCHAEOLOGICAL INVESTIGATION

This section provides the methodology to guide the proposed archaeological investigations of the three wells.

5.1. RTK survey

- The excavation team would use real-time kinematic positioning (RTK) to record excavated archaeological features.
- A datum and string line may be established for convenient recording of levels, but RTK survey would be undertaken across the site to record levels ASL.

5.2. Excavation methodology

For the archaeological investigation of the three well sites, we propose a staged approach:

Stage One – Site exposure and recording

In the first instance, archaeological excavation would be directed towards exposing the lip of the well.

- This would involve the controlled clearance of any debris and accumulated upper deposits. This would be done by a mechanical excavator.
- The mechanical excavator would be fitted with a flat bucket and would be employed for excavating and clearing any vegetation in the area surrounding the well to assist in exposing the feature. A toothed bucket would only be used where the substrate consists of coarse fill or compacted fill. A buffer of c.200 mm of deposit would be left to be hand excavated with shovels and/or trowels around each well, to ensure no accidental damage is done by the machine excavator.
- Where any surface features or relics are located in the vicinity of the well, the removal of any grass and/or vegetation would be by hand (i.e. shovel, trowel, secateurs, hedge shears).
- The exposed well would be recorded using a combination of photography and photogrammetry, and measured drawings would also be produced. If any relics were uncovered at this stage of the investigation, collected artefacts would be numbered and managed observing the methodology presented in Section 5.3 and Section 5.4.

Stage Two – Excavation

Following the initial exposure and recording of the well, we propose the following methodology:

- Excavation would proceed manually (pick, shovel, and trowel) in the interior of the well but only where the interior's fill extended to within 1 metre (m) or less of the ground surface, for safety reasons.

- Hand excavation would be undertaken stratigraphically with each archaeological feature being given its own unique identifier (Context number). The progress of excavation would be recorded in words and photographs. Measured drawings would be made of the exposed walls of the well. Sections would be recorded in words and measured section drawings. On completion of the excavation the archaeological features would have been recorded using RTK, including levels ASL.
- Archaeological hand excavation within the well would cease at approximately 1m for health and safety reasons.
- The excavation process would include sieving of a sample of the deposits (the quantity of sieved soil to be determined by an archaeologist based on depth, changes in soil texture and colour, etc.).
- Photographic recording at all stages of work would be undertaken. This would include contextual photography, surface relics, any exposed archaeological features, and end of excavation unit photos including an appropriate scale and north arrow. This photography would be augmented with photogrammetry.
- A report would be prepared summarising Stage 1 and Stage 2 of the archaeological investigation (see Section 5.6).
- Following the completion of the hand excavation within the well. Machine excavation would be employed around the external area of each well. The objective would be to remove the well and its surrounds in c1.5 m spits, by machine excavation. This would require benching as bulk excavation increases in depth.
- Machine excavation would cease at 1.5 m, before benching would be required.

Stage Three – Monitoring bulk earthworks and demolition

Due to the amount of earth removal required to reach the lower deposits of each well (which have the potential to contain relics), we propose monitoring of the mechanical demolition and removal of each well during the bulk earthworks phase of the Project. The following methodology would be employed:

- Monitoring would be undertaken by a suitably qualified archaeologist, whose role would be to observe ground disturbance activities as they are undertaken, minimising disruption to those activities.
- The objective of archaeological monitoring is to identify, recover, protect and/or document archaeological artefacts that may be exposed during the removal of deposits within the wells. The qualified archaeologist would need to monitor the works to characterise the sub-surface stratigraphy (although this may not be possible to the level of control observed in standard excavation), evidence of previous disturbance, and potential for archaeology. The progress and results of the monitoring would be recorded using archaeological best-practice including photographs, GPS data, and survey methods. The post-excavation report produced at the conclusion of Stage Two would be updated to include the results of Stage Three.
- Should any relics be exposed during this stage of works, the Unexpected Finds Procedure outlined in Appendix A would be followed. In summary, if an unexpected find is discovered

during monitoring works, the attending archaeologist has the authority to STOP WORK immediately in that area. Any unexpected or chance finds must be reported and assessed in accordance with the Unexpected Finds Procedure.

- Any relics exposed during this stage of works would also be subject to the processes set out in Section 5.4 and 5.5.

5.3. Site recording

During the above Stages, the following site recording processes would be followed:

- All surface artefacts would be given a unique identifier (ID number) to assist with spatial analysis.
- Spatial data and levels ASL would be recorded by RTK.
- Where significant archaeological features are exposed, measured drawings would be prepared (including in plan and section). This would be augmented by recording in words, photographs (including scale bar and north arrow) and photogrammetry.
- All archaeological deposits and features would be allocated a unique context number and recorded in detail on pro-forma context sheets. This would be supplemented by preparation of a Harris matrix for each trench and sitewide, showing the temporal relationships between features and deposits as well as evidence of taphonomic processes.
- Artefacts exposed by excavation would be removed from site for analysis (see Section 5.5 below).
- Other archaeological features that cannot be moved would remain on site. They would be disturbed or destroyed by the mining Project but their research potential by that time will have been realised. They would not require backfilling or protection.

5.4. Artefact management

Any artefacts recovered during the excavation program would be subject to the following management protocols:

- All glass and ceramic artefacts recovered during the survey and excavation programs would be bagged in heavy duty polyethylene bags. The outside of the bag would be annotated with permanent marker with the find context noted (name of site, date of excavation, initials of excavator, context number). The bag would also be tagged with the same information, the tag being heavy duty archival quality plastic and the pen used being a permanent marker. The artefacts would be stored in a secure location. These artefacts would be washed with water prior to being bagged and tagged.
- Metal, wood, bone and shell artefacts would be managed in the same way except they would be brushed clean with a dry brush, rather than washed, prior to bagging. Bags would be pierced so that they can breathe.
- A catalogue (excel spreadsheet) would be maintained of all bags of artefacts placed in storage, noting their content.

- Any larger relic types, such as building materials, may be sampled. Fill deposits would also be sampled, with diagnostic and dateable artefacts recovered to assist with phasing.

5.5. Post-excavation analysis

- All relics would be retained for analysis by specialists during the post-excavation phase of the archaeological program. This would occur over a period of c12 months following the close of the excavations. The artefacts would be taken offsite for analysis, probably to the Extent Heritage laboratories in Melbourne.
- The attributes recorded for each artefact would follow Australian historical archaeology best practice with a focus on provenance, date, method of manufacture, fabric, function and form. The objective would be to generate statistically significant conclusions. A record would be made of the integrity of the find context. The attributes recorded would be guided by the research questions (above). Their focus is on the spatial arrangement of the school and the ways that it functioned in a difficult rural environment.
- Significant artefacts would be recorded by photographs and measured drawings.
- At the conclusion of the project, the artefacts would be handed over to MACH Energy for permanent storage.

5.6. Post-excavation report

The post-excavation report would include a description of the works performed, the results of the archaeological excavation program, photographs, survey plans, artefact catalogue and artefact illustrations. The report would include a response to the research questions posed in this ARDEM. The results of the excavation would be presented in a post-excavation report, a copy of which would be provided to Heritage NSW within the NSW Department of Climate Change, Energy, the Environment and Water approximately 12 months from the conclusion of the excavation.

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APPENDIX A. UNEXPECTED FINDS PROCEDURE

Upon discovery of a potential, unexpected archaeological object(s), the following Unexpected Finds Procedure must be followed:

Step	Task	Responsibility
1	Stop work and protect potential historical archaeological object(s)	
1.1	Stop all work in the immediate area of the archaeological object(s) and notify the project manager.	All
1.2	Where practical, use high visibility fencing to establish a 'no-go zone' around the object(s) and inform all site personnel. No further interference – including various works, ground disturbance, touching or moving the object(s) must occur within the 'no-go zone'.	Project Manager
1.3	Photograph the archaeological object(s), including its general location and any distinguishing features.	Project Manager
1.4	If the find is reasonably suspected to be human skeletal remains, notify local police immediately. If the find does not involve human remains or is inconclusive, proceed to the next step.	Project Manager
2	Contact and engage a heritage professional (qualified archaeologist)	
2.1	Contact a heritage professional (qualified archaeologist) to discuss the location and extent of the object(s) and provide photographs taken at Step 1.3.	Project Manager
2.2	Arrange for site access for the heritage professional (qualified archaeologist) to inspect the object(s) as soon as practicable. The timing of a site inspection will be responsive to the demands of the project and determined in consultation with Project Manager. In most cases, a site inspection is required for conducting a preliminary assessment and recording of the object(s).	Project Manager and Heritage Professional
3	Complete preliminary assessment and recording of the potential archaeological object(s).	
3.1	In certain cases, the heritage professional (qualified archaeologist) may determine from the photographs that no site inspection is required because the object has no archaeological potential (if	Project Manager and Heritage Professional

Step	Task	Responsibility
	so proceed to Step 8). Advice should be provided in writing by the archaeologist (e.g. via email) and confirmed by the project manager.	
3.2	The engaged heritage professional (qualified archaeologist) will conduct preliminary assessment and formal recording of the object(s). This assessment should include the assessment of heritage significance of any finds encountered.	Heritage Professional
3.3	Subject to the assessment by the heritage professional (qualified archaeologist), work may recommence at a set distance from the object(s). This is to protect any other associated archaeological material that may exist in the vicinity.	Project Manager and Heritage Professional
4	Protect the archaeological object(s) and notify Heritage NSW	
4.1	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be protected from any impact or harm (e.g. from works, inclement weather or unauthorized human interactions).	Project Manager
4.2	Where the object(s) is determined to be a non-Aboriginal ('historical') object and/or place, it must be reported to the Heritage NSW under section 146 of the <i>Heritage Act 1977</i> (NSW).	Heritage Professional
5	Complete investigation requirements outlined by the heritage professional (archaeologist)	
5.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions Heritage NSW.	Heritage Professional
5.2	Implement the archaeological or heritage management plan. Where impact is expected, this may include a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, obtaining heritage approvals etc., if required.	Heritage Professional
5.3	Assess whether heritage impact is consistent with the project approval or if project approval modification is required.	Project Manager and Heritage Professional
5.4	Where statutory approvals (or project approval modification) are required, impact upon archaeological object(s) must not occur until heritage approvals are issued by the appropriate regulator.	Project Manager and Heritage Professional

Step	Task	Responsibility
5.5	<p>Where statutory approval is not required but where recording is recommended by the heritage professional (qualified archaeologist):</p> <p>Ensure short term and permanent storage locations are identified for archaeological object(s) removed from site.</p> <p>Ensure all archaeological excavation and heritage recording are completed prior to works resuming</p>	Project Manager and Heritage Professional
6	Resume work	
6.1	<p>Seek clearance to resume work from the heritage professional (qualified archaeologist). Clearance would only be given once all archaeological excavation and/or heritage recommendations are complete. Ongoing consultation and monitoring by heritage professionals (qualified archaeologists) and or other stakeholders may also occur for the remaining duration of the development works.</p>	Project Manager and Heritage Professional
6.2	<p>If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.</p>	Project Manager and Heritage Professional
6.3	<p>If additional potential unexpected archaeological object(s) are discovered on site, repeat from Step 1.</p>	Project Manager

APPENDIX H
NEGOA CONSERVATION MANAGEMENT PLAN

EXTENT

HERITAGE ADVISORS
TO AUSTRALIA AND
THE ASIA PACIFIC



Negoa (MP41)

90 Wiltons Lane, Kayuga, NSW

Conservation Management Plan

Prepared for MACH Energy Australia Pty Ltd

July 2021—FINAL

Sydney
Melbourne
Brisbane
Perth
Hobart

extent.com.au

EXTENT HERITAGE PTY LTD

ABN 24 608 666 306
ACN 608 666 306
info@extent.com.au
extent.com.au

SYDNEY

Level 3/73 Union St
Pyrmont NSW 2009
P 02 9555 4000
F 02 9555 7005

MELBOURNE

13/240 Sydney Rd
Coburg Vic 3058
P 08 9388 0622

BRISBANE

Level 12/344 Queen St
Brisbane Qld 4000
P 07 3051 0171

PERTH

Level 32/152 St Georges Tce
Perth WA 6000
P 08 9381 5206

HOBART

54A Main Road
Moonah Tas 7009
P 03 6134 8124

Document information

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Author(s):	A Sneddon; J Castaldi; V Gandhi; J Heidrich

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1. Introduction

1.1 Background

Extent Heritage Pty Ltd has been engaged by MACH Energy Australia Pty Ltd (MACH) to prepare a Conservation Management Plan (CMP) for the site known as 'Negoa Homestead' (Negoa), located at 90 Wiltons Lane, Kayuga New South Wales (NSW) (being Lot 164/DP635272).

In 2014, a Historic Heritage Study conducted by Veritas Archaeology and History Services (VAHS) identified and assessed Negoa (also known as MP41) as one of a number of heritage sites in the Mount Pleasant area requiring a specific heritage management response, taking into consideration the ongoing operation of the Mount Pleasant Operation (MPO) by MACH. The VAHS report (2014) identified Negoa as a homestead complex encompassing a suite of buildings and the associated rural landscape. Therefore, this CMP includes recommendations for the management of the historic built form and other dimensions of its significance, including its setting and the potential archaeological resource.

This CMP should be used as the principal guiding tool to direct future management, maintenance and conservation works, adaptive re-use, new works, potential future uses, and interpretation of the site. This CMP has been prepared on the understanding that no specific future use has been identified for Negoa, and therefore the document accounts for the possibility that the main residence and other buildings may be left vacant for a period.

This CMP conforms with the Australia International Council for Monuments and Sites (Australia ICOMOS) 'Burra Charter Process', which requires heritage managers to engage in a process of research and significance assessment, followed by policy development and action. The CMP is predicated on the principle that the significance of a place will determine the appropriate heritage management response. Therefore, it identifies potential constraints and opportunities at Negoa arising from its assessed heritage significance. These are presented within a decision-making framework of general management policies together with a series of specific conservation actions.

This CMP has been prepared having regard to relevant guidelines and assessment processes issued and endorsed by the NSW Office of Environment and Heritage (OEH). It provides documentary evidence and physical analysis of the historical development of the place, and assesses the significance of the site as a whole, as well the contributions made by its individual elements.

1.2 Approach and methodology

This CMP has been prepared in accordance with the principles and definitions as set out in the *The Australian ICOMOS Charter for Conservation of Places of Cultural Significance (Burra Charter)* (Australia ICOMOS 2013), and the latest version of the *Conservation Management Plan Assessment Checklist* (2003), produced by the OEH.

The approach for this CMP also follows that set out in Kerr's *The Conservation Plan* (2013), which incorporates the following basic methodology:

- research the history and development of the place;
- identify and assess the significance of the site and its elements;
- develop a policy framework for the management of the site, including both constraints and opportunities that might impact identified heritage values; and
- provide a schedule of management actions required to ensure the ongoing conservation of the place and its elements.

Negoa has been the subject of a number of previous studies and assessments including:

- *EJE Heritage. 1996. 'Muswellbrook Heritage Study: Negoa Homestead'. Unpublished report prepared for Muswellbrook Shire Council. PDF file.*
- *Lindsay Dynan Consulting Engineers Pty Ltd. 2018. 'Negoa Homestead Structural Condition Report'. Unpublished report prepared for MACH Energy Australia. PDF file.*
- *EHO Consulting Pty Ltd. 2021. 'Hazardous Materials Management Survey and Register. 90 Wiltons Lane, Kayuga NSW 2333. Unpublished report prepared for MACH Energy Australia. PDF file.*
- *Veritas Archaeology and History Service (VAHS). 2014. 'Mount Pleasant Historic Heritage Study'. Unpublished prepared for Rio Tinto Coal Australia. PDF file.*

As part of the preparation of this CMP, the site was inspected by heritage advisors from Extent Heritage in April 2018 and again in September 2020. The initial site visit (April 2018) included a surface survey of the garden areas immediately surrounding the extant structures by an archaeologist, in an effort to assess the potential for historical archaeology in these locations.

1.3 Limitations

At the time of the site visit, surface visibility in the open spaces around the extant structures was poor-to-fair. Soil deposits had also accumulated in a number of locations. The assessment of archaeological potential contained in this CMP has therefore relied heavily on desktop research.

At the time of the April 2018 site visit, the cellars under the original brick building could not be accessed for safety reasons. By the September 2020 site visit, access to the cellars was available and their condition was recorded. Both site visits included visual inspections of both the interior and exterior of the buildings, the garden areas and surrounds, at the site. No inspection of the buildings' roof spaces, wall cavities and underfloor areas could be undertaken.

The recommendations for remedial structural work presented in the independent 'Negoa Homestead Structural Condition Report' (Lindsay Dynan Consulting Engineers Pty Ltd 2018) have been considered in the preparation of this CMP. However, this CMP does not constitute a formal dilapidation report or building inspection, and the Lindsay Dynan Consulting Engineers report should be consulted directly for recommendations for remedial structural work.

No community consultation was undertaken in the preparation of this report. The observations made in this report in relation to the possible social significance of the site are based on publicly accessible, published materials.

No Aboriginal community consultation was undertaken in the preparation of this report. Extent Heritage has not been engaged to assess Indigenous cultural heritage places and values.

This report relies on the historical research contained in the following documents, supplemented with additional research where necessary:

- *Veritas Archaeology and History Service (VAHS). 2014. 'Mount Pleasant Historic Heritage Study'. Unpublished report prepared for Rio Tinto Coal Australia. PDF file.*

The historical overview below provides sufficient historical background to provide an understanding of the place in order to assess the significance and provide relevant recommendations. It is not, however, intended as an exhaustive history of the site.

The CMP includes a consideration of the potential archaeological resource. This assessment of archaeological potential has relied on desktop research, as well as observations of visible evidence of potential sub-surface archaeological material made in the field.

1.4 Authorship

The following Extent Heritage staff members have prepared this CMP:

- Dr Andrew Sneddon, director,
- Jennifer Castaldi, senior associate and architect,
- Vidhu Gandhi, senior heritage advisor, and
- Jessica Heidrich, heritage advisor.

The report has been reviewed by Dr Andrew Sneddon, director, for quality assurance purposes.

1.5 Ownership

The site, Negoa, is owned and managed by MACH.

1.6 Terminology

The terminology in the report follows definitions presented in the *Burra Charter* (Australia ICOMOS 2013). Article 1 provides the following definitions:

Adaptation means changing a *place* to suit the existing *use* or a proposed use.

Compatible use means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a *place* so as to retain its *cultural significance*.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, meanings, records, *related places* and *related objects*. Places may have a range of values for different individuals or groups.

Fabric means all the physical material of the *place* including elements, fixtures, contents, and objects.

Maintenance means the continuous protective care of a *place* and its *setting*. Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Place means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Preservation means maintaining a *place* in its existing state and retarding deterioration.

Reconstruction means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material.

Related place means a *place* that contributes to the *cultural significance* of another place.

Restoration means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.

Setting means the immediate and extended environment of a *place* that is part of or contributes to its *cultural significance* and distinctive character.

Use means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

2. Site

2.1 Location

Negoa is situated in the Upper Hunter Valley of NSW, approximately 11.5 kilometres (km) north of Muswellbrook and approximately 2.5 km north-east of Kayuga, within the Muswellbrook Local Government Area (LGA).

The subject property is situated at 90 Wiltons Lane in Kayuga (Figure 1–Figure 2). The homestead itself is approximately 160 metres (m) south of Wilton’s Lane on a slight rise overlooking the Hunter River. To the east of Negoa, the New England Highway (A15) runs north–south to Muswellbrook.

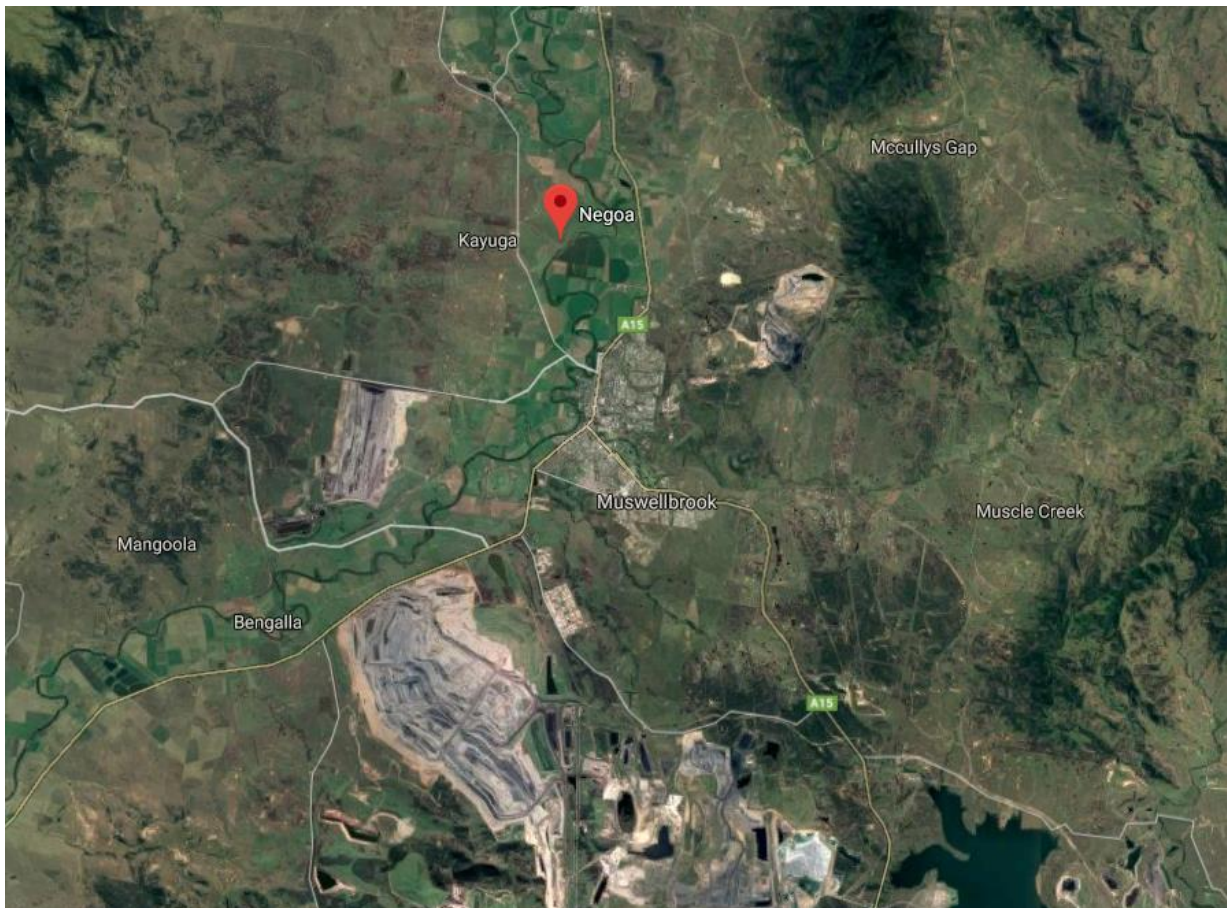


Figure 1. Aerial view indicating the location of Negoa in relation to the Hunter River and the township of Muswellbrook to the south-east. *Source:* Google Earth (2018).



Figure 2. Extract of a topographic map, Aberdeen 90331S (scale 1:25 000), showing the approximate location of Negoa (black circle) in relation to the Hunter River and Kayunga Road. *Source:* Department of Lands NSW (2006).

2.2 Description

The property itself consists of (see Figure 3, below):

- Negoa, a brick homestead, c.1845, with a slightly later (c.1850–60s) two-storey sandstone extension to the west, and a c.1950s (modern) brick addition to the east and north.
- The brick section of the homestead is a single-storey, three-room structure laid out in an L-shape, constructed of bricks, and with a corrugated metal hipped roof. There is a two-room cellar underneath the building accessible from the north, but that entrance has been built over. To its south is the two-storey, rectilinear sandstone extension with a corrugated metal hipped roof, which has two rooms on the ground floor and two on the first floor. Both the structures demonstrate influences of colonial Georgian and Victorian Georgian styles, with symmetrical facades of exposed brick and sandstone.
- The 1950s addition is a single-storey structure with a corrugated metal skillion roof; its eastern part served as the kitchen, and its northern part included a bathroom, a toilet, and a smaller room, which may have been a study.
- There are three outbuildings on the site: a servants' quarters of brick and timber construction, a weatherboard shed, and a smaller corrugated metal shed. The servants' quarters, to the north of the main homestead, is a rectilinear structure made of brick with a timber addition. It consists of a single room and toilet in the brick part of the building, and a timber and glass addition to its east which appears to have served as a conservatory.

The area around Negoa is predominantly rural, characterised by low undulating hills and flat plains, usually cleared of trees but with occasional clusters of shade trees retained for grazing cattle. In addition, the Negoa property is situated outside, but adjacent to the MPO Mining Lease. It is located approximately 800 m east of the eastern boundary of the MPO; the relationship between Negoa and the MPO is illustrated in Figure 4, below.



Figure 3. Aerial view indicating the extant building features of Negoa with the main homestead circled in brown. Source: Google Earth (2018).

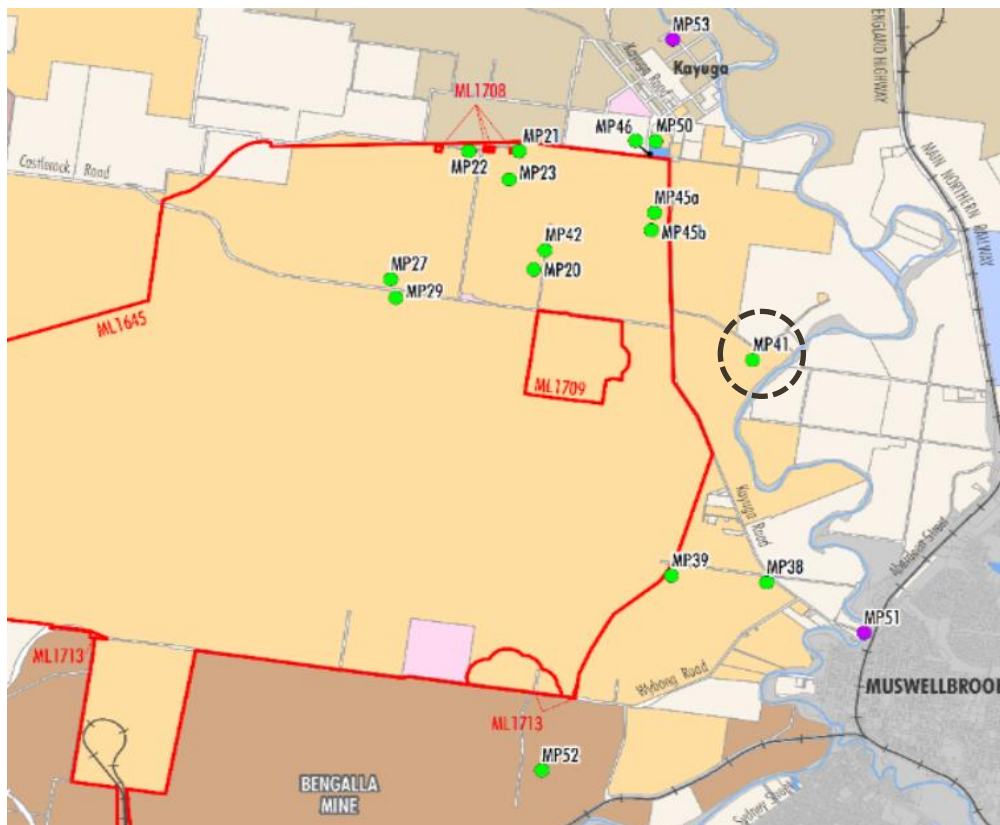


Figure 4. Extract from a map illustrating an overview of the land ownership within and near the boundary of the MPO Mining Lease, showing the approximate locations of the historical heritage places. Source: Resource Strategies (2020).

Note the location of Negoa (MP41) (dashed black circle), approximately 800 m outside of the MPO boundary.

3. Historical overview

This section provides a summary history of the development of the Negoa estate, contextualised within that of the Hunter Valley Region and the Muswellbrook area. It draws on the VAHS report (2014), augmented by additional historical research undertaken by Extent Heritage.

3.1 Summary history

William Cox of Clarendon, together with his son and namesake William Cox of Hobartville, formed the Negoa Estate between 1823 and 1825, comprising a total area of 8000 acres (Clive Lucas, Stapleton and Partners 2013a,11; Wood 1972). Over a two-month period in 1825, Sir Thomas Brisbane authorised William Cox of Clarendon and his son, William Cox of Hobartville, grants to purchase 2560 acres and 1280 acres respectively in the Parish of Ellis, County of Brisbane (VAHS 2014, 494). The form of the estate itself afforded the Cox family frontage to the western banks of the Hunter River, running south from Kayuga to Muswellbrook. This proximity to a reliable watercourse enabled the early development of the estate for pastoral industries, specifically the rearing of Merino sheep for the export of wool.

According to the 1828 census, twenty-one people lived on the property initially, including shepherds, shearers, stockmen, ploughmen, carpenters, bullock drivers, and servants (VAHS 2014, 495). Of these twenty-one listed at Negoa, a proportion were convict labourers assigned to William Cox of Hobartville. The exact ratio of convicts to free citizens at Negoa in 1828 is unknown; however, by 1837 William Cox of Hobartville is recorded as having been assigned nineteen convicts (see Butlin, Cromwell, and Suthern 1987; VAHS 2014, 40). One of these convict labourers, Frederick Wingrave, arrived in NSW in 1825 on a life sentence, and is listed in 1828 as having been assigned to William Cox of Hobartville as a shepherd.

Following the death of his father in 1837, William Cox Jnr registered a claim to acquire deeds to Portions 3 and 4 of the Negoa Estate (Figure 5). In 1845, a tender is advertised for the construction of a new brick building at Negoa. Both William Cox Jnr and his second son, John Hobart Cox, are mentioned in the advertisement in connection with the management of the Negoa Estate (Figure 6).

By the mid-1840s, William Cox Jnr had divided portion 3 (2560 acres) and portion 4 (1280 acres) of the Negoa Estate between his three sons: William Jnr, John Hobart and Sloper (see LMPA Old System Book 10 No. 500-502 cited in VAHS 2014, 496). William Jr. received the southern portion of 1375 acres (Rosebrook end), Sloper received the northern portion of 1190 acres (Ascot end) and John Hobart received 1280 acres (Negoa end). For most of the last half of the nineteenth century, Negoa was subsequently owned and inhabited by John Hobart Cox, the second son of William Cox of Hobartville, and grandson of William Cox of Clarendon.

**Case No. 200.—WILLIAM COX, Esq., of Hobart
 Ville, Richmond.**

Two thousand five hundred and sixty acres, in the county of Brisbane, parish of *Elás*, at *Upper Hunter*; bounded on the south by a line west 181 chains, commencing on Hunter's River, and forming part of the northern boundary of F. Allman's 2560 acres; on the west by a line north 160 chains; on the north by a line east 109 chains to Hunter's River, and forming part of the southern boundary of William Cox's, junior, 1280 acres; and on the east by Hunter's River to the south-east corner, which is opposite the confluence of the Muscle Brook with the Hunter.

On the 3rd May, 1825, the late William Cox was authorised to purchase 4000 acres of land; he completed the purchase of 2560 acres, and sold, it is alleged, to claimant.

Figure 5. Extract from the *NSW Government Gazette* (1838, 45) relating the register of a grant by purchase by William Cox of Hobartville for the Negoa Estate.

To Builders.

TENDERS required for the **ERECTION** of a **COTTAGE** on the Estate of William Cox, Esq., Negoa, Hunter's River, adjoining the village of Muswell Brook. The Plan and Specification to be seen at Mr. Slack's, Union Hotel, East Maitland, and proposals for the same to be addressed to John Cox, Esq., Negoa, Muswell Brook, on or before Monday, the 23rd instant. Bricks, Lime, Cedar, Hardwood, Shingles, and Laths will be supplied to the Contractor at a fixed price on the ground, which is appended to the specification. All the other materials and workmanship, together with labour, to be found by the contractor. Further particulars may be obtained on application to Mr. Slack.

12th June, 1845. 485

Figure 6. Extract from the *Maitland Mercury* (June 14, 1845) showing the tender advertised for the erection of a new brick building on the Negoa Estate.

During this period, John Hobart Cox's management of Negoa is evidenced by the construction of a two-storey sandstone extension to the main homestead, and multiple advertisements in the *Maitland Mercury* for the breeding and sale of stock (i.e., horses and merino sheep), as well as stores records for wheat grinding at the Muswellbrook Mill (VAHS 2014, 496).

After an attempt to lease the property in 1864, John Hobart Cox converted the land title of Negoa to Real Property Act title. The 1889 application included an aerial plan of the property's assets including the homestead, a separate house, two outbuildings, stables, a shed and several cultivated gardens (see Figure 7, below).

Two years later, John Hobart passed away, resulting in the division of the Negoa Estate. Surviving members of the Cox family retained the portion encompassing the homestead complex, while the remainder of the estate was subdivided to be sold in lots (see *Maitland Mercury* December 22, 1891, cited in VAHS 2014, 500). This 1891 subdivision of the Negoa estate marked the beginning of several phases of ownership until the 1950s, during which the original homestead property underwent a number of improvements and additions.

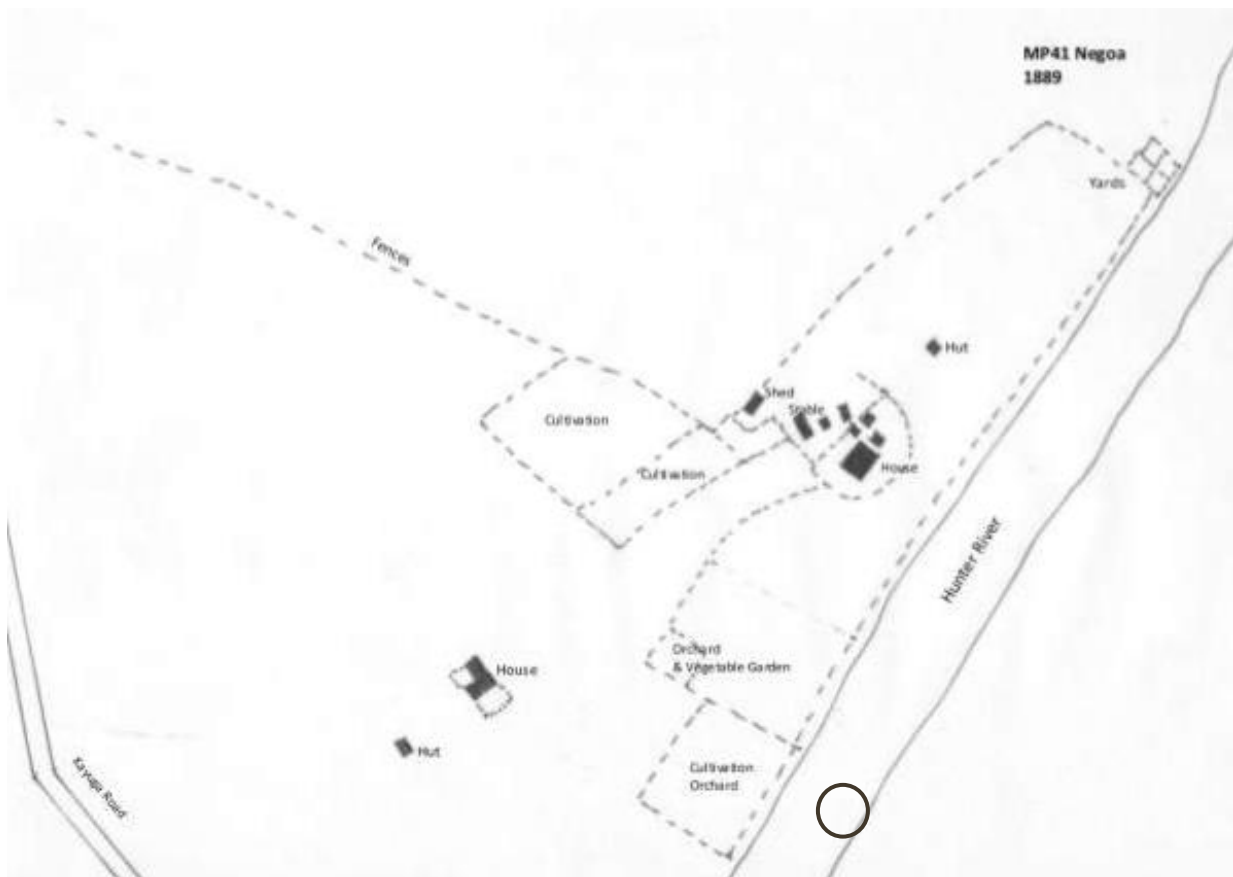


Figure 7. Part of the map from the LMPA Primary Application No. 7698 of 1889 submitted by John Hobart Cox showing the layout of the extant buildings at Negoa. The main homestead structure is circled in black. *Source:* VAHS (2014, 505).

3.2 Chronology of built fabric

The primary period of construction at Negoa is from 1826 through to 1850. The initial homestead at Negoa was wholly of timber construction (VAHS 2014, 495; 502). In the 1830s, a new structure of handmade bricks is purported to have been constructed on the property (Clive Lucas, Stapleton and Partners 2013b, 11; EJE Heritage 1996). However, there is little indication as to the form and location of this building. No clear evidence of buildings pre-1845 is visible at the site today.

In 1845, William Cox of Hobartville advertised a tender for the construction of a new brick building to replace the earlier timber homestead (see Figure 6, above). The materials required to be supplied by the contractor—bricks, lime, cedar, hardwood and shingles—provide an indication of the building’s construction. Unfortunately, however, no further indication of the form or location of this new brick structure is provided in the advertisement.

By this period, William Cox of Hobartville had been assigned nineteen convicts to his workforce at Negoa (see Butlin, Cromwell and Suthern 1987; VAHS 2014, 40). It is thus possible that this 1845 brick section of the homestead was built by, or at least with the assistance of, convict labour. This is supported by *The Newcastle Morning Herald* (July 9, 1951), which described the main homestead at Negoa as ‘built by convict labour’.

Between 1850 and 1864, William Cox of Hobartville’s second son, John Hobart Cox, oversaw the construction of a two-storey sandstone extension to the homestead’s west elevation consisting of locally-quarried sandstone with a corrugated iron roof (EJE Heritage 1996, 2). In a lease advertisement for Negoa in the *Maitland Mercury* printed on January 30, 1864 (see VAHS 2014, 497), the homestead is described as a very extensive premises encompassing a two-storey brick and stone structure with ten rooms, separate kitchen and laundry areas, stores, stables and a woolshed on 20,000 acres.

Post-1950, two further extensions to the north and east elevations of the brick-and-stone homestead were added. The 1952 advertisement for sale in *The Muswellbrook Chronicle* identified these improvements and additions, including a large verandah, an underground cellar, underground tanks, a detached stone house, lumber room and a machinery shed, as well as a dairy and livestock bails (VAHS 2014, 501).

3.3 Historical context

Parts of Negoa fit within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region. Between 1820 and 1850, the NSW colony underwent a foundational phase of European settlement, defined by the introduction of new government policies targeting the agricultural development of the Hunter Region (Clive Lucas, Stapleton and Partners 2013a; Cox, Tanner, and Walker 1978).

These policies, specifically those recommended in Commissioner John Thomas Bigge's reports (1822–23) and later endorsed by Governor Thomas Brisbane (Campbell 1926), supported the standardised division of land and in turn, the influx of free settlers with substantial social standing, wealth, and interests in rural industry. These new landowners played a vital role in the economic prosperity that came to define the Hunter Region from the early to mid-nineteenth century: they established large pastoral holdings, tendered the construction of homestead complexes, managed workforces of convict labourers, actively developed successful agricultural industries and fulfilled key judicial or political roles in their communities.

This development of large-scale pastoralism relied, in part, on the government's introduction of a more effective system of convict management. Following the establishment of a convict settlement at the mouth of the Hunter River in 1804, Commissioner John Thomas Bigge proposed a change to penal system, where convicts would be assigned to wealthier settlers responsible for their accommodation, work and discipline (Bigge 1822–23; Clive Lucas, Stapleton and Partners 2013a, 15; VAHS 2013, 40). The general principle held that convicts were to be allocated at the ratio of one convict for every 100 acres of land, and in return for the employment of convict labourers as part of their workforces, private landowners had the opportunity to receive substantial land grants (VAHS 2013, 40). Although the transportation of convicts ceased in 1840, convict labour played an important part in the early development of the Hunter Region, particularly the establishment of the large rural estates.

The initial development of Negoa is associated with this era of penal labour in the Hunter Region of NSW. William Cox of Hobartville had nineteen convicts assigned to him as part of his workforce by 1837 and in 1845, advertised in the *Maitland Mercury* for the construction of a new brick building to replace the earlier timber homestead (Figure 6). Given this assignment of convicts to Negoa by this period, it is feasible that the 1845 brick section of the homestead would have been built by, or at least with the assistance of, convict labour.

3.4 Historical themes

The former Australian Heritage Commission (2001) and the NSW Heritage Council (2001) have identified a selection of historic 'themes' to assist heritage practitioners to identify and assess the significance of a heritage item, site and/or area by placing them within the broader patterns of the historical development of NSW.

Several of these historic themes are relevant to Negoa, parts of which reflect the historical forces that shaped the development of the Hunter Region between the 1820s and 1850s. These themes informed the assessment of heritage significance in Part 7 of this CMP. The themes relevant to Negoa are presented below in Table 1, below.

Table 1. An overview of the relevant NSW historical themes applicable to the heritage significance of Negera. *Source:* Australian Heritage Commission (2001); NSW Heritage Council (2001).

Australian historical theme	NSW historical theme	Notes
2. Peopling Australia	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788–1850)
2. Peopling Australia	Migration	Activities and processes associated with the resettling of people from one place to another (international, interstate, intrastate) and the impacts of such movements
3. Developing local, regional and national economies	Agriculture	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture
	Industry	Activities associated with the manufacture, production and distribution of goods
	Pastoralism	Activities associated with the breeding, raising, processing and distribution of livestock for human use
4. Building settlements, towns and cities	Land tenure	Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal
	Accommodation	Activities associated with the provision of accommodation, and particular types of accommodation
5. Working	Labour	Activities associated with work practises and organised and unorganised labour
7. Governing	Law and order	Activities associated with maintaining, promoting and implementing criminal and civil law and legal processes
8. Developing Australia's cultural life	Domestic life	Activities associated with creating, maintaining, living in and working around houses and institutions.
9. Marking the phases of life	Persons	Activities of, and associations with, identifiable individuals, families and communal groups

4. Heritage status

4.1 Overview

Table 2, below, provides an overview of the statutory and non-statutory listings applicable to Neoga.

Table 2. An overview of the statutory and non-statutory heritage listings applicable to Neoga

Register/listing	Item listed (Y/N)	Item name	Item number
Statutory listings			
National Heritage List	N	-	-
Commonwealth Heritage List	N	-	-
NSW State Heritage Register (SHR)	N	-	-
S170 Heritage and Conservation Register	N	-	-
<i>Muswellbrook Local Environmental Plan 2009</i>	Y	Negoa	I44
Non-statutory listings			
The National Trust Register (NSW)	Y	Negoa	R4025
Register of Significant Buildings in NSW (AIA)	N	-	-

4.1.1 Muswellbrook Local Environmental Plan 2009

The *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP) provides for the conservation of heritage places through the establishment of a list of locally significant places, as described in Schedule 5 of the Muswellbrook LEP.

Negoa is listed as a heritage item of local significance (Item #44) in Schedule 5 'Environmental Heritage' of the Muswellbrook LEP (Figure 8). Works to Neoga would ordinarily require development consent from Muswellbrook Shire Council with regard to Part 5, Clause 5.10: Heritage Conservation.

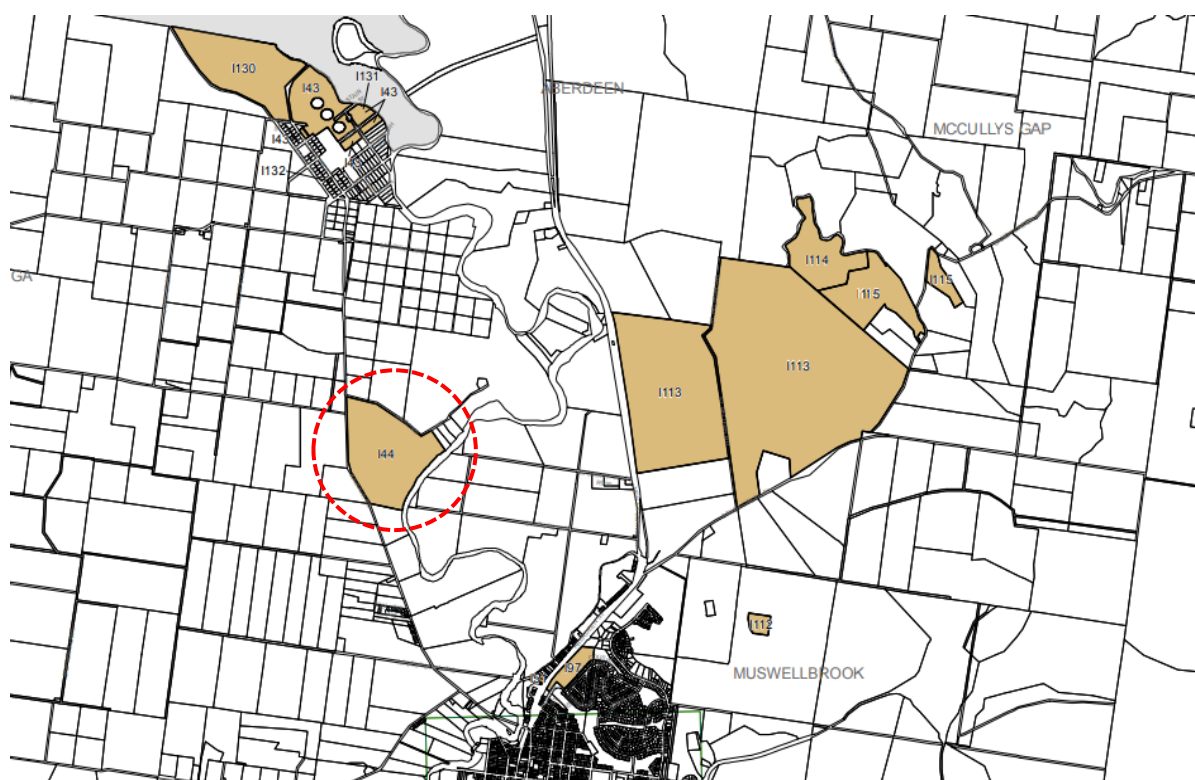


Figure 8. Extract from the Muswellbrook LGA Heritage Map HER_008 (scale: 1:80,000), showing Negoa as a heritage item of local significance (Item #44) (red dashed circle). Source: Muswellbrook LEP 2009.

4.1.2 Hunter Regional Environmental Plan 1989

The *Hunter Regional Environmental Plan 1989* (Hunter REP) provided for the conservation of the environmental heritage of the Hunter Region according to a number of categories: state, regional, local, and areas requiring investigation and heritage precincts. It provided a framework for Hunter Regional Councils to develop appropriate means for conserving the heritage of their area, with the assistance of the NSW Heritage Department.

Negoa was listed under Schedule 2 of the Hunter REP as an item of regional significance. However, the Hunter REP 1989 is no longer operational having been repealed by Clause 3(a) of the State Environmental Planning Policy (Integration and Repeals) 2016 (310) with effect from August 5, 2016. The role of the Hunter REP is now undertaken by the Muswellbrook LEP (see Part 4.2.1 above).

4.1.3 National Trust of Australia Register (NSW)

The National Trust (NSW) is a not-for-profit organisation that maintains a register of landscapes, townscapes, buildings, industrial sites; cemeteries and other items or places, which the Trust determines have cultural significance. Negoa is listed on the National Trust Register (NSW) (item R4025). Although this listing carries with it no legal obligations, it is widely recognised as an authoritative statement of the cultural significance of a place.

5. Physical assessment

Extent Heritage carried out two site inspections of Negoa , first in April 2018, and again in September 2020. These site inspections involved an investigation into the built form of the extant buildings (including the main homestead and the adjacent outbuildings), the surrounding garden areas and landscape setting. It did not afford a detailed investigation of all fabric, but an overview of the key elements of the place to assist in determining significance.

For a detailed assessment of the condition of Negoa, refer to the ‘Negoa Homestead Structural Condition Report’, prepared by Lindsay Dynan Consulting Engineers (2018).

5.1 General observations

Negoa itself comprises a c.1845 brick homestead with a c.1850s–60s sandstone addition to the west, and a c.1950s brick addition to the east and north.

The brick homestead is a single-storey, three-room structure laid out in an L-shape and constructed of bricks with a corrugated metal hipped roof. There is a two-room cellar underneath the building accessible from the north, but that entrance has been built over and currently forms the covered carport. To the south is a two-storey rectilinear sandstone structure with a corrugated metal hipped roof, which has two rooms on the ground floor and two on the first floor. Both the structures demonstrate influences of colonial Georgian and Victorian Georgian styles, with symmetrical facades of exposed brick and sandstone.

The c.1950s addition (see Figure 17, below) is a single-storey structure with a corrugated metal skillion roof. Its eastern part served as the kitchen, and its northern part included a bathroom, a toilet, and a smaller room.

The original homestead was constructed with a south-facing aspect. As a result, the ancillary buildings are to the north (rear). The southern elevation was the original main entry and this elevation remains relatively intact, although now missing its original skillion-roofed verandah.

There are three outbuildings on the site: a servants’ quarters building, a weatherboard shed, and a smaller shed. The servants’ quarters is a brick-and-timber rectilinear structure, located to the north of the main homestead. It consists of a toilet and room to the brick part of the building, and a timber and glass addition to its east which appears to have served as a conservatory. The weatherboard shed is located to the north-east of the main homestead, with the smaller shed situated to the north of the timber shed.

5.2 Negoa: exterior

The 1845 brick section (see Figure 11, below) of the main homestead residence is in generally fair condition. The brickwork of the external walls requires re-pointing in places, and the rainwater goods require attention (gutters, downpipes and flashing). The cracking observable in the c.1850s–60s sandstone extension to its west appears not to have affected the c.1845 brick structure to the same degree.

The cellars were accessible at the time of the September 2020 site inspection and were observed to be in poor condition. The stability and overall condition of the cellars is assessed to have succumbed to a degree of subsidence with lateral spreading of the jack arches supporting the flooring above, which could cause instability or eventual collapse if allowed to develop over time (Lindsay Dynan Consulting Engineers 2018). The recommendation for the cellar is that stabilisation works are required (Lindsay Dynan Consulting Engineers 2018).

The brick section of the homestead has double hung sash windows with timber plantation shutters to its southern façade. The shutters (relatively modern features) are in poor condition. The windows (some of which are original) are in fair condition but require maintenance and repair. The brick section has two chimneys which, insofar as they are visible from the ground, appear to be in fair condition. However, their structural integrity needs to be confirmed by closer inspection. The original verandahs to the southern elevation have been removed, and the brick and concrete paving is in poor condition and failing. This has the potential to accelerate damage to the brickwork by encouraging pooling of rainwater.

The c.1850s–60s sandstone addition (see Figure 9-Figure 10 and Figure 12-Figure 14, below) is constructed of rusticated sandstone blocks. Square-cut holes in the sandstone blocks at the roof level for the ground and first floors indicate that the two-storey building originally had a verandah to its western and southern ends, with a balcony over the western end verandah. Both verandahs and the balcony have been removed. Subsidence in this section of the homestead appears to have resulted in slight downward movement of the sandstone structure, causing the blocks to move and resulting in a noticeable loss of mortar between a number of blocks (see Figure 15, below). Erosion, cracking and weathering of sandstone blocks is observable. Dissimilar footing systems between the original brick homestead and the sandstone extension appear to have contributed to differential movement between the two structures (Lindsay Dynan Consulting Engineers 2018). This is problematic as the sandstone wall is supported on the original brick wall, meaning that any relative movement between the structures (due to brick growth, reactive soil, moisture variations, foundation settlement or a combination of these factors) is restrained causing the stones to become unseated, perpend joints to widen, and out of plane bulging of the supported wall as the two structures attempt to pull apart.

There are multi-paned double-hung sash windows and French doors on the ground floor of the sandstone section. The first floor has single-paned double-hung sash windows, two of which have replaced the French doors that were removed along with the balcony. There is no longer access from the first floor to outside. The windows (some of which are original) are in fair condition, but they require maintenance and repair. A number of the lintel stones are observed to be cracked over openings, causing loads to be imposed on the timber door and window framing below. Timber plantation shutters to the windows and doors, dating to the second half of the twentieth century, are in poor condition. The sandstone section retains one chimney; it appears to be in fair condition but its structural integrity needs to be confirmed by closer inspection. The original stone paving to all three sides of the sandstone section is in poor condition and needs requires reinstatement (see Figure 16, below).

A swimming pool (see Figure 18, below) with timber paling fencing, a modern addition, is located near the suite of outbuildings.



Figure 9. The c.1850s–60s sandstone section of the homestead (right) and the servants' quarters (left). Photograph taken April 2018.



Figure 10. The western elevation of Negoa's sandstone section. Note the holes in the sandstone where the verandah was originally mounted. The servants' quarters are visible to the left and the c.1845 brick section of the homestead is visible to the right along the southern elevation. Photograph taken April 2018.



Figure 11. The southern elevation of the c.1845 brick section of Negoa. Note the Flemish bond brickwork of this original c.1845 section. Photograph taken April 2018.



Figure 12. The southern elevation of the c.1850s–60s sandstone section of Negoa, showing the original lower floor window and the non-original upper floor window. It is noted that there is currently no access from the upstairs rooms to the location of the former verandah on this southern elevation. Photograph taken April 2018.

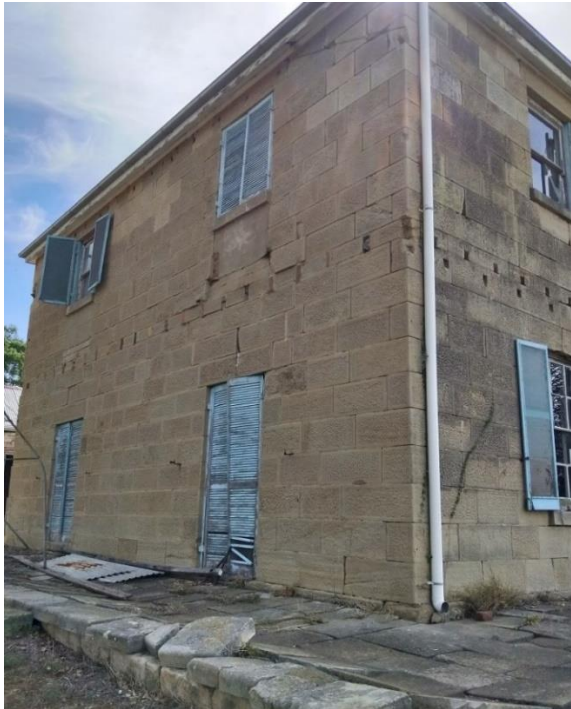


Figure 13. The western elevation of the sandstone section of Negoa, showing the upper windows (originally French doors but since filled in and replaced with the removal of the verandahs). The pictured windows are not original but are still of Considerable significance. Photograph taken April 2018.



Figure 14. The eastern elevation of the c.1850s–60s sandstone section of Negoa. Photograph taken 2018.



Figure 15. The cracking and bulging of brickwork typical at Negoa, resulting from ground movement. Note the previous cement mortar repairs are failing. Photograph taken September 2020.



Figure 16. The failed stone paving on west and north elevations of the c.1850s–60s sandstone section of Negoa. Photograph taken April 2018.



Figure 17. The c.1950s addition to the brick homestead, comprising a single-storey structure with a corrugated metal skillion roof. The 1850s–60s sandstone extension is evidence in the background, and the servants' quarters is visible to the right. Photograph taken April 2018.



Figure 18. View of the swimming pool and some of its timber paling fencing. This photograph was taken in April 2018; however, the swimming pool has since been backfilled, the fence removed, and the area rehabilitated.

5.3 Outbuildings: exterior

In addition to Negoa’s main residence, three extant outbuildings once supported the operation of the property (see Figure 26, below). All are situated on the northern part of the site, which historically functioned as a work area and was always intended to be the ‘rear’ and less public part of the site.

The brick and timber building known as the servants’ quarters (see Figure 19-Figure 20, below), situated to the north of the main homestead, is a single-storey rectilinear structure comprising a brick section with an extension to its east constructed of timber and corrugated metal sheet. While the timber and corrugated section is in poor condition, the brick section is in fair condition, though the brickwork requires repointing. The site inspection (with a heritage architect and builder in attendance) determined that the cement-based repair work is holding the brickwork in place and its removal would cause the potential collapse of the walls, as they are already ‘bowing’ and are located at the base of the walls. The roof is in very poor condition: in April 2018 there were gaps that allowed rain in (see Figure 21, below) and in December 2020, the roof was further damaged by a storm event (see Figure 22-Figure 23, below).

The weatherboard shed (see Figure 24, below) to the north-east of the main homestead residence is in fair condition given its age; however, it has a limited use-life. In places, the timbers are rotten and the roof is in a state of disrepair.

A smaller shed (see Figure 25, below) is located north of the aforementioned weatherboard shed. It is constructed of corrugated metal wall sheeting and hipped roof. It is in fair-to-good condition.



Figure 19. The servants’ quarters at Negoa in April 2018, showing the separate brick and timber sections.

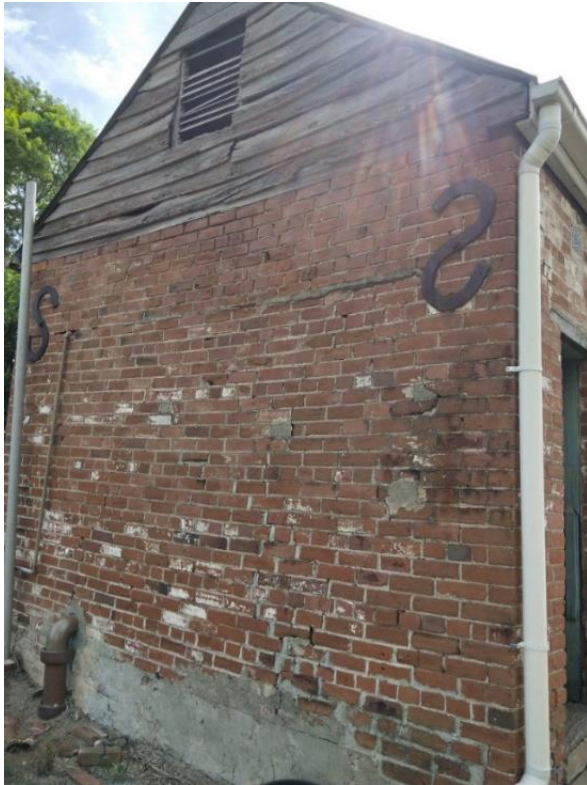


Figure 20. The western elevation of the servants' quarters. Photograph taken April 2018.

Note the cement-based repair work performed by previous owners. This methodology is not to be used for future repairs. The site inspection determined that the removal would cause the potential collapse of the walls as they are already "bowing" and are located at the base of the walls.



Figure 21. The servants' quarters, showing the extension constructed of timber and corrugated sheet metal. This photograph shows the building as it was in April 2018.



Figure 22. The servants' quarters, showing some of the damage sustained to the roof as a result of a storm event in December 2020.



Figure 23. The western elevation of the servants' quarters, showing the damage sustained to the roof as a result of a storm event in December 2020.



Figure 24. The weatherboard shed at Negoa, constructed from recycled timber materials. Photograph taken April 2018.



Figure 25. The smaller shed, of corrugated metal sheeting construction, located to the north of the larger weatherboard shed. Photograph taken April 2018.



Figure 26. View looking towards Negoa showing the relationship between the three outbuildings: the smaller shed is visible to the far left, adjacent to the larger weatherboard shed (centre) and behind the timber paling fence to the right is the servants' quarters. Photograph taken April 2018.

5.4 Negoa: interior

At the time of the April 2018 site inspection, the interiors of the c.1845 brick section of the main homestead were observed to be in fair-to-good condition (see Figure 27-Figure 28, below); however, at this time, the c.1850s-60s sandstone section was observed to be in relatively poor condition. The subsidence affecting the exterior of the sandstone extension is more visible in its interiors: at the time of the September 2020 site inspection, large (possibly structural) cracks were noticeable in the sandstone section's interior particularly to the first-floor rooms (see Figure 29, below), and to the staircase walls.

Between 2018 and 2020, various remedial conservation works have been carried out in room 5, the staircase, and the two upstairs rooms, including the fireplaces and chimney breast and ceilings (see Part 5.5 below).

The visible timber floors are in generally good condition, although many of them are concealed by carpets. The internal door frames are in fair condition, except for a few frames in the sandstone section which are buckling due to subsidence of the site.

Many of the internal walls have been clad with plasterboard panels and some are covered in wallpaper of contemporary design and fabric. The condition of the timber framework underneath this cladding is not known.

Timber-panelled ceilings are present to both the brick and sandstone sections, with Mini Orb ceilings to one of the rooms of the brick section. The cornices and skirting are in generally fair condition.

The timber floor joists and bearers were not accessible in either April 2018 or September 2020; their condition is unknown.

The interiors of the c.1950s addition are in good condition with exposed brick walls, tiled floors, plasterboard ceilings, timber double-hung sash windows, and multi-paned timber and glass doors.



Figure 27. Interior view of the c.1845 section of the homestead. Note the timber-panelled ceiling and contemporary wallpaper. Photograph taken April 2018.



Figure 28. Some of the interiors of Negoa. Photograph taken in April 2018.



Figure 29. Interior view of one of Negoa's rooms, showing possible structural cracking typical in the internal walls of the c.1850s–60s sandstone section. Photograph taken April 2018.

5.5 Works completed at Negoa between 2018 and 2020

Between 2018 and 2020, remedial works have been carried out in stages for the purpose of conserving building fabric and mitigating further deterioration. Works completed to date include:

- ongoing pest management, including pest management of bees in the ceiling space and termite control throughout;
- backfilling the cement pool in the backyard;
- removal of fallen trees;
- removal of termite-infested, dilapidated internal stairs and reconstruction of timber stairs (see Figure 34-Figure 35, below);
- drainage mitigations including installation of downpipes and direction of the discharge points away from the lower walls and footings of the house (see Figure 30, below);
- removal of vegetation around the yard;
- creation of access to cellar from the eastern elevation (see Figure 31, below);

- replacement of dilapidated ceilings and termite-infested walls from two upstairs rooms and one downstairs room (see Figure 32-Figure 33, below);
- replacement of timber sash windows upstairs, including replacement of sash cords and repair, sanding back and painting of windows (see Figure 38 and Figure 41, below);
- replacement of French doors on ground floor in rooms 4 and 5, and reconstruction of new doors to original profile (see Figure 37, below);
- removal of entry door (retained on site) and replacement with half-glazed door (see Figure 36, below);
- removal of plaster cladding from stone chimney breasts in room 5 (see Figure 35, below) and two rooms upstairs, and repointing of chimney stone (see Figure 40, below);
- replacement of timber mantelpieces in upstairs rooms (see Figure 40, below);
- interior painting of room 5 stair and walls, and ceiling and fireplaces in upstairs rooms (Dulux Hogs Bristle);
- removal of operable external shutters for restoration and reinstatement (see Figure 39, below); and
- completion of roof waterproofing works to address leaks (and as budget allows, the roof is also proposed to be painted).

A selection of representative images capturing some of the aforementioned works are presented below.



Figure 30. The downpipes have been extended to carry water away from the walls, footings and stone paving around the homestead's structures



Figure 31. Access to the cellar has been established by removal of ground surface material around the existing semi subterranean opening; however, the cellar remains largely inaccessible due to the array of collapsed wine boxes over the floor area.



Figure 32. Image illustrating the ceiling space in one of the upstairs rooms showing the augmentation of the roof structure following the removal of the dilapidated ceiling fabric.



Figure 33. Details of the termite-damaged ceiling removed from the downstairs bedroom.



Figure 34. Detail of the termite-damaged timber stairs, since removed and reconstructed.



Figure 35. Left: The reconstructed internal stair. Right: The exposed stone chimney breast in ground floor bedroom.



Figure 36. Left: The original four-panel entry door, which has been removed. Right: The replacement half-glazed door with margin glazing.



Figure 37. Left: The removal of the existing French doors. Right: The reinstatement of new doors reconstructed to the original profile.



Figure 38. External view of the sandstone section showing the replaced timber doors and windows on the northern and western elevations.



Figure 39. Left: The existing external shutters have been removed, and door and window openings along the southern elevation have been boarded with plywood sheets. Right: The removed external shutters stored inside for repair window.



Figure 40. The exposed repointed stone chimney breast and reinstated fireplace and mantelpieces in the upstairs bedrooms.



Figure 41. View of the new reconstructed windows, reconstructed to original detail and profile.

6. The potential archaeological resource

In the area known as Negoa, there are no known archaeological sites currently registered on any statutory or non-statutory databases. However, the site has functioned as a rural homestead and agricultural enterprise for almost 190 years, including during the convict-era. Historical records indicate that from the 1820s two earlier homesteads existed at the site: one of timber, and one of brick. No evidence of the form or location of these earliest structures on the site is presently visible, but may exist as archaeological deposits. Other historic plans record non-residential outbuildings at Negoa through the nineteenth century. Again, no evidence of the form or location of these structures is presently visible but they may exist as archaeological deposits. No bricks, broken window glass, timber piers, or brick piers were visible at the site during the site inspections to indicate earlier structures. This may indicate that the earliest structures that archival documents record on this property were demolished in a 'controlled' manner and their bricks and timbers were deliberately removed for recycling or re-use elsewhere. In such circumstances, the potential for archaeological evidence of structural remains is considerably reduced. Similarly, these earlier residences appear to have been intended to be temporary and would likely have been of light weight, predominantly timber construction with a generally lower potential for the survival of archaeological remains.

Nevertheless, given the early date of some of these buildings, a cautious approach to the potential archaeological resource is warranted at Negoa. The kinds of artefacts ('relics' as defined by the NSW *Heritage Act 1977* [Heritage Act]) that might survive at the site include:

- brick wall footings, foundation trenches, posts and piers, which indicate the footprints of previous buildings;
- cesspits (nightsoil pits): These pits were usually excavated directly into the natural soil to a depth of 1–1.5 m and sometimes lined with timbers, bricks or stones. In addition to the nightsoil, these pits also often contain fragments of discarded ceramics and glass, and kitchen refuse;
- rubbish pits and/or deposits: it was common for waste (kitchen refuse, broken crockery, empty bottles, etc.) to be discarded in shallow pits at a distance from the main residence; these present as concentrations of fragmentary artefacts;
- isolated historical artefacts: over the course of Negoa's life, numerous artefacts will have been dropped and discarded, and such artefacts are often found on or close to the surface, but otherwise out of context;
- water pipes and other services; and
- a surface (gravel or compacted earth) indicating the location of the driveway/turning circle recorded in historic plans, on the south side of the residence (see Figure 42, below).

Other features that may survive at the site include:

- **Wells:** Given the early date for the Negoa buildings, there is high potential for evidence of early water-getting infrastructure to survive at the site (i.e., one or more wells). These wells would likely have been located within walking distance of the main residence and may have been timber-lined or built of stone. In any event, it is possible that they have since been filled in by the accumulation of soil deposits. Under the Heritage Act, wells do not necessarily constitute a 'relic' as they qualify as 'works' to be managed much like above-ground built structures. However, any artefacts located inside a well may constitute 'relics' under the Heritage Act.

Figure 42, below, presents overlays of the historic plans of Negoa from 1889 and 1890 respectively on aerial views of the current building footprints. This gives an indication of where archaeological evidence of previous buildings may be encountered. However, these plans should be considered as approximate only given the rough nature of the historic plans.

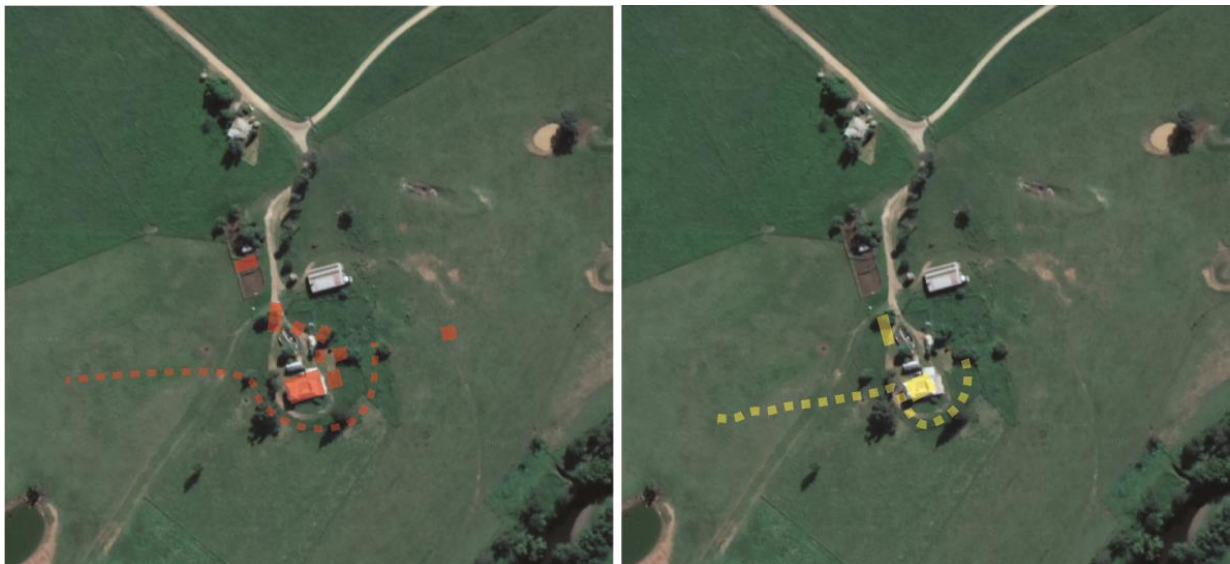


Figure 42. Left: Aerial view of the current building footprints at Negoa overlaid with an extract from the 1889 map presented in John Hobart Cox's LMPA Primary Application No. 7698. Right: Aerial view of the current building footprints at Negoa overlaid with an extract from the 1890 map recorded as part of the subdivision of the property.

Note: These historic overlays give an indication of where archaeological evidence of previous buildings may be encountered at Negoa. Source: Google Earth (2018); VAHS (2014, 505-507).

An assessment of the significance of the potential historical archaeological resource is presented in Part 7.4 below (see criterion [e]).

In addition to the potential historical archaeological resource, there is some potential for Aboriginal archaeology to exist at the site. Given the high levels of disturbance within the complex area, there is generally low potential for in situ Aboriginal archaeological remains to survive. However, should any be encountered Aboriginal community consultation would be required to establish its significance to them.

7. Assessment of significance

This section outlines the methodology and process for assessing heritage significance in NSW, identifies the heritage significance criteria, and applies these criteria to the Nechoa site.

7.1 Assessment criteria

Assessing the cultural heritage values and significance of a place is crucial to identifying the appropriate management regimes for that place, and to identifying those individual components of complex sites like Nechoa that make important contributions to the site's overall significance.

The Heritage Act provides seven criteria against which the heritage significance of a place or item in NSW should be assessed (see Table 3, below). These criteria are a reflection of the more broadly expressed criteria in Article 1.2 of the *Burra Charter* (Australia ICOMOS 2013).

Table 3. The assessment criteria for heritage significance in accordance with the Heritage Act

Criterion	Description
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
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

7.2 Integrity and authenticity

Additionally, the NSW Heritage Council has adopted a range of policy and guideline documents to assist heritage practitioners to assess the heritage significance of places. These policy and guideline documents expand on the principles contained in the *Burra Charter* and include the requirement that in assessing the heritage significance of a place, practitioners should also take into account the place's:

- Level of 'integrity': Integrity is a measure of the wholeness and intactness of a heritage place and its attributes. It requires heritage practitioners to assess how much of a site is 'original' and how much is the product of later modifications, including ones that mimic earlier forms.

- Level of 'authenticity': Authenticity relates to the ability of people to understand the value attributed to the heritage of a site. It requires heritage practitioners to assess whether or not sufficient of the original/early form or fabric of a place remains for people to appreciate the place's significance.

The original brick homestead was constructed with a south-facing aspect. As a result, the ancillary buildings are to the north (rear). The southern elevation was the original main entry and this elevation remains relatively intact, although now missing its original skillion-roofed verandah. Views to and from this southern elevation therefore make an important contribution to the place's significance. The western elevation of the sandstone section also makes an important contribution to the place's significance. It is typical of the period and style being a generally unadorned stone façade with symmetrically placed doors. Although this building is now also missing its original verandah, views to and from this western elevation make an important contribution to the overall significance of the structure.

Similarly, views to the sandstone section from the north-west capture the servants' quarters. This view is important as it allows the former site layout and hierarchy of buildings to be read and understood. Views to and from the north and east are of lesser significance in a contributory sense, as these aspects of the homestead have been compromised by post-1950s brick alterations and additions.

Further, the north part of the site has a high tolerance for change as it has always functioned as a work area and was always intended to be the 'rear' and less public part of the site. In summary, the long views to the southern elevation of the brick/stone buildings and to the main façade (western) of the stone building make an important contribution to the significance of the site. Further, views to the homestead from the north-west make an important contribution to the site's overall significance.

While Negoa is a good representative example of an early-nineteenth-century rural homestead with the principal characteristics of the colonial Victorian-Georgian aesthetic, there are other earlier properties in the Upper Hunter Region listed on the Muswellbrook LEP with a higher level of intactness and integrity.

The above concepts are particularly important when assessing a place like Negoa, which has undergone significance change over the course of its life, including the removal of a large proportion of its fabric and addition of more recent non-significant fabric and form. The above principles and observations have guided the assessment and statement of significance contained in the following sections of this CMP.

7.3 Previous heritage assessments

There are two previous statements of significance for Negoa.

The VAHS (2014, 525) report concludes:

The site is highly significant on a local level for the evidence it can provide on early settlement, convicts and the development of a station. The property is one of the earliest in this part of the Hunter Valley and has a long association with the Cox family; this in its self is very significant.

The site is also very significant for the information it could provide on building methods and how they were utilised.

(VAHS 2014, 525)

The EJE Heritage (1996, 2) report concludes:

Historically, the buildings are of regional significance for being associated with the earliest establishment of the Upper Hunter by one of the colony's most esteemed citizens and for its part in the development of the Merino wool industry. Socially, the buildings are also of regional significance for their association with the activities of an eminent family over a half-century period. Scientifically, the buildings are of regional significance for their potential to reveal information which could contribute to an understanding of the development of Merino wool growing and of the mid and late 19th century lifestyles of one of the colony's early eminent families.

(EJE Heritage 1996, 2)

7.4 Assessment of significance

This CMP generally agrees with the previous assessments (see Part 7.2, above), but provides the following assessment of Negoa's heritage significance against the criteria established in the Heritage Act.

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

As one of the surviving Hunter Estates, Negoa is an example of a series of key historical phases in the early development of the NSW colony: the introduction of government policies regarding land development and the subsequent settlement of the Hunter Region on the basis of these policies; the utilisation of convict labour; the expansion of pastoralist industries; and finally, the subdivision of large agricultural properties.

The government policies developed by Commissioner Bigge and presented by Governor Brisbane for NSW were the basis for the rapid development of the Hunter Region from the 1820's. The Negoa Estate is a product of the associated conditions of settlement that introduced a grid pattern system of land grants focused on the agricultural and economic development of the colony. As one of the homestead complexes established with the influx of new settlers into the Hunter Region in the early 1800's, Negoa is a notable reminder of the role that this new pattern of regional settlement played in the broader development of the NSW colony in the nineteenth century.

Negoa is also significant as evidence of the era of convict labour in NSW, a notable period in the governance and administration of the Hunter Region that placed the management of convicts into the hands of new, private landowners. It is a tangible link to the role that convict workforces played in the provision of new homestead complexes, which subsequently enabled the continued growth of agricultural and pastoral industries in the Hunter Region.

The changing configuration of the Negoa Estate between 1825 and the present day is also a tangible remnant of the process of subdivision that impacted the occupancy and layout of large agricultural estates characteristic of the Hunter Region. The surviving homestead with surrounding outbuildings demonstrates the evolution of the typical Hunter Region Estate in response to environmental and economic pressures beginning in the 1840's and continuing for the remainder of the nineteenth century.

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

The settlement of the Hunter Region and the subsequent development of the Hunter Estates is associated with the influx of large number of people of social standing and wealth who arrived in NSW as free immigrants. The majority of these early settlers to the Hunter Region made a significant contribution to colonial society, founding key agricultural and pastoral industries and playing a role in the establishment of the initial judicial and political systems of the NSW colony.

The Negoa Estate is associated with the activities of several generations of the Cox family, an early eminent family in the region whose contributions to the colonial society and rural industries of the Hunter Region are well documented. The initial purchaser of Negoa, William Cox of Clarendon (1764–1837), is known as an eminent military officer and pioneer in the early period of colonial settlement in NSW. He is highly regarded for his role in establishing the first road crossing over the Blue Mountains between Sydney and Bathurst (Pike 1966). Together with his son and namesake William Cox of Hobartville, Cox of Clarendon developed Negoa into one of the largest landholdings in the Hunter Region, which maintained a permanent homestead residence, a workforce of convict labourers and a successful Saxon Merino wool industry.

For latter half of the nineteenth century, Negoa was owned, managed, and occupied by John Hobart Cox, son of William Cox of Hobartville. Under his tenure, Negoa continued its contribution to the agricultural development of the Hunter Region through its cultivation and export of two of the most prominent local industries: wheat and livestock. A prominent member of the Muswellbrook community, John Hobart Cox also occupied key judicial and civic positions in the district, including two appointments to magistrate and a tenure as hospital president (a position he occupied until his death).

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

Whilst it has been subject to a number of additions and modifications since the 1850's, Negoa still reads as a structurally-intact example of a colonial Victorian Georgian homestead of brick and sandstone when viewed from outside. Particularly on its southern and western elevations, it retains its distinctive mid-nineteenth century aesthetic. This is enhanced by the use of Flemish bond brickwork in the brick building and the survival of a number of original windows and doors. Its aesthetic appeal has been compromised to a degree by the loss of the original verandahs which unified the brick and sandstone buildings.

The interior of the residence has been considerably modified (e.g., plasterboard cladding and ceilings introduced in many rooms, and the addition of the 1950s infill development). However, the general floorplan remains legible and intact features such as door frames, fireplaces, and chimneys assist to express the original colonial aesthetic.

At the time of its construction, the residence required an adaptive response to the issues of limited supplies and labour force and to that extent is a local technical achievement.

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

There are no clear indications that Negoa has a special or strong connection with the local community 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

The potential historical archaeological resource has the capacity to yield information that will contribute to an understanding of the State's history. The potential archaeology at Negoa would fall within different general time periods and would have different levels of significance. For example:

- the convict-era;
- the post-convict-era to Federation;
- twentieth century to World War Two (WWII); and
- post-WWII.

As noted in Part 3.4, above, the former Australian Heritage Commission (2001) compiled a number of Australian historical themes to guide practitioners in the assessment of historic heritage sites. Similarly, the NSW Heritage Council (2001) has defined a number of historical themes concerning 'migration', 'agriculture', 'pastoralism', 'towns, suburbs and villages', 'land tenure', 'accommodation', and 'domestic life'. Negoa has the potential, through its archaeology, to 'tell the story' of farming and the rural way of life in the local area during its period of use which includes the early-nineteenth century, an early and important phase in the area's settlement. As a general observation, this makes its potential archaeology, especially from the convict period, highly significant.

In the NSW guideline document entitled '*Assessing Significance for Historical Archaeological Sites and 'Relics'*' (NSW Heritage Council 2009), the following three fundamental questions are included to assist archaeologists to assess the significance of a place's potential archaeological resource:

- 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 potential archaeological resource from the convict-era at Negoa would be a valuable resource that augments the written record for the settlement of Muswellbrook. It would have the potential to contribute data about activities at the site and the wider area that cannot be gathered from other resources. Similarly, although there are other sites from the convict-era in the Hunter region, they remain relatively rare, and are even more rare at the local level around Muswellbrook.

Thus, Negoa has the potential to contribute knowledge about the Muswellbrook region in the convict-era that is currently represented by a small number of other sites. This knowledge could contribute to understandings of the history of the Muswellbrook area during the convict-era, including the living and working conditions of the convict workforce, their diet and recreational activities. The potential historical archaeological resource at Negoa from the convict era would thus be of high significance.

In relation to the potential historical archaeological resource from the *post-convict era*, this would generally be of a lower level of significance. The second half of the nineteenth century in the Hunter Region is better represented in historical sources than the convict-era and it is possible to reconstruct past lifeways by reference to existing archival resources (e.g., historic newspapers, station journals, diaries and historic photographs). Similarly, there is a higher representation of sites from this period that together give a good picture of life in the area between c.1860s and 1900. The kinds of research questions that these later relics might address would be those relating to the location, approximate size, and orientation of the footprint of demolished buildings. These questions would contribute data on the kinds of domestic, recreational, and work activities of the occupants. Therefore, archaeological relics from this period at Negoa (c.1860–1900) would be of some significance, but of lower significance to those from the convict era. Where such deposits exist but have been disturbed, they would be of lesser significance.

Archaeological relics from the twentieth century would have limited ability to contribute knowledge about the site that cannot be obtained from other sites (of which there are many in the region from this period) and resources (e.g., historic newspapers, journals, diaries, and photographs). Such finds may be able to address research questions of relatively narrow site-specific focus but are unlikely to meet the threshold of a 'relic' as defined by the Heritage Act. They may do so if particularly undisturbed.

In summary:

- Artefacts from the convict era and the post-convict era (to Federation) are likely to be 'relics' as defined by the Heritage Act.
- Artefacts from the twentieth century to WWII are unlikely to be 'relics' as defined by the Heritage Act, but may be if in a particularly undisturbed state.
- Artefacts post-WWII would not constitute 'relics' as defined by the Heritage Act.

Additionally, the built fabric of the homestead itself has potential to yield information regarding the construction methodologies employed in the region in the mid-nineteenth century.

Criterion (f) An item possesses uncommon, rare or endangered aspects of NSW’s cultural or natural history

Within the Upper Hunter Region (encompassing the Muswellbrook, Singleton, Dungog, and Upper Hunter LGAs), a comparative study of the distribution of nineteenth-century rural properties conducted by Higginbotham and Associates (2013) indicates that a total of 441 rural properties were established prior to 1850 (see Table 4, below).

Table 4. The distribution of nineteenth century rural properties established before 1850 across the Upper Hunter Region. *Source:* Higginbotham and Associates (2013, 47–59).

LGA	No. of rural properties
Muswellbrook	65 (including 18 properties of 2650 acres or more)
Singleton	136 (including 23 properties of 2650 acres or more)
Dungog	81 (including 26 properties of 2650 acres or more)
Upper Hunter	159 (including 45 properties of 2650 acres or more)

The Muswellbrook LEP identifies twenty-nine heritage items under the category of ‘Homestead’. While the majority date to the period 1850–1900, there are nine rural homesteads in the Muswellbrook LGA recorded as having been established pre-1850, including Negoa (see Table 5, below). The majority of these properties share the principal characteristics of the Negoa: a brick or stone main residence constructed in the colonial Victorian or Victorian-Georgian style.

Table 5. The nine rural homesteads listed on the Muswellbrook LEP 2009 recorded as having been constructed pre-1850. *Source:* Muswellbrook Shire Council (2015).

Property name	Date established
‘Negoa’	1826–1850
‘Woodlands’ Stud - Denman	c.1830
‘Overdene’	c.1830s
‘Merton’ – Denham	c.1825
‘Plashett’	c.1827
‘Bengalla’ – Original Dalmar Stud	1826–1850
‘Baramul’ Stud – Baerami	1826–1850
‘Rous Lench’	c.1837
‘Kayuga’	1826–1850

While Negoa is a good representative example of an early nineteenth century rural homestead with the principal characteristics of the colonial Victorian-Georgian aesthetic, there are other earlier properties in the Upper Hunter Region listed on the Muswellbrook LEP with a higher level of intactness and integrity.

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 main Negoa residence, together with its associated additions and surrounding outbuildings, is representative of a significant pattern of regional settlement that is unique to the Hunter Region. It is a site that continues to demonstrate the principal characteristics of the Hunter Estates from the period 1820 to 1850: the siting of a main homestead residence and outbuildings within a large agricultural or pastoral land holding adjacent to a main watercourse. In addition, the current form of Negoa reflects the evolution of the typical Hunter Estate from the late-nineteenth century to the present day, a process by which large agricultural or pastoral land holdings were progressively subdivided in response to environmental or economic pressures.

Features of the brick and sandstone residence buildings constitute good representative examples of the Victorian Georgian style: the Flemish bond brickwork, the simple symmetrical design of the stone building and the roof forms (although the latter may have been compromised by later alterations and additions).

7.5 Graded levels of significance

In order to effectively manage the significance of a place, it is important to further define what elements of the site contribute to that significance. Graded levels of significance (see Table 6, below) are used to assess the relative contributions that specific elements of a heritage item, place, or site make to its overall significance. They also assist decision-making in relation to the management of individual elements and fabric. The integrity of elements, specifically their relationship(s) with other elements and their graded levels of significance, should be considered in future management decisions.

Specific elements at Negoa have been assessed in this CMP for the contribution that they make to the place's overall significance (see Table 7, below). A plan of the lower floor of the homestead's brick and sandstone sections, showing the graded levels of significance of individual doors and windows, is also provided below (see Figure 43).

Table 6. The five graded levels of significance and their general conservation principles

Level of significance	General conservation principles
Exceptional	<p>Elements of exceptional significance are key to the understanding of the place, as they represent its major characteristics and are generally original elements. They may also be rare or exceptional examples of their type.</p> <p>Fabric of exceptional significance must be conserved and restored. In the case of failure, fabric of exceptional significance must be reinstated using the same materials and, where possible, traditional methods. These elements should not be removed or obscured by future works. Where such elements are missing, concealed or damaged, they should be restored</p>
Considerable	<p>Elements of considerable significance are major components of the place and important to understanding its significance and development over time. These elements may be later but sympathetic additions to the place or original elements, which have been altered sympathetically.</p> <p>Fabric of considerable significance should generally be retained, conserved or restored using sympathetic methods and materials. Minor changes or alterations to fabric of considerable significance are permissible, where changes are relatively minor, fabric is not obscured and changes are reversible.</p>
Some	<p>Elements of some significance have some heritage value but are not key components to understanding the place or its significance. This may include later, introduced fabric or elements in poor condition, which cannot be reasonably conserved.</p> <p>Fabric of some significance may be altered if necessary provided such alteration does not compromise the overall significance of the heritage item.</p>
Little	<p>Elements of little significance are minor components of the site, elements which have been altered over time or which make little contribution to the significance of the place. They may include items such as fittings and fixtures which have been changed many times over the life of the item.</p> <p>Fabric of little significance may be altered, removed or replaced as necessary, but such actions should not damage or obscure fabric of higher significance.</p>
Intrusive	<p>Intrusive elements are those later additions to a site which obscure or compromise elements of the site's significance. Such elements are not sympathetic to the site and may obscure the understanding of the place.</p> <p>Wherever possible, intrusive elements should be removed and replaced (if necessary) with new elements which are sympathetic to the place. New intrusive elements should not be introduced to a place.</p>

Table 7. The overall assessment of relative significance for Negoa

Element	Graded level of significance
Negoa: 1845 brick structure	
Flemish bond brickwork	Exceptional
Corrugated metal hipped roof	Form: Exceptional Fabric: Little
Floor (interior)	Requires inspection under carpets
French doors	Exceptional
Windows	With small panes: Exceptional Others: Considerable
Fireplace, room 1	Original: Exceptional Surrounds (new): Some
Fireplace, room 2	Original: Exceptional Surrounds (early): Considerable
Fireplace, room 3	Original: Exceptional Surrounds (new): Some
Internal brick wall	Considerable
Cellar	Stone and brick work: Exceptional
Timber ceilings	Exceptional–Considerable
Plasterboard ceilings and walls	Little
Mini Orb ceiling	Little
Shutters	Some
Verandah paving (southern elevation)	Considerable
Chimneys	Exceptional
Negoa: c.1850s–60s sandstone structure	
Sandstone work	Exceptional
Corrugated metal hipped roof	Form: Exceptional Fabric: Little
Floor (interior)	Requires inspection under carpets
Sandstone paving (exterior)	Exceptional
French doors	Exceptional

Element	Graded level of significance
Windows	With small panes: Exceptional Others: Considerable
Brick chimney	Exceptional
Staircase	Some
Fireplace, room 4	Original: Exceptional Surrounds (new): Some
Fireplace, room 5 (first floor)	Original: Exceptional Surrounds (new): Some
Fireplace, room 6 (first floor)	Original: Exceptional Surrounds (New): Some
Negoa: Post-1950s additions	
Brickwork	Little
Corrugated metal skillion roof	Little
Floor (interior)	Little
Interior finishes	Little
Doors	Little
Windows	Little
Outbuilding: Servants' quarters, brick section	
Colonial bond brickwork	Exceptional
Corrugated metal roof	Some
Timber roof frame	Requires roof access and closer inspection
Floorboards (interior)	Requires inspection under vinyl flooring
Doors	Little
Windows	Little
Interior finishes	Little
Outbuilding: Servants' quarters, timber section	
Timber building frame	Little
Corrugated metal roof	Little
Floorboards (interior)	Little
Doors	Little

Element	Graded level of significance
Windows	Little
Interior finishes	Little
Outbuilding: Timber shed	
Timber building frame	Little
Corrugated metal roof	Little
Landscaping	
Pool	Intrusive
Palisade fence around pool and servants' quarters	Intrusive
Trees	Some

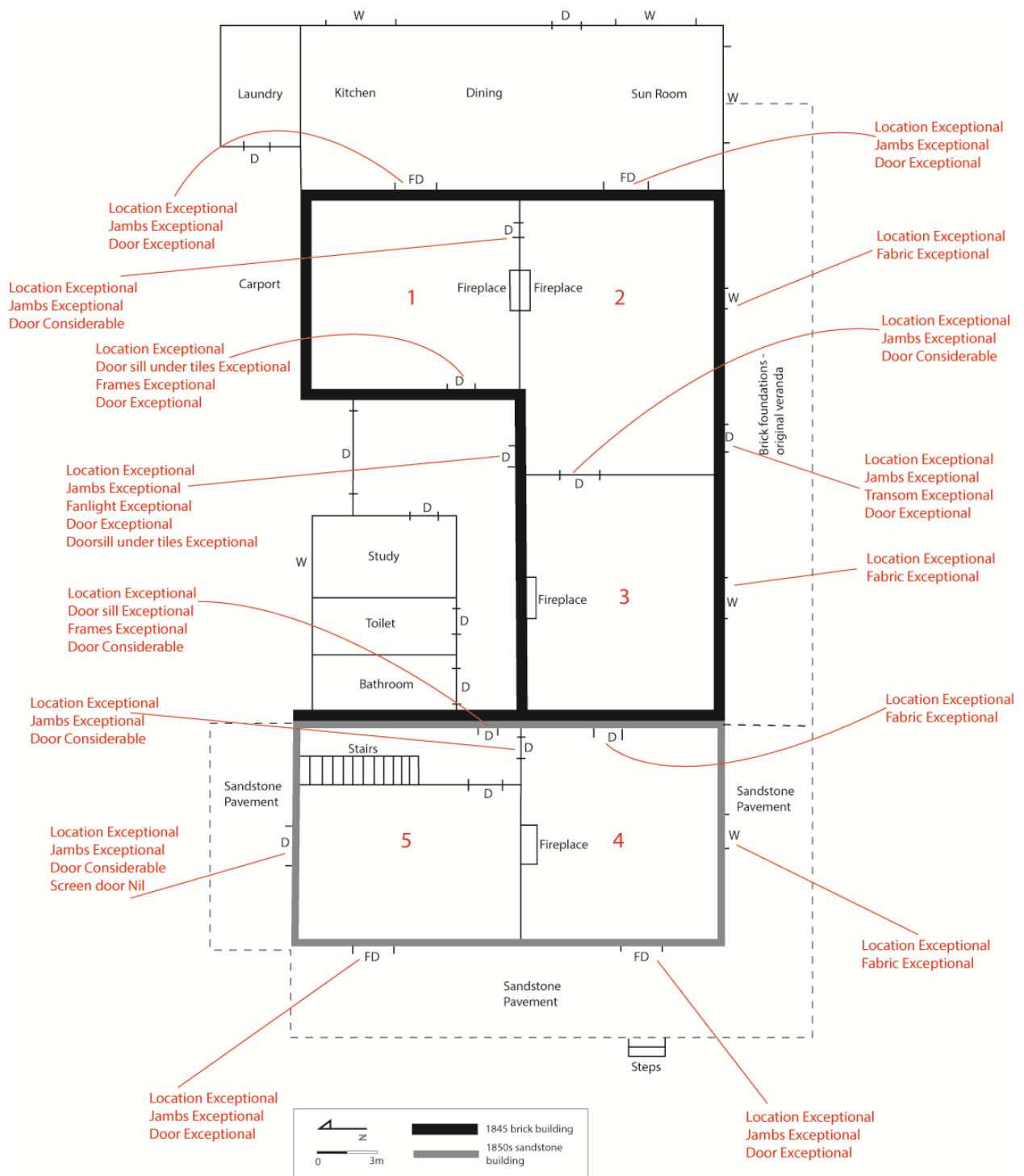


Figure 43. A plan of the lower floor of the c.1845 brick and c.1850s–60s sandstone sections of Negoa, showing the graded levels of significance of individual doors and windows

7.6 Summary statement of significance

The site of Negoa (a brick and sandstone residence set within a rural landscape with associated outbuildings) is a historically significant homestead complex dating to the mid-nineteenth century. As one of a relatively small number of surviving rural homesteads established in the Hunter Region prior to 1850, Negoa reflects the period of pastoral expansion that characterised this area between 1820 and 1850. This settlement pattern is significant in the broader history of NSW for being driven by a unique new government policy implemented to advance the agricultural and economic development of NSW, and to place the management of convicts into the hands of private landowners. This era of convict labour, a notable period in the early administration of NSW, enabled the establishment and growth of large rural homestead complexes in the Hunter Region including Negoa.

Negoa embodies the colonial Victorian-Georgian aesthetic in its simple form and symmetry, as well as through the use and preservation of architectural details such as Flemish bond brickwork. It is a good representative example of a mid-nineteenth century rural homestead characteristic of the Hunter Region: a main residence of stone or brick with groupings of outbuildings set in a large, open pastoral land holding adjacent to a main watercourse (i.e., the Hunter River). Its form also reflects changing building construction techniques, materials, and styles utilised by private settlers during the early colonial period in NSW and into the twentieth century.

Negoa holds a long association with the Cox family, one of the earliest eminent families to establish land holdings in the Hunter Region and hold key judicial or political positions within the Muswellbrook community. The first proprietor of Negoa, William Cox of Clarendon, is a prominent figure in the early history of NSW as the pioneer of the first road crossing over the NSW's Blue Mountains. The continuing development of the Negoa Estate by successive generations of the Cox family, including William Cox of Hobartville and John Hobart Cox, demonstrates the contribution that these new, private settlers to the Hunter Region made to colonial society of the early to mid-nineteenth century.

The potential archaeological resource at Negoa has the potential to yield information relevant to substantive questions about the State's history, especially those from the convict era.

Negoa's integrity has been compromised over time by the removal of its unifying verandah and the replacement of original fabric, including some doors, windows, internal walls and ceilings. Such modern additions are reversible, but to remove and replace them would impact the site's authenticity. The twentieth-century alterations and additions presently detract from the buildings' significance. The ancillary buildings adjacent to the main homestead residence are later and of lower significance, dating to the late-nineteenth and early-twentieth centuries. Nevertheless, these outbuildings lend Negoa its distinctive rural character and make a contribution to its overall significance as a reflection of the multiple phases of its development.

Negoa is assessed to be of **high local** significance.

8. Opportunities and constraints

8.1 General observations

A number of management considerations arise out of the history and heritage values of Negoa described above. They include:

- Avoid actions at Negoa that would prevent people from ‘reading’ its history as a rural enterprise of almost 200 years duration. Similarly, avoid actions that would prevent an understanding of the complex’s historical functions and layout. This would require a considered approach to the conservation of original and early fabric and setting.
- The aesthetic appearance of the exterior of the brick and sandstone sections of the main residence is of exceptional significance. Avoid development to the homestead building or in close proximity to the homestead building. This includes conservation of the facades, and strict controls on new development (built form and plantings) within approximately 30 m of the southern and western elevations.
- Respect views to and from all elevations (particularly the southern and western elevations).
- The original fabric of the homestead (1845) is of exceptional significance, and requires care in its conservation. The c.1850s–60s sandstone extension is also of exceptional significance as a sympathetic addition to the homestead, and also requires care in its conservation.
- The homestead’s interior retains some original and/or early fabric and there are constraints to changes to the form, fabric, and layout of these elements.
- The outbuildings to the north (rear) of the homestead form an integral part of Negoa’s historical function as a working rural property. Management of the place also includes, where health and safety considerations allow, conservation and care of the outbuildings associated with Negoa’s former operations.
- Modern additions to the property that are not sympathetic to the original aesthetic of this property (e.g., the c.1950s and post-1950s additions) are identified to be of little or no significance, or may be considered intrusive. These additions may be retained but have a higher tolerance for change or intrusive elements may be removed.
- All buildings require regular maintenance and maintenance programs to suit the range of buildings at the property. It is recommended that a regular maintenance schedule is prepared with input from a heritage architect.

8.2 Key constraints

- The interiors of the brick and stone residences are exceptionally aesthetically significant, and there are constraints on changes to the form, fabric and layout of these interiors.
- There are constraints in relation to ground disturbance works in the vicinity of the residence and outbuildings, given the potential for significant historical archaeology to survive there. Any artefacts located within the grounds of the Negoa complex would likely constitute ‘relics’ within the meaning of the Heritage Act. No ground disturbance should be carried out within the grounds of Negoa without first consulting a qualified archaeologist, with specific attention to the consideration of the potential archaeological resource in Part 6, above.
- At the time of the 2018 structural condition inspection, no access was available to roof cavities or atop the main roof structure, as well as to wall, floor and footing elements or other structural members obscured by building claddings or finishes. The inspection was a visual inspection only and no material testing was undertaken. As such, the structural assessment is limited to assumed material properties and does not take into account deterioration that was not able to be visually assessed (e.g. hidden pest damage, internal timber rot, structural deterioration not reflected through finishes etc.).
- The 2018 structural condition inspection is constrained by the in-accessibility of some parts of the structure and the unknown condition of some elements at the time of the inspection. As such, the building’s compliance with current Australian Standards was not able to be assessed definitively. The intent of the resulting report (see Lindsay Dynan Consulting Engineers 2018), therefore, was to suggest rectifications to improve the structural safety of the existing building by undertaking works based on observed deficiencies using reasonable assumptions, but not to certify or upgrade the structure in accordance with current Australian Standards.
- The servants’ quarters sustained damage, primarily to its roof, during a storm event in December 2020 and it is recommended that this building be made safe and weatherproof.
- While pest infestation and damage were noted in several areas, it was recommended that a pest inspection be undertaken by a suitably qualified person to assess the full extent.
- No assessment has been completed for disabled access, fire safety, drainage, energy compliance, or other Building Code of Australia requirements. EHO Consulting Pty Ltd (2021) has been engaged to carry out hazardous materials inspection and report.
- No geotechnical investigations have been undertaken to determine foundation soil characteristics or reactivity. Any inferences made on structural damage caused by foundation conditions would need to be confirmed by a geotechnical engineer. However, it is again noted that there are constraints in relation to ground disturbance works in the vicinity of the residence and outbuildings given the potential for significant historical archaeology to survive there.

8.3 Key opportunities

Notwithstanding the above observations, there are opportunities for the adaptive re-use of Negoa.

- In November 2018, at the request of MACH, Lindsay Dynan Consulting Engineers undertook an assessment of the structural condition of the buildings situated within the Negoa property (see Lindsay Dynan Consulting Engineers 2018). As a matter of priority, the structural integrity was assessed to determine the cause of the cracking and displacement of the stonework within the sandstone section of the homestead building and to ascertain the most appropriate method for rectification. The general recommendations and commentary on the repairs or rectifications that may be required to make the structures safe and serviceable contained in this report present an opportunity to address the conservation of Negoa.
- When budget allows, consideration should be given to constructing a new lower level timber-framed awning sheeted with corrugated galvanised iron (CGI) extending over the ground level sandstone paving using the existing bearer pockets that are currently packet with timber and brick. It is not appropriate to reconstruct the original upper level verandah, as there is no longer access from the upstairs rooms to the upper level verandah. The construction of a new, lower level timber-framed awning could be used to provide additional bracing to the stone structure and would also assist in diverting water away from the building, which would then be discharged through downpipes to proposed water tanks. New footings would be required for the awning posts, as the existing footings are not suitable for reuse.
- The outbuildings to the north and north-east of the residence are located in an area that the main building historically 'turned its back on'. They have historically been subject to change as a range of work buildings have been built, demolished and replaced. It would be appropriate to retain and conserve the existing rural buildings there as picturesque ruins. At the end of their use-life, consideration could be given to their replacement provided any new development in this location was of a low height and scale and in the local rural vernacular.
- The modern additions to the eastern and northern elevations of the brick residence are of no significance (c.1950s). The intrusive elements (i.e., carport structure, laundry, kitchen/dining/sunroom) may be retained, but ideally would be removed when resources allow to expose the original elevation. If removed, considerable care must be taken to remove all adjoining elements that may be reliant on the original structure for support, such as roof rafters, ceiling and wall finishes, before proceeding with demolition.
- The ongoing conservation of Negoa requires an appropriate and sympathetic use that involves minimal physical intervention in original/early fabric and no alteration of the original/early floor plan. The ongoing use of the 1845 brick residence and of the sandstone extension is preferable to leaving the buildings vacant and unused. It would therefore be appropriate for the homestead to be used during the construction and operation of the proposed mine works.
- Appropriate future uses might include periodic uses (i.e., temporary office accommodation or as a venue for mine meetings). Advice from an experienced heritage professional (architect) is recommended to provide building planning input into any proposed future uses.

- If adaptive re-use requires new works to the homestead, these works are to be undertaken observing the methodologies contained in this CMP with specific attention to management policies and specific actions outlined below in Parts 10 and 11.
- There is a significant opportunity for interpretation of the Negoa history and operations which would be of benefit to the community. An experienced heritage professional (interpretation) is to provide an Interpretation Management Plan to focus and guide the approach.
- If Negoa is to be left vacant for a period of time, it is imperative that the building is secured, its condition is regularly monitored, and maintenance is provided according to a regular Maintenance Schedule to ensure the ongoing protection of its heritage significance. Advice from an experienced heritage professional (architect) is recommended.

9. Statutory controls

The following statutory controls apply to Negoa:

9.1 Extant approvals

The MPO Development Consent DA 92/97 was granted on 22 December 1999. The MPO was also approved under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in 2012 (EPBC 2011/5795). MACH acquired the MPO from Coal & Allied Operations Pty Ltd on 4 August 2016. MACH commenced construction activities at the MPO in November 2016, in accordance with Development Consent DA 92/97 and EPBC 2011/5795.

There have been a number of approved modifications to the MPO since the first approval. As a result of these approvals, a range of historic heritage studies have been undertaken. Between 2011 and 2014, for example, the proponent was required to prepare a detailed history of the Mount Pleasant locality (Condition 35, Schedule 3 of modified Development Consent DA 92/97), and this history was to include assessments of the significance of identified sites in the Mount Pleasant locality together with management recommendations (see VAHS 2014).

Negoa is located adjacent to, but just outside the development consent area, approximately 800 m east of the eastern boundary. However, it was captured by the aforementioned VAHS study, which included a recommendation for the preparation of a CMP for the property. This CMP is prepared in satisfaction of that recommendation.

Negoa is in MACH's ownership.

9.2 NSW Environmental Planning and Assessment Act 1979

The *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) allows for the preparation of planning instruments to direct development within NSW. This includes Regional Environmental Plans and Local Environmental Plans administered by local government, which determine land use and the process for development applications. Negoa is currently listed on Schedule 5 of the Muswellbrook LEP as a place of local heritage significance.

The EP&A Act also establishes the broad frameworks for environmental assessment that would apply for any works to Negoa requiring a Development Application.

9.3 NSW Heritage Act 1977

Section 3 of the Heritage Act states (among other things) that it is an object of the Act to promote an understanding of the state's heritage and to encourage its conservation. The Heritage Act establishes the NSW Heritage Council and the SHR as important mechanisms for achieving these objectives.

Although the Heritage Act applies to certain aspects of local heritage (e.g., the Minister may make an interim heritage order in relation to places of local significance), it principally applies to conserve places of state significance, especially through inclusion on the SHR.

Negoa is not currently listed on the SHR and this report concludes that it is *not* of state significance.

Section 4 of the Heritage Act also protects archaeological ‘relics’ defined as:

any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance.

Under the Heritage Act, it is not permitted to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will disturb or destroy ‘relics’ (section 139). Where ground disturbance may impact a ‘relic’, the proponent of the activity must seek an excavation permit pursuant to section 140 of the Act. No formal listing for relics is required: they are protected if they are deemed to be of local significance or higher.

If archaeological relics are encountered during ground disturbance works to the site, an archaeologist should be consulted immediately as it may be governed by the archaeology provisions of the Act.

9.4 NSW National Parks and Wildlife Act 1974

The NSW *National Parks and Wildlife Act 1974* (NP&W Act) protects ‘Aboriginal objects’ and ‘Aboriginal places’. Section 86 of the NP&W Act makes it an offence for a person to ‘harm or desecrate’ an Aboriginal object or place. ‘Aboriginal objects’ are defined by the NP&W Act (section 5) to mean ‘any deposit, object or material evidence (not being a handicraft made for sale) relating to Aboriginal habitation’ of an area. ‘Aboriginal places’ are areas recognised by the minister to be ‘of special significance with respect to Aboriginal culture’ (section 84).

If Aboriginal cultural material is found during excavation activity on the site of Negoa, the OEH must be informed under section 89A of the NP&W Act. Any excavation of an identified Aboriginal object or Aboriginal place would then require a permit issued pursuant to section 90 of the NP&W Act. A permit will only be given where Aboriginal community consultation processes have first been met.

MACH has previously prepared Aboriginal Cultural Heritage Management Plans (ACHMPs) for the large tracts of land in and around the MPO Mining Lease. These ACHMPs should be consulted prior to ground disturbance works at Negoa.

9.5 Muswellbrook Local Environmental Plan 2009

The Muswellbrook LEP controls development in relation to heritage items within the Muswellbrook LGA. Clause 5.10.1 outlines the aims of the Muswellbrook Shire Council in relation to heritage items:

- (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,
- (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

The Muswellbrook LEP also provides for the conservation of heritage places through the establishment of a list of locally significant places, described in schedule 5.

Negoa is currently identified in schedule 5 of the Muswellbrook LEP as a place of local heritage significance (Item #44). Muswellbrook Shire Council requires that a Statement of Heritage Impact (SoHI) accompany a Development Application for development that has the potential to disturb archaeological sites or heritage items or developments that are within a heritage conservation area.

10. Management policy framework

10.1 Introduction

This section sets out a policy framework for future management of the heritage significance of Negoa by looking at the various elements, uses, and associations of the building and site. The policies are based on the issues raised in the previous sections of this CMP, with particular emphasis on significance and conservation of the place as the primary guidance.

The following policy framework is intended to be read with the specific actions and guidance provided in Part 11 of this report. The following policies provide guidance on the management of significant historic fabric and conservation of its identified cultural heritage values without having to anticipate every possible circumstance that may arise on a site. This does not intend to provide sufficient guidance for specific proposals or developments, and other instances where a heritage specialist is recommended to undertake further research or assessment to ascertain the most appropriate approach. In such instances, other conservation management tools and documentation may need to be undertaken.

The aim of these policies is to provide a solid foundation for all future conservation recommendations and critical decision-making, meeting a viable balance between the owner's operational requirements and the need to retain and conserve fabric.

10.2 Policy vision

The future of Negoa is dependent on continuing the conservation of the site in a manner that enables it to:

- Be identified as a place of high heritage value that provides an understanding of the settlement and development of the Hunter Region, particularly the establishment of homestead complexes.
- Retain and conserve significant fabric and elements of the site.
- Be publicly accessible insofar as this is possible given the health and safety requirements of an operational mine.

With these goals in mind, Negoa should be managed in accordance with the following principles:

- Elements of exceptional or considerable significance shall be conserved and retained where possible. Where repair or treatment is necessary, fabric of exceptional and considerable significance shall be repaired like-for-like. If required, removal of original fabric shall be restricted to the minimum area possible to carry out the repairs.
- Elements of lesser significance may be repaired or replaced if no longer operationally suitable, or if they present a safety hazard.

- Given the location and significance of this asset, care should be taken to ensure any treatments and repairs to the item are appropriate and sympathetic to the long-term conservation of Negoa as a heritage site.
- Any modifications or new building elements must be sympathetic to the general form, structural design, and aesthetic presentation of the original homestead complex.
- New building elements should be carefully designed so as not to interfere with or impact on the heritage significance of the place. All replacement fabric shall be fabricated in materials which will not cause long-term damage.
- All repair work shall be specified and supervised by suitably qualified persons in the repair of historic buildings. Archival recording of the fabric and repairs must be conducted before the start of work and after completion.
- Negoa shall be subject to regular maintenance in accordance with Parts 9, 10 and 11 of this report.

10.3 The Burra Charter

The *Burra Charter* (Australia ICOMOS 2013) is widely accepted in Australia as the underlying methodology used for all works to sites and buildings identified as having national, state, and local significance.

Negoa is of demonstrated cultural significance, therefore, procedures for managing changes and activities to the site should be in accordance with the recognised conservation methodology of the *Burra Charter*. The relevant principles for Negoa, established in the articles of the *Burra Charter*, are presented in Table 8, below.

Table 8. Relevant *Burra Charter* principles for Negoa. Source: Australia ICOMOS (2013, 3–9)

Article	Principle
3: Cautious approach	All conservation work should be based on a respect for the original fabric, should involve the minimum interference to the existing fabric and should not distort the evidence provided by the fabric
5: Values	Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.
8: Setting	Conservation required the retention of appropriate setting. This includes retention of the visual and sensory setting, as well as the retention of spiritual and other cultural relationships that contribute to the cultural significance of the place
9: Location	The physical location of a place is part of its cultural significance. A building, work or other element of a place should remain in its historical location.
10: Contents	Contents, fixtures and objects contributing to the cultural significance of a place should be retained at that place.

Article	Principle
12: Participation	Conservation, interpretation and management of a place should provide for the participation of people for whom the place has significant associations and meanings, or who have social, spiritual or other cultural responsibilities for the place.
13: Co-existence of cultural values	Co-existence of cultural values should always be recognised, respected and encouraged. This is especially important in cases where they conflict.
15: Change	Change may be necessary to retain cultural significance; however, the amount of change should be guided by the cultural significance of the place. Demolition of significant fabric is generally not acceptable. The contribution of all periods to the place must be respected unless what is removed is of slight cultural significance and the fabric which is to be revealed is of much greater cultural significance. Removed significant fabric should be reinstated when circumstances permit.
16–20: Maintenance, Preservation, Restoration and Reconstruction	<p>Maintenance is fundamental to conservation. Maintenance should be undertaken where fabric is of cultural significance and its maintenance is necessary to retain that cultural significance.</p> <p>Preservation is appropriate where the existing fabric or its condition constitutes evidence of cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out</p> <p>Restoration and reconstruction should reveal culturally significant aspects of the place.</p> <p>Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric</p> <p>Reconstruction is appropriate only where a place is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the fabric. Reconstruction should be identifiable on close inspection or through additional interpretation.</p>
21: Adaptation	Adaptation is acceptable where it does not substantially detract from the cultural significance of the place and involves the minimal change to significant fabric.
22: New work	New work may be acceptable where it does not distort or obscure the significance of a place. New work should be readily identifiable as such on close inspection.
7 and 23: Use and conserving use	<p>Where the use of a place is of cultural significance it should be retained, and a place should have a compatible use.</p> <p>Modifying or reinstating a significant use may be appropriate and a preferred form of conservation.</p>
25: Interpretation	The cultural significance of many places is not readily apparent and should be explained by interpretation. Interpretation should enhance understanding and engagement, and be culturally appropriate
27: Managing change	The impact of proposed changes, including incremental changes, on the cultural significance of a place should be assessed. It may be necessary to modify proposed changes to better retain cultural significance.
28: Disturbance of fabric	Disturbance of significant fabric for study, or to obtain evidence should be minimised. Minimal disturbance of fabric may occur in order to provide

Article	Principle
	evidence needed for the making of decisions on the conservation of the place.
29: Responsibility for decisions	The organisations and individuals responsible for management and decisions should be named and specific responsibility taken for each decision.
30: Direction, supervision and implementation	Appropriate direction and supervision should be maintained at all stages of the work.
31 and 32: Keeping a log & Records	A log of new evidence and additional decisions should be kept. A record should be kept of new evidence and future decisions and made publicly available.
33: Removed fabric	Removed significant fabric should be catalogued and protected in accordance with its cultural significance. Where possible it should be stored on site.

10.4 Fabric

The need to preserve and not cause any adverse impact to significant early fabric can be a constraint for planned future works. However, it may also provide an opportunity to reinvent original forms or spaces and allow an active use of the homestead.

The number of elements which are significant on the site include the brick and sandstone sections of the homestead and the servant's quarters outbuilding. It is proposed that conservation work be undertaken to the homestead building, notably to arrest the subsidence to the sandstone section. Restoration works need to be undertaken to the servant's quarters outbuilding and to the outbuilding timber shed. Care should be taken retain as much of the remaining original fabric as possible.

10.5 Maintenance

The need for continual maintenance is a significant constraint for owners, both financially and for future works to the site. It is important to provide an effective manageable maintenance system.

Maintenance works should be assessed for heritage impact to determine whether the methods used are appropriate to the historic fabric of the place. A maintenance plan for the site should be prepared which outlines short, medium and long-term maintenance works needed to be undertaken to different parts of the site based on the existing condition of the fabric and associated significance.

10.6 Curtilage and setting

The NSW guideline document entitled 'Heritage Curtilages' (NSW Heritage Office 1996, 3) describes 'heritage curtilage' as 'the area of land ...surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance'.

It may not necessarily be the same as the historic property boundaries. It may encompass a greater or smaller area than that.

Heritage 'curtilage' captures the 'setting' of a heritage place. 'Setting' is defined by the *Burra Charter* as 'the immediate and extended environment of a place that is part of or contributes to its cultural significance and distinctive character' (article 1.12). An explanatory note to article 1.12 states:

Setting may include: structures, spaces, land, water and sky; the visual setting including views to and from the place, and along a cultural route; and other sensory aspects of the setting such as smells and sounds. Setting may also include historical and contemporary relationships, such as uses and activities, social and spiritual practices, and relationships with other places, both tangible and intangible.

In relation to the Negoa the principal factors to be considered in determining the appropriate curtilage include:

- views to and from the item; and
- the visual and historical relationship between the item and its setting.

Sometimes to conserve these things it is necessary to establish a buffer zone around the heritage items within which new development is prohibited or constrained.

The original Negoa (brick and sandstone buildings) was constructed with a south-facing aspect. As a result, the ancillary buildings are to the north (rear). The southern elevation was the original main entry and this elevation remains relatively intact, although it is now missing its original skillion-roofed veranda. Views to this elevation are exceptionally significant.

The western elevation of the sandstone building is also exceptionally significant. It is typical of the period and style, being a generally unadorned stone façade with symmetrically placed doors (the two upper doors have been converted to windows). This building is now also missing its original veranda, which was furnished with a concave roof (on the western elevation) and skillion roofs on the north and south.

The veranda once served to unify the brick and sandstone structures and consideration should be given to its reinstatement.

The long views to the southern elevation of the brick/stone buildings and to the main façade (western) of the stone building are exceptionally significant. No new structures or plantings that might impede these views should be introduced.

Similarly, views to the sandstone building from the northwest should not be impeded by new built form or plantings. These views capture the later servant's quarters, which impede views to a degree, but this is highly significant as it allows the former site layout and hierarchy of buildings to be read and understood.

To achieve the above ends, a buffer of c. 30 m should be observed from the southern and western elevations, in which no new development or plantings should be introduced.

The northern and eastern elevations of the main building have been compromised by post-1950s brick alterations and additions. It would be desirable to remove these later additions when resources allow. In any event, the northern part of the site has a high tolerance for change as it has always functioned as a work area and was always intended to be the 'rear', less public part of the site. However, any new structures in this location should be single storey buildings in the local vernacular (e.g., CGI or timber sheds to replace the existing buildings once their use-life has expired).

The structures to the north of the residence are in poor condition and their use-life is limited. It would be appropriate to maintain them as 'picturesque ruins' to assist visitors to the site to gain an appreciation of the rural and working nature of this part of the site.

10.7 Archaeology

Ground disturbance work in the area of the historic complex of buildings (see Figure 42, above) should be limited. Where such work is essential it would generally be necessary to first obtain an Excavation Permit pursuant to section 140 of the Heritage Act (unless they are covered by gazetted exceptions that cover minor work or relevant State Significant Development approvals).

10.8 Interpretation

Given Negoa's proximity to an operational mine there are considerable constraints on the implementation of meaningful 'interpretation' measures for the site e.g., signage, plaques, public art. The best outcomes in terms of 'telling the story' of Negoa would be achieved by adaptively re-using the site (e.g., as a residence, office space, or café) so that it remains in the public consciousness.

10.9 Management

Any future proposals for major works are to be accompanied by the preparation of an updated CMP.

A copy of this CMP is to be lodged with the Local Studies Section at the Muswellbrook Shire Library.

Specialist consultants in the relevant fields with experience in dealing with heritage material are to be commissioned as necessary to report on specific problems. All necessary work recommended by consultants is to be implemented and performed having regard to significant fabric and the policies of this CMP.

The condition and maintenance of Negoa is to be regularly monitored by the manager responsible for the care of the heritage item. Heritage sites in NSW are required to be maintained in accordance with the minimum standards of maintenance and repair under section 118 of the Heritage Act. The minimum standards are set out in the NSW *Heritage Regulation 2012*, and set out basic standards for key maintenance activities such as weatherproofing, fireproofing, and site security.

To assure compliance with the minimum standards of maintenance and repair at Negoa, the following works need to be undertaken (see Table 9, below).

Table 9. Minimum standards of maintenance and repair

Note that building managers are responsible for ensuring the works and repairs recommended below meet with the minimum standards for maintenance and repair.

Minimum standards of maintenance and repair		
Standard	Requirement	Work required
Inspection	Inspect annually.	All buildings on the property are recommended to be inspected annually by a building professional or building inspector to identify arising repairs and maintenance matters.
Weather protection	Maintain subsurface drainage, roof and guttering, damp proofing, ventilation, and lightning conductors.	<p>If necessary, engage roofing plumber to inspect roof and drainage system and ensure connections are sound, secured, and watertight.</p> <p>Ensure stormwater drains are clear of debris and permit free flow of water away from the buildings.</p> <p>Ensure roof sheeting is secured appropriately.</p> <p>Ensure ventilation grilles are in sound, secure condition, and are clear of debris.</p> <p>If necessary, a plumber is to inspect the sub-floor area and identify any leakages or unwanted water sources, then remove the source.</p> <p>Ensure the sub-floor areas do not collect water and airflow is enabled through the space ensure any sub-floor drain is operational or sumps contain automatic water pumps to remove excess water into the stormwater system.</p> <p>Ensure condensate waste pipes from air conditioners or other equipment are connected to a waste water system and are not to disperse under or around the building.</p>
Fire protection	<p>Remove rubbish and vegetation.</p> <p>Maintain fire control systems, safe storage of inflammables, and building services.</p>	<p>The building managers are to ensure the site area and garden is maintained regularly removing rubbish, garden debris, and weeds, and trimming grass.</p> <p>The building managers are to ensure fire control systems and building services are installed and are maintained according to regulations.</p> <p>The building managers are to ensure the provision of facilities for flammable products or safe locations for flammable materials such as garden debris or other rubbish.</p>
Additional fire protection for	If unoccupied for more than 60 days: (a) disconnect oil and gas services, and (b) install	The building managers are to ensure the unoccupied buildings safe and a monitored fire-protection system is in place in Negoa.

Minimum standards of maintenance and repair

unoccupied buildings	monitored fire-protection system.	
Security	Install: (a) appropriate fencing and security systems, and (b) repair or board up openings.	The building managers are to ensure the buildings are secure and fences are maintained.
Additional security measures for unoccupied buildings	If unoccupied for more than 60 days: (a) install monitored security alarm, or (b) undertake regular surveillance.	The building managers are to ensure unoccupied buildings are provided with security and surveillance arrangements in place.
Essential maintenance and repair	Maintain and/or repair: pest control measures, structural defects, and significant finishes and fittings.	The building managers are to ensure a regular pest control inspection and treatment. The building managers are to ensure advice received from building inspectors recommended building repairs and maintenance matters are addressed appropriately, gaining professional advice where necessary.

11. Specific conservation actions

This section is intended to be read within the general policy framework provided in Part 10. Managers of Negoa should undertake the specific actions presented in the following section within the timeframes indicated to ensure that the site's heritage values are appropriately conserved. Where there is ambiguity or where a circumstance arises that is not covered by the specific actions recommended in this section, the managers of Negoa should:

- formulate a response based on the general policy framework presented in Part 10; and
- seek specialist heritage advice.

This Part divides the recommended specific actions by building/location. In prioritising recommended actions, the managers of Negoa should always have regard to the assessment and summary statement of significance contained in Parts 7.4 and 7.6, above. As a general principle, works to the original 1845 brick structure and 1850s sandstone addition are to take priority over those recommended for the later and less significant elements.

Figure 44, below, illustrates the likely appearance of Negoa in the mid-nineteenth century. This may be a useful guide for how the external appearance of Negoa could be managed. However, the reintroduction of any features would require prior consultation with a heritage specialist.



Figure 44. An illustration of Negoa by Albert Cox, 1860. *Source:* VAHS (2014, 511).

11.1 Homestead, 1845 brick section: exterior

Some matters to consider include:

- The 1845 brick component of the homestead is exceptionally significant in historical terms, being the original structure. The original fabric is exceptionally significant.
- The building's aesthetic values must be carefully managed, including its simple vernacular rural appearance and Flemish bond brickwork.
- The southern elevation is highly intact, although missing its original/early verandah. Views to this elevation must remain unimpeded.
- The northern elevation has been modified including the introduction of new brick walls/rooms and a carport, all of which is of low significance or intrusive.
- A modern brick annex has been added to the eastern end of the building. It is intrusive.

11.1.1 Brickwork

- The mid-nineteenth century brickwork is highly susceptible to deterioration and damage. Repairs using cement-based products can accelerate deterioration. This is because the compressive strength of the cement-based products is greater than that of the aged bricks, resulting in the deterioration of the bricks ahead of the cement-based repair work. This is evident in places at Negoa, and work using such products *should be discontinued*.
- Where possible without inflicting further structural damage, any cement-based repairs should be reversed (see Figure 45, below). *Do not* continue to employ this method of repair. In preference to cement-based products, the brickwork is to be repaired using a sacrificial mortar. This mortar's compressive strength must be lower than that of the bricks. Ongoing maintenance of the building must proceed on the basis that:
 - Mortar repairs will have a limited lifespan. A regular (every three years) and ongoing monitoring and repair program must be instituted.
 - When repointing the mortar joints, observe the methodologies contained in the document entitled 'Technical Note: Repointing Mortar Joints' prepared by the NSW Heritage Council. Match the existing flush pointing.
- Act on the advice of the structural engineer's assessment of the structural integrity of the building (see Lindsay Dynan Consulting Engineers 2018). Act on the advice of engineering and heritage professionals to address any structural issues employing methodologies described in this CMP.
- Always give preference to retaining original brickwork in situ (see Figure 46, below). Maintain the exposed brickwork. Do not paint or render the exterior bricks.

- Monitor the historic brickwork for colonisation by moss, lichen, vines and creepers. Prevent this from occurring as it can accelerate the deterioration of the brick work.
- Where individual bricks have failed, it is appropriate to replace them using new bricks of the same dimensions and colour-matched. New brickwork, where it is patch-repairing historic brickwork, should be in Flemish bond style (alternating headers and stretchers).
- Modern brickwork exists on the northern and eastern elevations where new rooms have been added to the historic structure. This fabric is intrusive. It is acceptable to retain the modern brick wall and rooms in situ; however, these modern elements of the house have a high tolerance for change. It is desirable to remove them to expose the original structure when resources allow.
- The original verandah mounts are visible on the southern elevation, under the gutters. These recall the original appearance of the building which had a skillion roofed verandah and should be retained. Give consideration to the installation of a new ground level timber-framed awning in this location (see recommendations presented in Part 8.3, above).

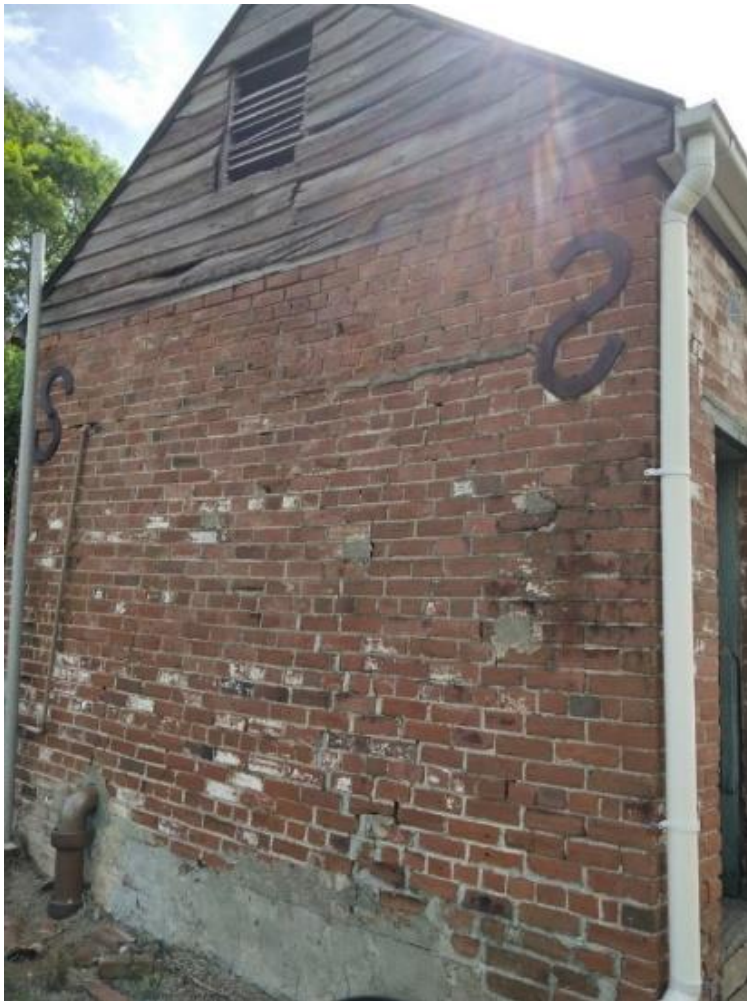


Figure 45. The western elevation of the servants' quarters outbuilding. Note the cement-based repair work. Do *not* employ this method of repair in future. Where possible without inflicting further structural damage, reverse where it has occurred by raking out joints and repointing with lime mortar.



Figure 46. Detail of the brickwork on the southern elevation of the 1840s brick section of the homestead showing the typical Flemish bond (alternating headers and stretchers) and flush pointing

11.1.2 Roof

- The simple pitched roof form, hipped at the east end, and use of corrugated metal, is an appropriate historical form. Retain this roof form and fabric.
- The structural integrity of the existing roof needs to be assessed by a professional. If it requires replacement, do so immediately. It is appropriate to do so using modern CGI roofing (uncoloured Colorbond).
- Waterproofing works to the roof were completed in 2020. Where budget allows, the roof may also be repainted.

11.1.3 Windows and doors

- Repair, repaint, and properly affix failing shutters on the windows. Where shutters are beyond repair, it is appropriate to replace them with shutters of the same size and form. Affix the shutters in existing locations, minimising new penetrations in, and damage to, the brick work.
- Retain original/early window frames and panes: look for multi-paned windows (sash and French) with delicate glazing bars. Where window frames or glass panes are damaged beyond repair, it is appropriate to replace them observing the like-for-like principle.
- Any new windows in existing penetrations must be in the appropriate historical form. This will usually be sash windows unless there is clear evidence that they were historically of another form (e.g., French doors). This observation is particularly relevant to the southern elevation which is the most intact.
- The windows in the modern brickwork on the northern elevation have a high tolerance for change. They are not of heritage significance.
- Retain original/early doors. In particular, seek to retain and conserve the French doors on the southern elevation.

- Where doors are damaged beyond repair, it is appropriate to replace them observing the like-for-like principle. Where replacement is unavoidable, the original form must be maintained e.g. replace a narrow door with fanlight with a narrow door and fanlight.
- There must be *no* new penetrations (doors or windows) on the historic elevations, and through historic walls.

11.1.4 Rainwater goods (gutters, downpipes etc.)

- Inspect and repair existing gutters. It is appropriate to replace failing gutters using modern materials if necessary. Use existing fixture points and minimise damage to the brick work (see Figure 47, below).
- Ensure that the flashing at the join between the 1845 brick structure and the 1850s sandstone building is watertight. Repair if necessary, employing modern techniques but minimising physical intervention in original fabric.
- Replace the existing Polyvinyl Chloride (PVC) downpipes with galvanised downpipes. Use existing fixture points and minimise damage to original brick work. Do not use materials that will stain brick work.
- Installation of corrugated water tanks to collect runoff water discharged from roof downpipes would be appropriate.



Figure 47. The white downpipes and air conditioning materials detract from the aesthetic appearance of the southern elevation. The air conditioners should be removed and the downpipes replaced with galvanised ones.

11.1.5 Chimneys

- Retain and conserve the original brick chimneys.
- Engage a structural engineer or qualified building professional to assess the structural integrity of the chimneys. Act on the advice of the professional to address any structural issues that may be identified. Always favour repair/stabilisation over replacement.
- Should the chimney brickwork require repointing, do so using a sacrificial mortar, observing the methodology described for the external walls.

11.1.6 Paving

Original brick paving with a concrete render is visible on the homestead's southern elevation, reflecting the dimensions of the original verandah along this elevation.

- Retain the remnant paving in situ (see Figure 48, below).
- Repair where necessary using bricks of the same colour and dimension.



Figure 48. The remnant original brick paving visible on the homestead's southern elevation.

11.1.7 Carport

- The carport on the northern elevation is an intrusive twentieth-century addition. However, it is located on the (historically) rear elevation, addressing the former servants' quarters. It also serves a protective function for this side of the house.
- The carport can be retained if necessary and removed when resources allow.

11.1.8 Modern services

- Remove the externally-placed air conditioning units, satellite dish and television antenna from the homestead structure. They are intrusive, modern additions that detract from its aesthetic significance.
- When resources allow, make provisions for future installation of an appropriate ducted air conditioning system within the internal space of the existing building. New ducting, cabling and perforations is to consider and minimise adverse impact to existing building fabric identified to be of heritage significance. Consideration is to be given to a multi-split air conditioning system, where each room or zone would have its own individual indoor unit, which will then connect to a common outdoor unit.

11.1.9 Modern eastern brick addition

- The brick annex on the eastern side of the 1845 structure is intrusive (see Figure 49, below). It may be retained, but consider its removal when resources allow.
- Any removal of the brick annex on the eastern side of the 1845 structure must be preceded by an assessment of the potential heritage impacts that such a removal may have on the original wall presently separating the annex from the eastern end of the original building. Engage a heritage professional to prepare a written statement of heritage impact.
- If the removal of the modern annex would require significant intervention in original fabric, it may be preferable to retain the annex in situ.
- If removed, considerable care must be taken to remove all adjoining element that may be reliant on the original structure for support, such as roof rafters and ceiling and wall finishes, before proceeding with demolition.

11.1.10 Modern northern brick addition

- The brick addition on the northern side of the 1845 structure is intrusive (see Figure 49, below). It may be retained, but consider its removal when resources allow. This will need to be preceded by an impact assessment of the potential heritage impacts that such a removal may have on the original wall presently separating the addition from the original northern wall of the 1845 building. Engage a heritage professional to prepare a written statement of heritage impact.
- If the removal of the modern addition would require significant intervention in original fabric, it may be preferable to retain the addition in situ.
- If removed considerable care must be taken to remove all adjoining elements that may be reliant on the original structure for support, such as roof rafters and ceiling and wall finishes, before proceeding with demolition.

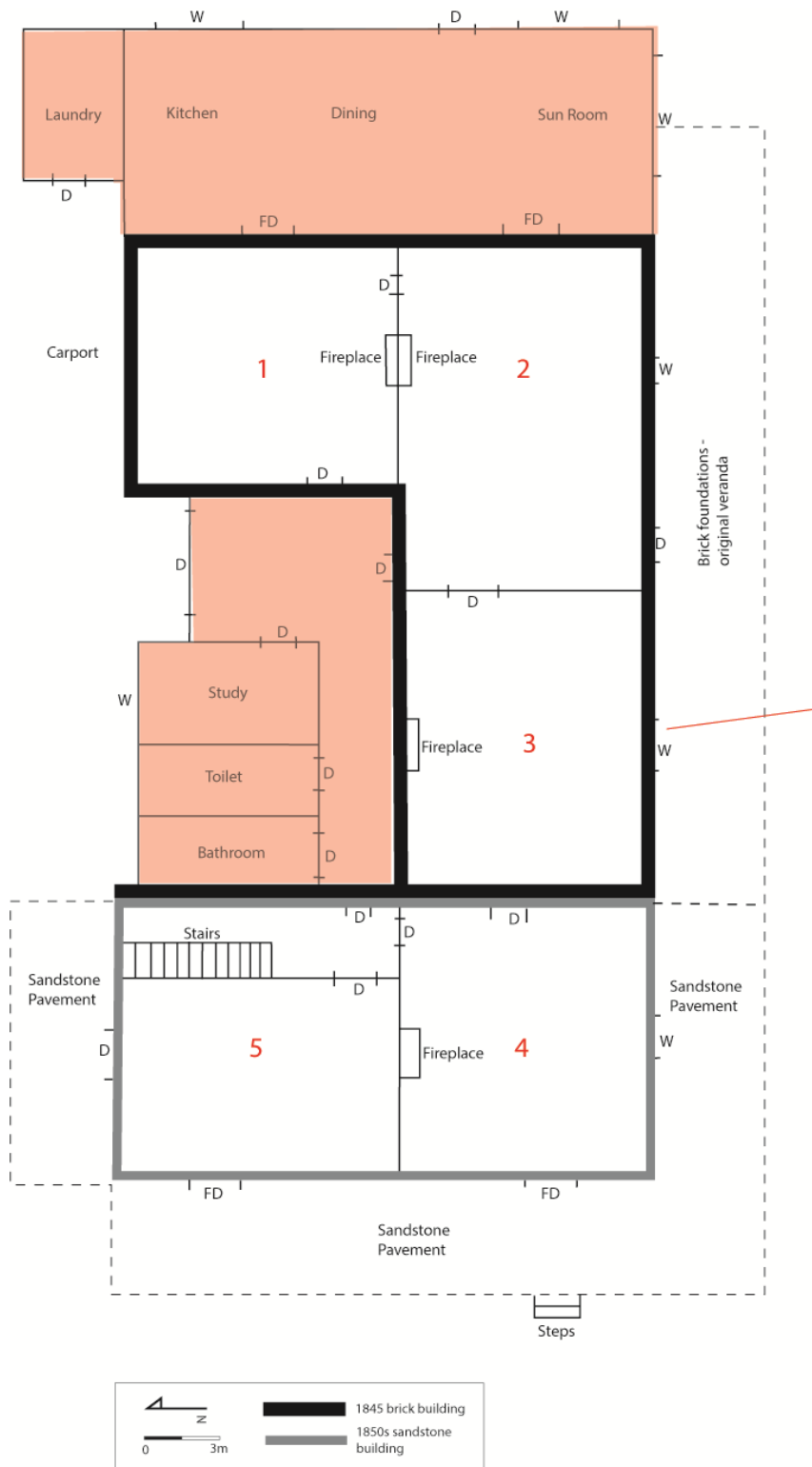


Figure 49. Plan of Negoa showing the modern northern and eastern additions that are intrusive and can be retained or, preferably, removed when resources allow subject to an assessment of heritage impact.

11.2 Homestead, 1850s–60s sandstone section: exterior

Some matters to consider include:

- The 1850s–60s sandstone structure of the Negoa is exceptionally significant in historical terms, being an 1850s–60s structure. The original fabric is exceptionally significant.
- The building’s aesthetic values must be carefully managed, including its unadorned Victorian Georgian style.
- The three main elevations are highly intact, although missing their original/early verandahs.

11.2.1 Stonework

- The structural integrity of the sandstone building has been assessed (see Lindsay Dynan Consulting Engineers 2018), including the causes of the cracks in the outer walls (see Figure 50, below), and extensive mortar loss to joints and the spreading of perpend joints, particularly over openings and at the corners of the sandstone building (see Figure 51, below). Cracking is evident through the full depth of lintel blocks, generally at mid-span, but in some instances emanating from the corner of the opening. Cracking of masonry was also identified below openings. The eastern second storey stone wall appears to be constructed on the original brick return wall, resulting in the dislodgement of sandstone blocks on the upper corner section of the east wall due to the restraint imposed by dissimilar construction materials and footing systems to the adjacent brick building.
- Monitor and repair cracks in the walls caused by subsidence. Always give preference to retaining original stones in situ. However, where individual stones have failed through cracking or erosion, it is appropriate to replace them using new sandstone pieces, ideally from the same source and colour-matched.
- Maintain the exposed stonework. Do not paint or render. Retain the ‘rustication to the sandstone blocks.
- Analyse the patch repairs made to the stonework in places (along joints in the stonework). If these are a cement-based product, remove those repairs immediately as they will accelerate the deterioration of the stonework. In preference to cement-based products, the stonework should be repaired using a sacrificial mortar. This mortar’s compressive strength must be lower than that of the stone. Ongoing maintenance of the building must proceed on the basis that:
 - Mortar repairs will have a limited lifespan. A regular (every three years) and ongoing monitoring and repair program must be instituted.
 - Monitor stonework for colonisation by lichen, moss, vines, and creepers. Prevent this from occurring as it can accelerate the deterioration of the stonework.

- The original verandah mounts are visible on the main elevations: at the mid-height of the wall where the verandah floor was located, and under the gutter where the verandah roof was affixed. These recall the original appearance of the building which had (on its western elevation) a roofed verandah with concave profile, accessed through two doors on the upper story (note: these doors have since been converted to windows and there is no access available via the upstairs rooms).
- Retain the verandah mounts in situ. Give consideration to the installation of a ground level timber-framed awning (see recommendations in Part 8.3, above).



Figure 50. The eastern and northern elevations of Negoa comprising sandstone, showing the cracks in the stonework and the abraded stones (red arrows). The causes must be investigated and repairs undertaken.



Figure 51. Southern elevation of the sandstone section of Negoa, showing damage to the upper courses of stonework caused by building movement. The causes are to be investigated and the stones reset.

11.2.2 Roof

- The simple hipped pitched roof form, and use of corrugated metal roofing, is the appropriate historical form. Retain this roof form and fabric.
- The structural integrity of the existing roof is to be assessed by a professional, as it shows clear signs of corrosion. If it requires replacement, do so immediately. It is appropriate to do so using modern CGI roofing (uncoloured).

11.2.3 Windows and doors

- Where possible, repair, repaint, and properly affix failing shutters on the windows and doors. Where shutters are beyond repair, it is appropriate to replace them with shutters of the same size and form.
- Affix the shutters in existing locations, minimising new penetrations in, and damage to, the stonework.
- Retain existing window frames and panes on the four historic elevations. Where window frames or glass panes are damaged beyond repair, it is appropriate to replace them observing the like-for-like principle.
- Any new windows in existing penetrations must be sash windows unless there is clear evidence that they were historically of another form (e.g., French doors).
- Retain existing doors on the historic elevations. Where doors are damaged beyond repair, it is appropriate to replace them observing the like-for-like principle. Where replacement is unavoidable, the original form must be maintained, e.g., 'narrow door with transom' on the southern elevation.
- Failing doors that are obviously twentieth century replacements may be removed and replaced where appropriate.
- Fly screens can be removed and preferably not replaced.
- There must be *no new* penetrations (doors and windows) on the four historic elevations.

11.2.4 Chimneys

- Retain and conserve the original brick chimney.
- Engage an engineer or qualified building professional to assess the structural integrity of the chimney. Act on the advice of the professional to address any structural issues that may be identified. Always prefer repair/stabilisation over replacement.
- Should the chimney brick work require repointing, do so using a sacrificial mortar, observing the methodology described above for the external brick walls on the 1845 section.

11.2.5 Paving and steps

- The structural integrity of the pavers and steps, including the causes of their obvious deterioration, has been assessed (see Lindsay Dynan Consulting Engineers 2018). Failed single-block retaining walls and uneven pavers are likely to be a consequence of poor construction technique and uncompacted subgrade susceptible to differential movement upon wetting and drying cycles, particularly after the removal of the verandah.
- Removal, releveling of base, and rebedding of existing external sandstone paving are recommended.
- Seek to retain original paving and step stonework in situ.
- Where individual stones have failed beyond repair and re-use (see Figure 52, below), it is appropriate to replace them using new pieces, ideally from the same source and colour-matched.



Figure 52. A section of the failing stone paving on western and northern elevations of the sandstone section of Negoa.

11.2.6 Modern services

- Do not introduce externally-placed and visible air conditioning units, satellite dishes, television antennae etc on or around the structure.
- They would be intrusive additions that would detract from the aesthetic significance of the building.

- Avoid surface mounted services where this would impact original fabric.

11.3 Interior: Homestead, 1854 brick section and 1850s–60s sandstone section

Some matters to consider include:

- The interior of Negoa is exceptionally significant in historical terms, being a combination of the original 1845 structure and an early 1850s–60s structure.
- Original fabric is exceptionally significant. Later but early modifications, fixtures, and fittings are considerably significant.
- The historic floorplan of the structures is exceptionally significant.
- The interior has low tolerance for change and physical intervention must be limited.
- It is desirable to reverse previous works that have compromised the integrity of the historic structures when resources allow.
- The aim should be to retain and conserve, while supporting an appropriate use (e.g., residential use or office space).
- Some later elements are intrusive or of only some significance, and it would be appropriate to remove them.
- Some remedial works have been undertaken between 2018 and 2020.

11.3.1 Internal walls

- The plasterboard cladding on the internal walls reflects twentieth-century modification of the homestead's rooms. This cladding does not make a positive contribution to the aesthetics of the homestead's interior spaces, and there is evidence of bending and warping.
- It would be appropriate to replace this plasterboard cladding with modern materials if desired. In doing so, *retain and conserve* original timber frames.

11.3.2 Internal doors

- Do not in-fill historic doorways or introduce new internal doorways. They reflect the historic layout of the buildings.
- Retain and conserve original stone doorsills in situ. Where cracked, seek to reset the stone in situ and repair.
- None of the doors appears to be original but some are clearly of an early date (i.e., either side of WWII). They are of some significance, adding character to the homestead's interior. Seek to retain and conserve these doors. Where they have failed, it would be appropriate to replace them observing the like-for-like principle.

- Maintain and conserve decorative door jambs. Where failing (e.g., due to rot or termite action) it is appropriate to replace them observing the like-for-like principle.

11.3.3 Ceilings

- Retain and conserve the original/early timber ceilings where they survive.
- Where they have been replaced with plasterboard, this can be retained. However, there is evidence of sagging in places. The plasterboard and Mini Orb ceilings can be replaced with modern materials if desired. Ideally, these ceilings would be removed and replaced with ceilings to match the historical form (timber).
- If the plasterboard ceilings prove to be false ceilings that, for example, conceal historic plasterwork or pressed tin ceilings, the historical fabric should be exposed and conserved.
- It is appropriate and desirable to re-paint the timber ceilings.
- Should timber ceilings need repair, attempt to splice or scarf in the new timbers in order to retain as much historical fabric as possible. Where individual timbers have failed beyond repair, and splicing is not possible, it is appropriate to use a modern timber 'filler', especially for minor repairs.

11.3.4 Fireplaces

- The location and chimneys of the fireplaces are original.
- The fireplace surrounds are not original; however, the fireplace surround in room 2 is early, and should be retained and conserved.
- Retain all existing fireplaces. Do not remove original or historical fabric.
- It may be necessary to retain the fireplaces in a non-functional state pending professional advice on the condition of the chimneys.

11.3.5 Cornices and skirting

- Retain and conserve existing cornices and skirting.
- Where failing, it is appropriate to repair/replace them applying the like-for-like principle.

11.3.6 Light fittings

- The light fittings are not original, and mostly date to the mid-twentieth century. They lend the interior a patina of age that enhances its character and it would be desirable to retain them. However, they may be replaced if necessary.
- The light switches and electrical outlets are mostly mid-twentieth century or later. They lend the interior a patina of age that enhances its character and it would be desirable to retain a sample of them. However, they may be replaced if necessary.

11.3.7 Flooring and wall coverings (including wallpaper)

- Some of the internal walls are plastered, but the plaster appears to be a contemporary mix, and its suitability to the original fabric needs to be investigated and retained, or removed accordingly. Should it be replaced, a lime-based plaster that is more sensitive to historic fabric should be used.
- Walls that have developed large cracks, as is the case of the sandstone section of the homestead, need to be replastered but *only* once the subsidence issues of the building have been inspected and addressed.
- Wallpaper has been used in three rooms, both in the brick and sandstone sections of the homestead. These walls should be checked for moisture and mould, so as to ensure that the wallpaper is not damaging the fabric of the walls. If problems are detected, the wallpaper should be removed and the walls be treated and replastered, observing the preferred plastering methodology described above.
- The carpets and wall tiles are late-twentieth century. They can be removed, as necessary.
- The original timber floors and walls should be exposed, sanded and polished.

11.3.8 Services

- The bathrooms are modern alterations to the interior. They may be retained or modified as desired.
- Mid-twentieth century wall-mounted electrical wiring is visible in places, as well as exposed light fixtures. They are of some significance in that they illustrate the mid-twentieth century use of the structure. It is appropriate to render these redundant but retain a sample in situ.
- New wiring should be within wall cavities and unobtrusive.

11.3.9 Cupboards

- The relatively modern built-in wall cupboards are intrusive. They can be retained in the medium-term. However, ideally, they should be removed when resources allow to expose the original walls and to return the rooms to their original floor space.

11.3.10 Internal stairs

- The stairs in the 1850s--60s sandstone section of the homestead are a later addition, and have been assessed as structurally unstable. The stairs were in poor condition due to termite activity and were reconstructed in 2020.

11.3.11 Cellar

- Urgently seek the advice of an engineer or building professional to determine the structural integrity of the cellar walls and floors (brick and stone).

- Make safe and undertake necessary repairs, observing the policies and methodologies in this CMP.
- Seek to retain all original fabric, which is of Exceptional significance. This may involve the introduction of modern piles, beams, and buttresses to protect original but failing load-bearing elements.
- When structurally sound, clean out the cellar area of collapse and of the soil accumulation over the original floor surface. Treat this work as an archaeological excavation.
- Take care to avoid damage to stone surfaces that (anecdotally) show evidence of convict-era graffiti.
- Implement measures to ensure that the cellars are not subject to flooding.

11.3.12 Fire safety measures

- Introduce unobtrusive fire warning systems including smoke alarms. Avoid surface mounted services where this would impact original fabric.
- Negroa is in a location where such alarms may not be heard or acted on by distant neighbours. Therefore, investigate alarm systems that will alert a caretaker who may be resident elsewhere.

11.3.13 Vandalism

- Make the structure safe from vandals and squatters by installing effective locks and repairing damaged doors and windows.
- Ideally, the house will have a live-in caretaker. If that is not proposed or possible:
 - regularly monitor the house for squatters and vandalism; and
 - install a motion-activated alarm that would alert the site's manager, who may be resident elsewhere.

11.4 Servants' quarters

Some matters to consider include:

- The servants' quarters are considerably significant in historical terms, being part of the post-convict period of Negroa's use.
- Original fabric is considerably significant but has some tolerance for change, especially where there is structural failure. Recent storm damage has resulted in the detachment of the roof sheeting, leaving the remaining structure without adequate weather protection.
- The structure is now in poor condition and would require physical intervention to make it structurally secure and prevent further deterioration of the building fabric (see Figure 22-

Figure 23, above). The building's aesthetic values must be managed, including its simple vernacular rural appearance. It would be appropriate to make this structure 'safe' and maintain it for historical interpretation purposes as a 'picturesque ruin' adjacent to the main residence.

- To make the structure 'safe', the structure is to be stabilised in a weatherproof state, and the remaining heritage fabric is to be retained and protected. Salvaged roof sheeting should be refixed.

11.4.1 Brickwork

- The brickwork of the servants' quarters is highly susceptible to deterioration and damage. Visible previous repairs by previous owners, using cement-based products have accelerated deterioration of the brickwork in places. This is because the compressive strength of the cement-based products is greater than that of the aged bricks, resulting in the deterioration of the bricks ahead of the cement-based repair work. Use of such products should be discontinued. Any cement-based repair work is not appropriate and is not to be used for future repairs.
- Inspection of the servant's quarters building by a heritage architect and builder determined that the cement-based repair work is holding the brickwork in place and its removal would potentially cause the collapse of the walls, as they are already 'bowing' and are located at the base of the walls. Temporary structural support may be required during the removal of cement based repairs.
- In preference to cement-based products, the brickwork is to be repaired using a sacrificial mortar. This mortar's compressive strength must be lower than that of the bricks. Ongoing maintenance of the building must proceed on the basis that:
 - Mortar repairs have a limited lifespan. A regular (every three years) and ongoing monitoring and repair program must be instituted.
- Engage an engineer or qualified building professional to assess the structural integrity of the building. Act on the advice of the professional to address any structural issues, employing methodologies and observing the policies described in this CMP.
- Always give preference to retaining original brickwork in situ. Structural augmentation may be required to secure and stabilise the retained brickwork. Where individual bricks have failed, it is appropriate to replace them using new, colour-matched bricks of the same dimensions.
- Maintain the exposed brickwork. Do not paint or render the exterior bricks.
- Treat the vines and creepers attaching themselves to the timber structure with a herbicide and, once dead, remove them. Continue to monitor the brickwork for colonisation by moss, lichen, vines, and creepers. Prevent this from occurring as it can accelerate the deterioration of the brickwork.

11.4.2 Roof

- The simple pitched roof form, and use of corrugated metal, is an appropriate historical form. Retain this roof form and fabric.
- The structural integrity of the existing roof is to be assessed by a professional. If it requires replacement, do so immediately. It is appropriate to do so using modern CGI roofing (uncoloured).

11.4.3 Windows and doors

- The existing windows and doors are in poor condition. Seek to retain and conserve them, including the timber frames.
- If retention is not possible, it would be appropriate to replace them applying the like-for-like principle and on the basis that the structure should be maintained in a weatherproof state.
- Introduce no new penetrations (doors or windows).

11.4.4 Rainwater goods (gutters, flashing and downpipes)

- Inspect and repair existing gutters. It is appropriate to replace failing gutters using modern materials if necessary.
- Use existing fixture points and minimise damage to the brickwork.
- It is appropriate to retain the existing PVC downpipes, but when they come to the end of their life, replace them with galvanised downpipes of a less obtrusive colour, using existing fixture points and minimising damage to original brick work.
- Do not use materials that will stain the brickwork.

11.4.5 Timber floors, frames, and gables

- Seek to retain and conserve the original timber floors in situ. Treat them to avoid termite damage. Paint them with oil.
- Where timber floors require repair, attempt to splice or scarf in the new timbers in order to retain as much historical fabric as possible. Where individual timbers have failed beyond repair, and splicing is not possible, it is appropriate to use a modern timber 'filler' especially for minor repairs.
- Seek to retain and conserve the original timber frames in situ. Treat to avoid termite damage.
- If it is impossible to retain and conserve the historic timber frames, and where their condition is such that the structure may fail, they may be replaced.
- Treat the vines and creepers attached to the timber structure with herbicide and, once dead, remove the vines and creepers.

- Patch-repair the failed timber gables at both ends of the building. Attempt to splice or scarf in the new timbers in order to retain as much historical fabric as possible. Where individual timbers have failed beyond repair, and splicing is not possible, it is appropriate to use a modern timber 'filler'.
- Make the structure weatherproof and vermin-proof.

11.4.6 Walls

- Retain and conserve the original entry to the servants' quarters building on the southern elevation. Patch-repair the glass panes.
- It would be appropriate to clad the eastern half on the building in plain CGI.

11.4.7 Corrugated metal addition

- Retain the corrugated metal addition on the north-eastern corner of the servants' quarters building. Do not hasten its deterioration.
- At the end of its natural use-life, it would be appropriate to remove this addition.

11.4.8 Interior renders

- Some of the internal walls are plastered. The plaster is in poor condition. I
- Remove and replace with a lime-based plaster that is more sensitive to historical fabric.

11.4.9 Ceiling

- Clear the roof spaces that are currently tangled with dead vines.
- Seek to retain and conserve the timber ceilings where parts survive.
- Where the timber ceilings need repair, attempt to splice or scarf in the new timbers in order to retain as much historical fabric as possible. Where individual timbers have failed beyond repair, and splicing is not possible, it is appropriate to use a modern timber 'filler'.
- The principal concern should be to make the structure weatherproof.

11.5 Weatherboard shed

Some matters to consider include:

- The weatherboard timber shed is considerably significant in historical terms, being part of the post-convict period of Negoa's use.
- Original fabric is considerably significant but has some tolerance for change, especially where there is structural failure.

- The building's aesthetic values must be managed, including its simple vernacular rural appearance. It would be appropriate to maintain this structure as a 'picturesque ruin' adjacent to the main residence.
- The structure must be maintained in a weatherproof state.
- Do nothing to accelerate the structure's deterioration. Patch-repair, as necessary. However, note that this building has a limited use-life.

11.5.1 Roof

- The simple pitched roof form is the appropriate historical form. Retain this roof form and fabric.
- This structure originally had a shingle roof but has had a replacement corrugated metal roof for decades. It is appropriate to retain and conserve this corrugated metal roof.
- The structural integrity of the existing roof is to be assessed by a professional. If it requires replacement, do so. It is appropriate to do so using modern CGI roofing (uncoloured).

11.5.2 Windows and doors

- Introduce no new penetrations (doors or windows).

11.5.3 Rainwater goods (gutters and downpipes)

- Inspect and repair existing gutters. It is appropriate to replace failing gutters using modern materials if necessary.
- Use existing fixture points and minimise damage to the timber.
- It is appropriate to retain the existing downpipes, but when they come to the end of their life, replace them with downpipes of an unobtrusive colour.

11.5.4 Timber walls

- Seek to retain and conserve the original timber walls.
- Remove soil build-up and weeds at the base of the timber walls and maintain in that condition.
- Monitor for termite activity. Treat to avoid termite damage.
- Where timber walls require repair, patch-repair as required using modern timbers. Seek to match new timbers to the historical timbers.
- Make the structure weatherproof and vermin-proof.

11.5.5 Rear yards

- Seek to retain and conserve the timber posts and rails to the rear of the weatherboard shed building.
- However, these elements have a limited use-life. It would be appropriate to remove when their natural use-life has been reached.

11.6 Garden areas

- The timber fence posts and rails can be retained or replaced on the same alignment as the existing fence posts and rails, as necessary.
- The broken hills hoist clothesline can be removed.
- Most of the extant trees are self-seeded, and can be removed should that be desired. However, the bunya pine and conifer should be retained as deliberate cultural plantings.
- Plant no new trees or shrubs within 5 m of a standing structure, to avoid root damage to foundations and walls and other wear and tear.
- Retain existing access points to the property, as well as existing paths and dirt access roads. These appear to follow historic points of entry.
- The re-introduction of a formal garden layout would be generally appropriate, especially one that incorporates a formal driveway on the southern elevation. However, no new plantings should be introduced that would obscure the significant views to the historic elevations — especially the southern elevation of the 1845 brick house and the western elevation of the sandstone structure.
- The timber pool fencing has been removed. The pool itself has been filled in. These actions were completed in 2020 and the pool area has been rehabilitated.
- The corrugated metal outdoor shed (north of the weatherboard shed) is of Some significance in that it lends the property a rural character and reflects the later rural uses of the property. Retain and conserve in situ. At the end of its natural use-life, it may be removed.

12. Recommendations

This Part contains a series of recommended actions. Many of them can be undertaken over an approximately five-year period, or when resources allow.

The following recommended actions are to be undertaken as soon as practical. They relate to:

- making the 1845 brick building and 1850–60s sandstone building weatherproof and secure; and
- ascertaining the causes of the obvious cracks in the sandstone section's walls and the original cellar, and addressing them as a matter of urgency.

The following actions are of the **highest priority**:

- Act on the advice of the structural engineer to address structural issues with the 1845 brick section, including its chimney, employing the methodologies and observing the policies described in this CMP.
- Act on the advice of the structural engineer to address the causes of the issues of the structural integrity of the sandstone section, including the causes of the cracks in the outer walls and chimneys, which may include stabilising the foundations and damaged walls until repairs can be undertaken.
- Act on the advice of a structural engineer and qualified building professional to stabilise the cellar walls and floors (brick and stone). Remove excess debris. Undertake necessary repairs, observing the policies and methodologies in this CMP. Seek to retain all original fabric, which is of exceptional significance. This may involve the introduction of modern piles, beams, and buttresses to protect original, but failing, load-bearing elements.
- Engage a professional to assess the structural integrity of the existing roofs (on the 1845 brick and 1850s sandstone sections). If they require replacement (e.g., if there are leaks), do so as soon as practical. It is appropriate to do so using modern CGI roofing (uncoloured).
- Repair lintels over damaged windows and doors to make the 1845 brick and 1850s sandstone sections weatherproof and secure. Act on structural engineers' advice to prop openings and install new steel lintel beams where sandstone lintel blocks have broken, to remove the load from the window and door framing below. This retrofit could be performed internally to reduce the visibility of the retrofit elements.
- Act on structural engineers' advice and in accordance with the policies of this CMP to address the cement-based repairs to the historic brickwork on the 1845 section and the servants' quarters as soon as practical. In preference to cement-based products, the brickwork should be repaired using a sacrificial mortar. This mortar's compressive strength must be lower than that of the bricks.

- Ongoing maintenance of the building must proceed on the basis that:
 - mortar repairs will have a limited lifespan; and
 - a regular (every three years) and ongoing monitoring and repair program must be instituted.
- Inspect and repair existing gutters and downpipes on the 1845 brick section and the 1850s-60s sandstone section. It is appropriate to replace failing gutters and downpipes using modern materials if necessary.
- Make the structure safe from vandalism and squatters by installing effective locks and by repairing damaged doors and windows. Ideally, the house would have a live-in caretaker. If that is not proposed or possible:
 - regularly monitor the house for squatters and vandalism; and
 - install a motion-activated alarm that will alert the site's manager, who may be resident elsewhere, to potential intruders.
- Once the brick and sandstone buildings have been made structurally sound, weatherproof, vandal-proof, and vermin-proof, it would be appropriate to leave the structures vacant, although regularly monitored and maintained. However, it is preferable that the buildings continue in an appropriate use. Those uses may include (subject to local planning controls):
 - residence;
 - temporary accommodation, e.g., backpackers' lodgings or housing for mine employees;
 - office accommodation, e.g., for mine employees; and
 - commercial/retail, e.g., a café or local history museum.
- Adaptive re-use would require new works to the interiors, which are to be undertaken observing the methodologies and policies contained in this CMP.

The following is a summary of **other recommended future works**:

- removal, releveling of base and re-bedding of existing external sandstone paving outside rooms 4 and 5;
- further improvement of external drainage, including removal of excessive ground level around the base of walls to mitigate moisture ingress to the building;
- construction of timber-framed awning over ground level including stone floor and brick footings along eastern elevation of brick building (and adding corrugated water tanks to suit) (see Part 8.3, above);
- repointing external stone wall joints;

- repointing external brick wall joints;
- internal wall crack repairs, replastering, and repainting;
- repairs to existing timber doors and windows;
- repairs to termite damaged architraves/skirting boards;
- repairs and repainting to timber ceiling lining boards;
- removal of existing carpet and restoration of timber floors;
- replacement of damaged light fittings;
- removal/demolition of kitchen/dining/sunroom and reinstatement of external entry to the northern elevation;
- construction of kitchen facilities; and
- restoration of dilapidated brick outbuilding, which is currently an open-air WC/bedroom/laundry structure.

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