

VICKERY EXTENSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT

APPENDIX K

HISTORIC HERITAGE

ASSESSMENT

EXTENT

HERITAGE ADVISORS
TO AUSTRALIA AND
THE ASIA PACIFIC



Vickery Extension Project near Boggabri, NSW

Historic Heritage Assessment

Prepared for Whitehaven Coal Limited

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1.0 Introduction

1.1 Project Description

EXTENT Heritage Pty Ltd (Extent) has been engaged by Whitehaven Coal Limited (Whitehaven) to prepare a Historic Heritage Assessment (HHA) comprising part of the Environmental Impact Statement (EIS) for the Vickery Extension Project (herein referred to as the Project).

The Project is located approximately 25 kilometres (km) north of Gunnedah in New South Wales (NSW).

The approved Vickery Coal Project (herein referred to as the Approved Mine) is an approved, but yet to be constructed, project involving the development of an open cut coal mine and associated infrastructure. It would involve a run-of-mine (ROM) coal production rate of approximately 4.5 million tonnes per annum (Mtpa) for a period of 30 years.

Whitehaven is seeking a new Development Consent for extension of open cut mining operations at the Approved Mine (the Project). This would include a physical extension to the Approved Mine footprint to gain access to additional ROM coal reserves, an increase in the footprint of waste rock emplacement areas, an increase in the approved ROM coal mining rate and construction and operation of a Project Coal Handling and Preparation Plant (CHPP), train load-out facility and rail spur. This infrastructure would be used for the handling, processing and transport of coal from the Project, as well as other Whitehaven mines.

The Project involves mining the coal reserves associated with the Approved Mine, as well as accessing additional coal reserves within the Project mining area. ROM coal would be mined by open cut methods at an average rate of 7.2 Mtpa (and up to approximately 10 Mtpa), over a mine life of approximately 25 years.

This Historic Heritage Assessment forms part of an EIS that has been prepared to accompany a Development Application made for the Project in accordance with Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 Study Area

Whitehaven prepared and submitted a Development Application (including an EIS) for the Approved Mine in 2013. The NSW Minister for Planning granted Development Consent under Part 4 of the EP&A Act (SSD-5000) for the Approved Mine on 19 September 2014.

Accordingly, this HHA focuses on those areas directly associated with the Project that are located outside of the area associated with the Approved Mine. The Study Area for the HHA therefore includes:

- The extension of the Approved Mine mining and infrastructure areas (herein referred to as the Project mining area).

- The Project rail corridor and rail loop (herein referred to as the Project rail spur).
- The water supply borefield and pipeline (herein referred to as the Northern Borefield).

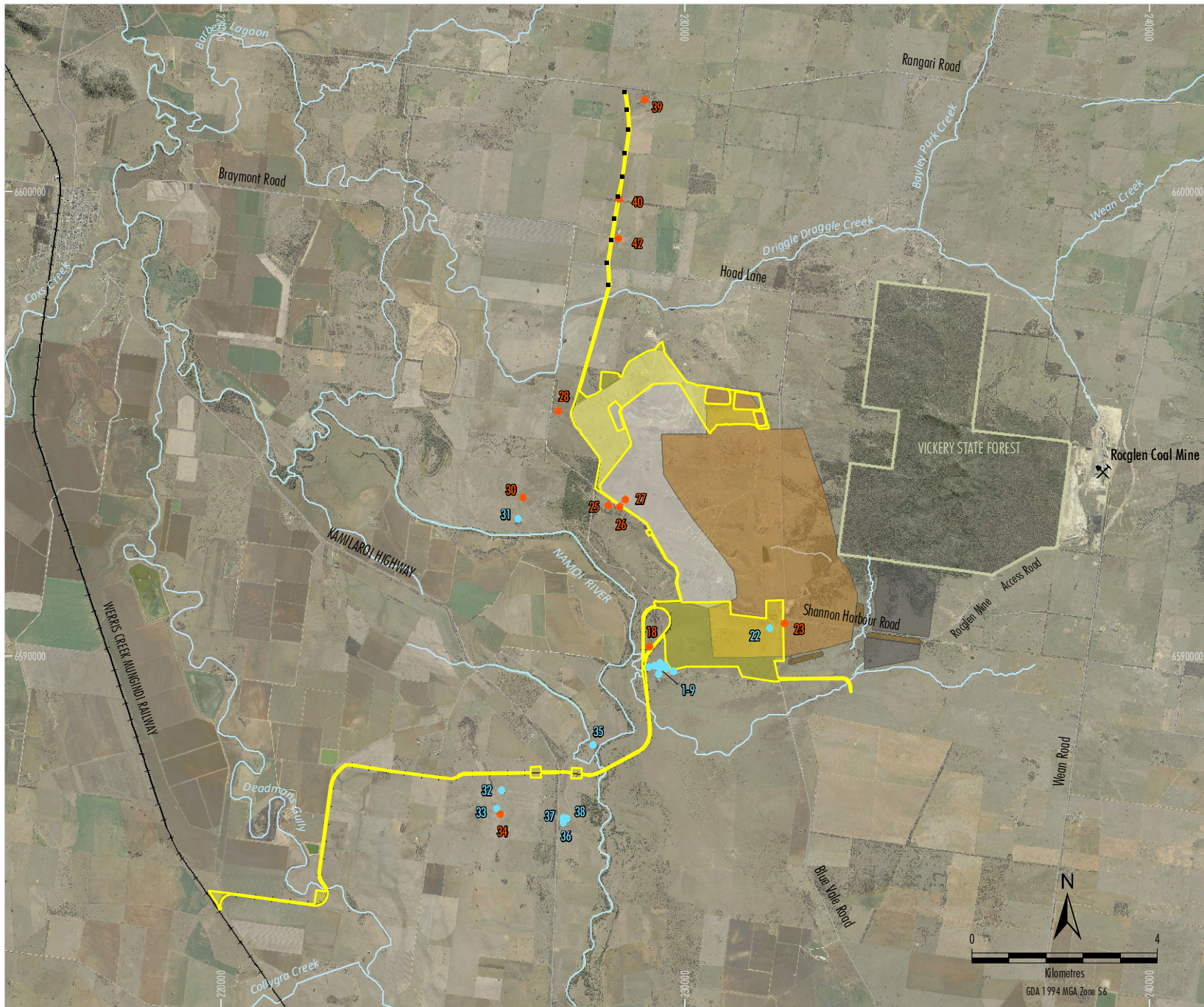
The Project (including the Project mining area, Project rail spur and Northern Borefield) is illustrated below in Figures 1 to 4. The Project rail spur, as illustrated in those figures, is wider than the area that the final railway infrastructure would actually occupy.

The Project rail spur extends south-west from the Project mining area, across the Namoi River and the Kamilaroi Highway, to a connection with the existing Werris Creek Mungindi Railway. The Northern Borefield extends north from the north-western corner of the Project.

The Study Area is characterised by low undulating hills and flat plains, predominantly in areas that have previously been cleared for pastoral uses. Some rural structures are visible in places, with the cleared open spaces being criss-crossed by fence lines.

Historic mining activity has been conducted within the Project mining area at the former Vickery Coal Mine (operating until 1998) and the former Canyon Coal Mine (operating until 2009).

Figures 1 to 4 below show all of the locations visited during the survey of the Study Area, including some sites assessed as part of the Approved Mine EIS. Section 2.5 summarises these sites, their location, and the assessment of significance associated with each site.



- LEGEND**
- State Forest
 - State Conservation Area, Aboriginal Area
 - Railway
 - Project Extension Area (Study Area)
- Extension Project Components**
- Indicative Extent of Open Cut
 - Indicative Extent of Out of Pit Waste Rock Emplacement
 - Indicative Extent of Infrastructure Area
 - Indicative Extent of Soil Stockpile
 - Indicative Rail Spur Alignment
 - Indicative Location of Groundwater Bores and Pipeline
 - Investigated Site – Local Heritage Significance
 - Investigated Site – No Heritage Significance

Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); Department of Industry (2015)


WHITEHAVEN COAL
VICKERY EXTENSION PROJECT
 Project General Arrangement
 and Investigated Sites

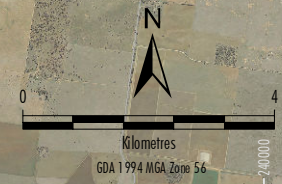
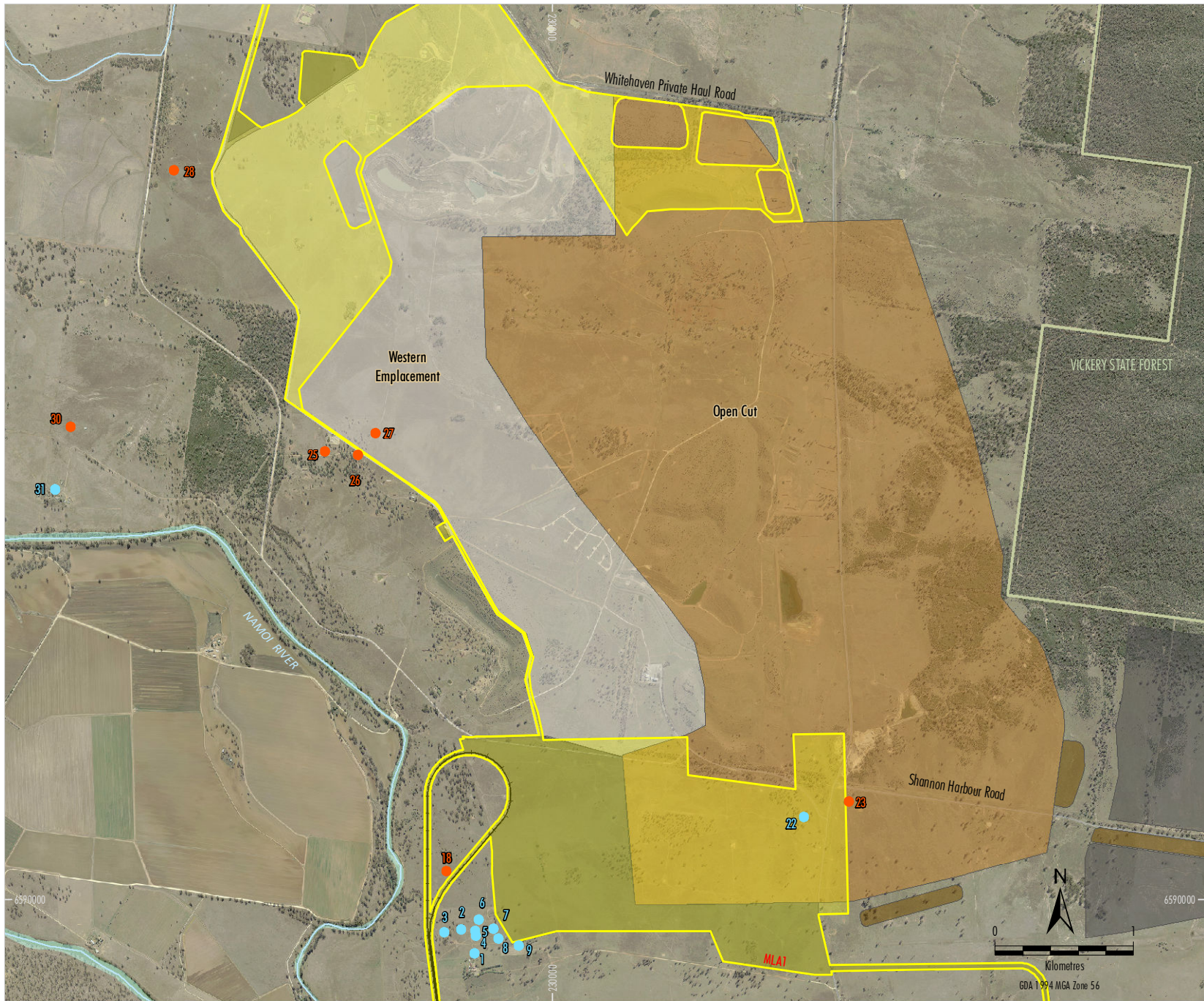


Figure 1



- LEGEND**
- State Forest
 - Project Extension Area (Study Area)
- Extension Project Components**
- Indicative Extent of Open Cut
 - Indicative Extent of Out of Pit Waste Rock Emplacement
 - Indicative Extent of Infrastructure Area
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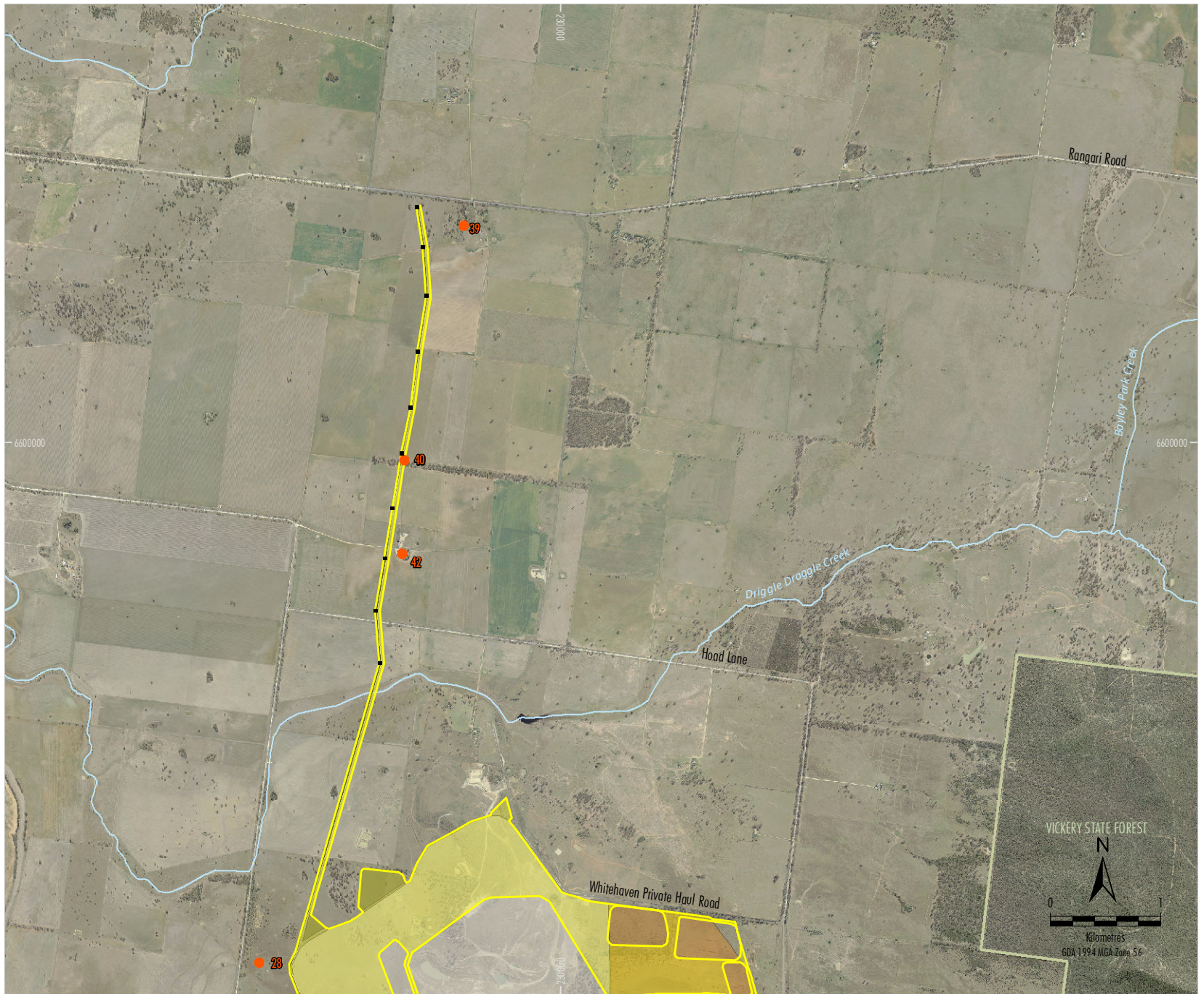
WHITEHAVEN COAL

VICKERY EXTENSION PROJECT

Investigated Sites in the Vicinity

of the Project Mining Area

Figure 2



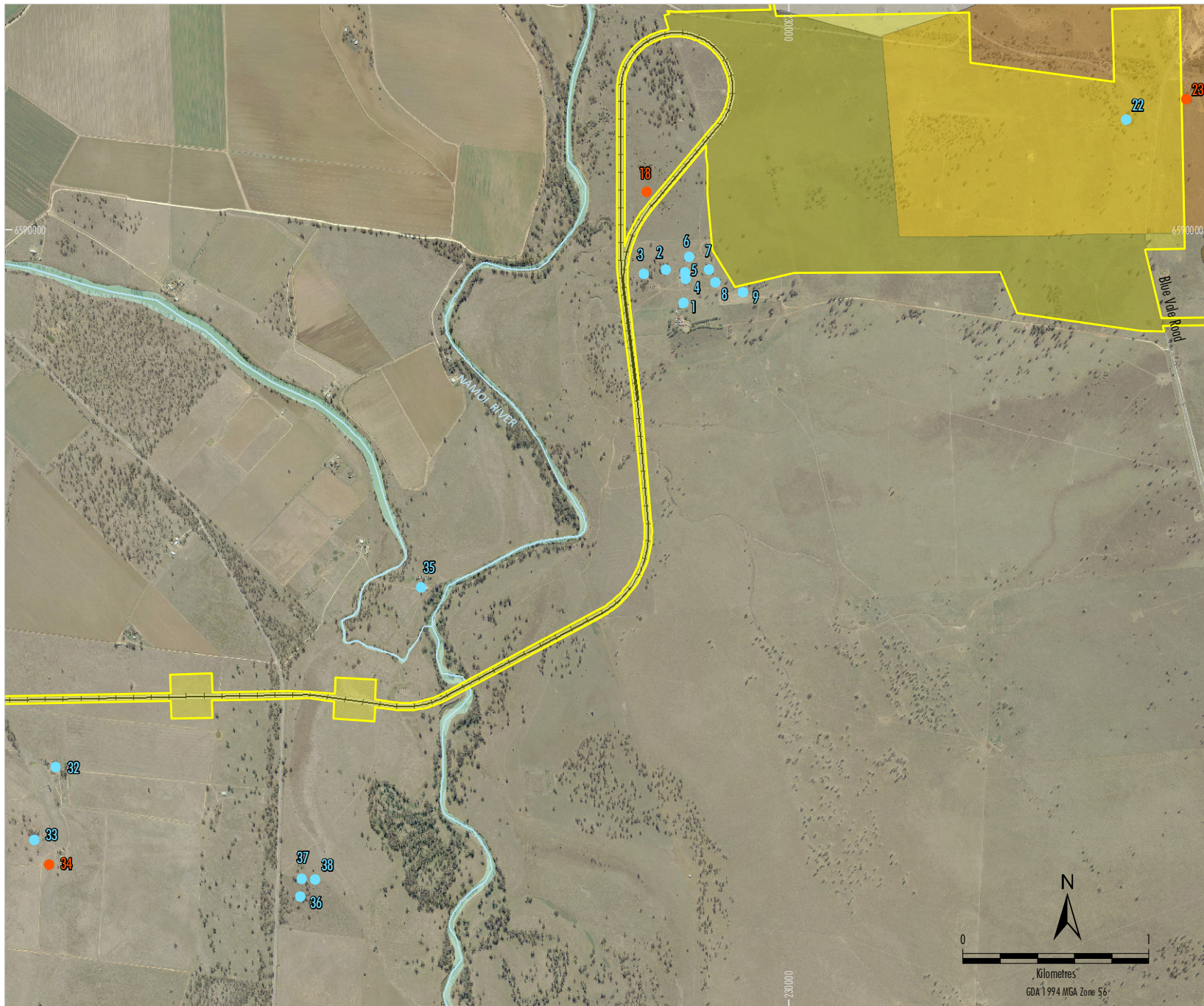
- LEGEND**
- State Forest
 - Project Extension Area (Study Area)
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 - Investigated Site – No Heritage Significance

Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); Department of Industry (2015)



VICKERY EXTENSION PROJECT
Investigated Sites in the Vicinity
of the Northern Borefield

Figure 3



LEGEND

- Project Extension Area (Study Area)

Extension Project Components

- Indicative Extent of Open Cut
- Indicative Extent of Out of Pit Waste Rock Emplacement
- Indicative Extent of Infrastructure Area
- Indicative Extent of Soil Stockpile
- Investigated Site – Local Heritage Significance
- Investigated Site – No Heritage Significance

Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); Department of Industry (2015)


WHITEHAVEN COAL
VICKERY EXTENSION PROJECT
Investigated Sites in the Vicinity
of the Project Rail Spur

Figure 4

1.3 Purpose

This HHA identifies historic heritage values within the Study Area that might be impacted by the Project, and includes a consideration of measures that would be taken to manage and mitigate potential adverse heritage impacts.

It has regard to (among other guidelines and documents) the following:

- *The Burra Charter: The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (Australia ICOMOS 2013d).
- *Assessing Heritage Significance* (NSW Heritage Office 2001b).
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Office 2009).
- *NSW Heritage Manual* (NSW Heritage Office and Department of Urban Affairs and Planning 1996)
- *The Burra Charter Practice Notes: Understanding and Assessing Cultural Significance, Developing Policy and Preparing Studies and Reports: Contractual and Ethical Issues* (Australia ICOMOS 2013a and 2013c).

This HHA relates only to historic (i.e. non-Aboriginal) heritage items and places, and includes a consideration of the known and potential historical archaeological resources.

It addresses the requirements for historic heritage assessment presented in the 'Secretary's Environmental Assessment Requirements' (SEARs);

The EIS must address the following specific issues:

Heritage - including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, having regard to OEH's requirements.

1.4 Limitations

This HHA relates only to historic (i.e. non-Aboriginal) heritage items, places and/or impacts. It includes a consideration of the known and potential historical archaeological resource on the basis of the field observations of Dr Andrew Sneddon, as well as Dr Matthew Whincop of Whincop Archaeology (who surveyed the Project rail spur and infrastructure footprints). This report relies on Whincop's conclusion that there was no observable evidence that archaeological 'relics' (as defined by the NSW *Heritage Act 1977*) might exist within the Project rail spur, cross-checked against desktop historical research and the survey undertaken by Dr Andrew Sneddon.

The sites identified in this HHA were inspected and photographed by the author(s) of this report and by Dr Matthew Whincop. This did not include a comprehensive assessment of the condition of structures at each site. The interiors of some of the buildings discussed in this report could not be accessed or could only be viewed through external windows. The assessments of those places are based on a visual inspection of the exteriors coupled with the desktop research presented herein.

In relation to the potential archaeological resource, at the time of the field work, surface visibility was poor-to-fair. The assessment of archaeological potential in this report has therefore relied on desktop research as well as observations made in the field.

In addition to this, some sites visited as part of this assessment were identified through consultation with the local community. Where comment is made on the potential social significance of places, this is based on community views expressed in publicly accessible material and/or a desktop review of previous reports.

1.5 Statutory Controls

1.5.1 *Environmental Planning and Assessment Act 1979*

The EIS that this HHA forms a part of comprises part of a Development Application made pursuant to Part 4 of the EP&A Act. The application relates to proposed 'State Significant Development' (as defined by Section 4.36 of the Act).

Section 4.41(1) of that Act prescribes the authorisations that are not required for a State Significant Development authorised by a development consent under Part 4, including those pursuant to the NSW *Heritage Act 1977*.

1.5.2 *NSW Heritage Act 1977*

Notwithstanding the above, the Minister may have regard to the NSW *Heritage Act 1977*, particularly the definition of 'relics' and assessment criteria for heritage places. This report draws on the *Heritage Act 1977* for these matters.

1.5.3 *Gunnedah Local Environmental Plan 2012*

The register of local heritage places maintained by the Gunnedah Shire Council and detailed in the *Gunnedah Local Environmental Plan 2012* was consulted in the preparation of this report.

1.5.4 *Narrabri Local Environmental Plan 2012*

The register of local heritage places maintained by the Narrabri Shire Council and detailed in the *Narrabri Local Environmental Plan 2012* was consulted in the preparation of this report.

1.6 Authorship

The following staff members at EXTENT Heritage Pty Ltd prepared this report:

Jessica Heidrich
Dr Andrew Sneddon

Heritage Advisor
Associate Director

1.7 Terminology

The terminology in this report follows definitions presented in *The Burra Charter*, Article 1 (Australia ICOMOS 2013d):

Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

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 components, fixtures, contents, and objects.

Conservation means all the processes of looking after a place so as to retain its cultural significance.

Maintenance means the continuous protective care of the fabric and setting of a place and is to be distinguished from repair. Repair involves restoration or reconstruction.

Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.

Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

Reconstruction means returning the place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

Adaptation means modifying a place to suit the existing use or a proposed use.

Use means the functions of a place, as well as activities and practices that may occur at the place.

Compatible use means a use that respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Setting means the area around a place, which may include the visual catchment.

Related place means a place that contributes to the cultural significance of another place.

2.0 Methodology

2.1 Approach

This HHA has been prepared in accordance with the principles set out in *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013d), and the latest version of the *Statements of Heritage Impact* (2002), produced by the NSW Office of Environment and Heritage.

This HHA is also compliant with the SEARs issued by the NSW Department of Planning and Environment (DP&E) for the Project. Specifically, it follows the requirements for historic heritage impact assessment presented in *Key Issue and Desired Performance Outcome 10 - Heritage*, which specifies that the assessment must:

- Include a statement of heritage impact for all heritage items (including significance assessment);
- Consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (where relevant);
- Outline measures to avoid and minimise those impacts in accordance with the current guidelines; and
- Be undertaken by a suitably qualified heritage consultant(s).

In addition to the SEARs, this HHA considers the following documents and guidelines:

- *Assessing Heritage Significance* (NSW Heritage Office 2001b).
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Office 2009).
- *NSW Heritage Manual* (NSW Heritage Office and Department of Urban Affairs and Planning 1996).
- *The Burra Charter Practice Notes: Understanding and Assessing Cultural Significance, Developing Policy and Preparing Studies and Reports: Contractual and Ethical Issues* (Australia ICOMOS 2013a and 2013c).

2.2 Heritage Significance Assessment

This HHA assesses the cultural heritage significance of the places identified in the report. Assessing the cultural significance of a place is crucial to assessing the nature and extent of the potential adverse impacts of a project, and to identifying the appropriate mitigation measures where adverse impacts are identified.

Places and items of interest within, and in the vicinity of, the Project mining area, Project rail spur and Northern Borefield, were assessed against the heritage assessment criteria contained within the NSW guideline document entitled *Assessing Heritage Significance* (NSW Heritage Office 2001b).

Specifically, places and items were assessed against the assessment criteria for heritage significance established in the NSW *Heritage Act 1977* (see Table 1). These criteria are a reflection of the more broadly expressed criteria in Article 1.2 of *The Burra Charter* (Australia ICOMOS 2013b).

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

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.

The significance assessments in this HHA distinguish between places of State and local significance. Any places that failed to meet the criteria for either State or local significance were assessed in this report as being 'not a heritage place'.

The guideline document, *Assessing Heritage Significance* (NSW Heritage Office 2001b), states:

- State significance means significance to the people of NSW.
- Local significance means significance within the local government area.

This reflects Section 4A of the NSW *Heritage Act 1977*, which states that ‘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.

It then states that ‘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.

Many of the structures assessed in this report were in a very poor state of repair. A Practice Note, prepared as an adjunct to *The Burra Charter* (Australia ICOMOS 2013b), entitled *Understanding and Assessing Cultural Significance* states:

The physical condition of a place does not generally influence its significance, but will often be a factor in determining policy for the place. Guidance: A place may be in ruinous condition, yet still be significant if its values can be clearly understood. In this case the condition does not influence significance, but will have a bearing on the development of policy for the place.

Some structures were identified that were in such poor condition that substantive refurbishment and repair would be required to make them safe for use or occupation, including replacement of large quantities of failed original fabric. Where this would result in a significant loss of the structure’s ‘authenticity’ or ‘integrity’, and difficulty in appreciating its heritage values, a lower assessment was favoured in this report (see Pearson and Sullivan 1995).

The assessments in this report also appreciate that the fabric of a heritage place may be only part of its significance. Article 1.2 of *The Burra Charter* (Australia ICOMOS 2013b) states:

Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

Conservation of the heritage values embodied in some of the places discussed in this report is dependent on an understanding of, assessment of, and response to, the ‘setting’.

A Practice Note prepared as an adjunct to *The Burra Charter* (Australia ICOMOS 2013b) entitled *Understanding and Assessing Cultural Significance* states:

'Place' in the Burra Charter has a broad meaning, and includes its elements, objects, spaces and views. Place may have tangible and intangible aspects. Guidance: A place should be considered in its wider physical, social or spiritual context. It should not be assessed in isolation. A group of individual places with shared histories, common social associations, or complementary aesthetic characteristics may form a larger 'place' or a serial place. Care is needed in defining the extent of the place and the tangible and intangible elements of the place. Its setting may include views to and from the place, its cultural context and relationships, and links between this place and other places.

This report also assesses the potential for 'relics' to exist within the Study Area. Archaeological 'relics' are protected by the NSW *Heritage Act 1977*. Section 4 of the Act defines a 'relic' 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.*

In addition to the considerations contained in the relics provisions of the NSW *Heritage Act 1977*, where the potential archaeological resource has been assessed in this report, regard has been had to the following three fundamental questions:

- Might the site yield data that cannot be obtained from any other source?
- Might the site yield data that cannot be obtained from any other site?
- Might the site yield data that would contribute to addressing substantive research questions?

These questions are drawn from the NSW guideline document entitled *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Office 2009).

The intactness of the potential archaeological resource was also central to the assessments of archaeological significance provided in this report, on the grounds that disturbed sites generally have lower potential to yield meaningful data than intact sites.

2.3 Historical Themes

Historical and archival research that had been previously undertaken for the Approved Mine was used during preparation of this HHA, augmented by additional research as required.

In making the assessments in this report, particular regard was given to the historical themes produced by the former Australian Heritage Commission (2001) and the NSW Heritage Council (2001) to guide heritage practitioners in the assessment of historic heritage places.

Several of these historic themes are relevant to the sites that may be impacted by the Project and are presented in Tables 2 and 3 below.

Table 2. The relevant NSW historical themes applicable to the heritage significance of the sites identified in the vicinity of the Project (NSW Heritage Council 2001).

NSW Historical Theme	Notes
Migration	Activities and processes associated with the resettling of people from one place to another (international, interstate, intrastate) and the impacts of such movements.
Agriculture	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture.
Pastoralism	Activities associated with the breeding, raising, processing and distribution of livestock for human use.
Towns, Suburbs and Villages	Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages.
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.
Domestic life	Activities associated with creating, maintaining, living in and working around houses and institutions.

Table 3. The relevant Australian historical themes applicable to the heritage significance of the sites identified in the vicinity of the Project (Australian Heritage Commission 2001).

Australian Historical Theme	Sub-themes
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	4.1 Planning urban settlements 4.2 Supplying urban services 4.5 Making settlements to serve rural Australia
5. Working	5.8 Working on the land
8. Developing Australia's cultural life	8.14 Living in the country and rural settlements

2.4 Heritage Impact Assessments

This report assesses the potential direct heritage impacts of the Project (e.g. ground disturbance impacting archaeological sites) as well as indirect heritage impacts (e.g. on the setting of heritage places).

This HHA applies the principles presented in the NSW Government guideline document entitled *Statements of Heritage Impact* (NSW Heritage Office 2002).

Where the Project would *directly* impact a heritage item, this report addresses the following questions provided in that document:

- *Have all options for retention and adaptive re-use been explored?*
- *Can all of the significant elements of the heritage item be kept and any new development be located elsewhere on the site?*
- *Is demolition essential at this time or can it be postponed in case future circumstances make its retention and conservation more feasible?*
- *Has the advice of a heritage consultant been sought? Have the consultant's recommendations been implemented? If not, why not?*

In other cases, this report considers the following questions in relation to 'new development adjacent to a heritage item':

- *How is the impact of the new development on the heritage significance of the item or area to be minimised?*
- *Why is the new development required to be adjacent to a heritage item?*
- *How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?*

- *How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?*
- *Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?*
- *Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?*
- *Will the additions visually dominate the heritage item? How has this been minimised?*
- *Will the public, and users of the item, still be able to view and appreciate its significance?*

2.5 Summary of Survey Findings and Assessment Approach

This report was prepared based on desktop investigations and fieldwork undertaken by Dr Andrew Sneddon and Dr Hilda Maclean (Historian). The sites visited as part of this fieldwork were identified using:

- Historical and archival research;
- Local knowledge provided by Whitehaven employees and long-term local residents;
- Aerial imagery that captured structures currently in use and abandoned derelict structures;
- Photographic records of current structures;
- Previous heritage reports, including 'Vickery Coal Project Non-Aboriginal Heritage Assessment', prepared by Dr Michael Pearson of Heritage Management Consultants Pty Ltd (2012); and
- Feedback received from archaeologists engaged in pedestrian surface survey as part of a separate Aboriginal Cultural Heritage Assessment, who were familiar with the Study Area.

The survey underpinning this report typically relied on existing roads and tracks, as well as going off-road in a 4WD vehicle as required. All buildings that were clearly not of recent date or modern construction were inspected. Where possible, the inspection included the interior of those structures (e.g. of sheds and abandoned residences). Where structures were occupied, the inspection was generally confined to the accessible exterior.

This survey involved driving through a majority of the areas that would be impacted by the Project. Aerial imagery was studied to identify places of potential heritage significance within the Project rail spur, augmented by information provided by knowledgeable locals. Parts of the Project rail spur that were not inspected by Dr Andrew Sneddon were inspected by archaeologists with experience in historical archaeology, who were preparing a separate Aboriginal Cultural Heritage Assessment for the Project. They advised that, in those areas that they surveyed, they observed no locations considered to be of potential historic heritage significance. Where a site visit was not possible, photographic records were obtained for any locations identified as being of potential heritage significance to inform this assessment.

The history of the area was provided in the previous Non-Aboriginal Heritage Assessment prepared for the Approved Mine (Heritage Management Consultants Pty Ltd 2012); an extract from this report is provided in Appendix B. Its scope is broad enough to capture the Study Area and the historical themes relevant to the areas that would be potentially impacted by the Project.

Searches of relevant heritage registers were also undertaken as a background to this report. None of the sites discussed herein are identified as a heritage item on the following lists:

- The *Gunnedah Local Environmental Plan 2012*;
- The *Narrabri Local Environmental Plan 2012*;
- The NSW State Heritage Register (SHR);
- The National Heritage List or Commonwealth Heritage List;
- The National Trust Register;
- The former Register of the National Estate; and
- The Australian Institute of Architects (AIA) Register of Significant 20th Century Buildings.

The sites investigated as part of the 2016 field survey of the Study Area are presented in Table 4.

A number of sites were assessed as having no heritage significance (Table 4). There are no adverse heritage impacts or recommended actions in relation to these locations; therefore, no further assessment is required.

Sites 31, 32, 33, 36, 37 and 38 were assessed as having local heritage significance; however, they were not considered further in this report as the Project would have no impact on these sites, or they were assessed as part of the Approved Mine EIS (Table 4).

The remaining sites are assessed in this report as:

- They are located within the Project Extension Area footprint and would be directly impacted by the Project (Sites 18, 22, 23 and 40); or
- Sites that, given their proximity to the Project, may be subject to indirect impacts (Sites 1-9 [Kurrumbede Homestead Complex], 35 and 42).

Table 4. The sites investigated as part of the field survey of the Study Area. The numbering follows the order in which these various locations were visited.

Site	Name	Within Project Extension Area	Significance	Further Assessment
1	Kurrumbede Homestead Complex Meat Locker	No	Local/potential State heritage significance.	Section 6.1 (indirect impacts)
2	Kurrumbede Homestead Complex Weatherboard Cottage			
3	Kurrumbede Homestead Complex Weatherboard Cottage			
4	Kurrumbede Homestead Complex Hay Silo and Shed			
5	Kurrumbede Homestead Complex Stables			
6	Kurrumbede Homestead Complex Work Shed			
7	Kurrumbede Homestead Complex Workers' Quarters			
8	Kurrumbede Homestead Complex Workers' Cottage			
9	Kurrumbede Homestead Complex Shearing Shed			
18	Racing Barriers	Yes	No heritage significance, but within footprint of Project rail spur.	Section 5.1 (direct impacts)
22	Weatherboard Home	Yes	Local heritage significance.	Section 3.1 (direct impacts)
23	Remains of Demolished House	Yes	No heritage significance, but within footprint of Project mining area.	Section 3.2 (direct impacts)
25	Shearing Shed	No	No heritage significance, assessed for the Approved Mine.	Not Required
26	Remains of Modern Structure	No	No heritage significance, assessed for the Approved Mine.	Not Required

Table 4 (Continued). The sites investigated as part of the field survey of the Study Area. The numbering follows the order in which these various locations were visited.

Site	Name	Within Project Extension Area	Significance	Further Assessment
27	Shearing Shed	No	No heritage significance, assessed for the Approved Mine.	Not Required
28	Weatherboard Cottage	No	No heritage significance, assessed for the Approved Mine.	Not Required
30	Cottage and Shed	No	No heritage significance, assessed for the Approved Mine.	Not Required
31	Broadwater Homestead Complex	No	Local heritage significance, assessed for the Approved Mine, no further heritage impacts identified.	Not Required
32	Weatherboard Home	No	Local heritage significance, no potential heritage impacts identified.	Not Required
33	Shearing/Work Shed	No	Local heritage significance, no potential heritage impacts identified.	Not Required
34	Waste Dump	No	No heritage significance	Not Required
35	The Rampadells Homestead	No	Local heritage significance	Section 6.2 (indirect impacts)
36	Gulligal Archaeological Site Remains of School House	No	Local heritage significance, no potential heritage impacts identified.	Not Required
37	Gulligal Archaeological Site Remains of Bullock Dray	No	Local heritage significance, no potential heritage impacts identified.	Not Required
38	Gulligal Archaeological Site	No	Local heritage significance, no potential heritage impacts identified.	Not Required
39	House 'Kyala'	No	No heritage significance	Not Required
40	Bottle Dump	Yes	No heritage significance, but within footprint of Northern Borefield.	Section 4.1 (direct impacts)
42	Bungalow Homestead	No	No heritage significance, but in close proximity to the Northern Borefield.	Section 4.2 (indirect impacts)

Note: Missing sites (i.e. Sites 10-17, 41, etc.) were locations of photographs taken during the field survey of the Study Area and have not been included in this Table or subsequent Figures.

3.0 The Project Mining Area

Two potential heritage places were identified within the Project mining area:

- A dilapidated weatherboard home (Site 22); and
- The brick foundations and concrete slab of a demolished house (Site 23).

These sites were located at the following coordinates:

- Site 22 – 56J, 231815; 6590593.
- Site 23 – 56J, 232139; 6590704.

The locations of these sites are illustrated in Figures 1 and 2.

3.1 Site 22 - Weatherboard Home

Site 22 comprises a weatherboard house with board-and-batten exterior cladding and a wrap-around verandah on the eastern (front) and southern (side) elevations (Fig. 5). It has a timber-framed corrugated iron (CGI) hipped roof and rests on timber stumps.

The interior contains at least four rooms, with the remains of a collapsed brick fireplace at the rear. The rear western-facing wall has failed. The window frames have been removed, but appear to have been sash windows, with louvres on the rear. Some rooms have linoleum-covered timber floors, but the linoleum covering is decaying and has been mostly torn up. The structure has been stripped of many of its original features (e.g. sinks, toilets etc.).

The structure dates to the early-to-mid twentieth century. The structure is in a poor state of repair and is currently unoccupied.

Site 22 reflects the pattern and nature of the local area's historical development; however, it principally belongs to the later, twentieth-century phase of the area's settlement that is otherwise well-represented in the archival material (Criterion [a]).

It has no association with prominent members of the local community. Additionally, there are no obvious community and/or cultural group associations with this structure that would constitute social significance (Criteria [b] and [d]).

While the structure once embodied the typical rural aesthetic of the local area, being built in the local vernacular, its aesthetic values have since been compromised to a large degree by its poor condition (Criterion [c]).

Although some archaeological material might exist relative to the home (e.g. cess pits, under-floor deposits, isolated finds, etc.), these would likely contribute little to substantive research questions and would contribute little (if anything) that could not be obtained from other historical sources or sites (Criterion [e]). Therefore, the potential archaeological resource would not meet the threshold of a 'relic' as defined by the NSW *Heritage Act 1977*.

The structure is of a type that is not rare or uncommon in the wider area, although structures of this type are becoming less common in the local area with time (Criterion [f]).

The poor condition of this structure makes it a poor representative example of its type (Criterion [g]).

In conclusion, Site 22 is a heritage place of low local significance for meeting criteria [a], [c] and [f]. The retention of this structure is not possible given the nature of the proposed works. Its disturbance or destruction as part of the Project would constitute a low-level adverse heritage impact. This adverse impact caused by the proposed works would be adequately mitigated by observing the recommendations outlined in Section 7.0 below (i.e. archival recordings).



Figure 5. View looking from the south-east of Site 22.

3.2 Site 23 - Demolished House Remains

Site 23 comprises the remains of a demolished brick veneer house, including its concrete footpaths and slabs (Fig. 6). The basic footprint of the house is discernible, with the lowest course of some of brick walls remaining in situ. Some broken and partial glazed ceramic services pipes are also observable in places. Various remnants of the house's occupation (e.g. broken bottles) are visible on the surface. A local resident advised that this house had been dismantled in recent years and 'rebuilt' at another location. The bricks and other features are of relatively recent date and indicate that the original house dated to the second half of the twentieth century.

The remains of the building at Site 23 are of relatively recent date. Buildings of this type and age are of unremarkable construction and are common features across NSW rural landscapes.

In conclusion, Site 23 is unlikely to contain archaeological material that would yield data that could not be obtained from other sources or sites, or which might be relevant to substantive research questions (e.g. relating to the historic themes described in Section 2.4 above). Therefore, the archaeological remains associated with Site 23 do not meet the threshold for local significance as defined in Section 4A of the NSW *Heritage Act 1977*, and do not constitute 'relics' under Section 4 of the Act.



Figure 6. View looking from the south-east of the remains of Site 23 including concrete slabs and paths, brick walls and services pipes.

3.3 Summary

The Project mining area is characterised by generally level grassland, mostly cleared of trees, but with some patches of thicker scrub and small stands of eucalypts. These areas have been used since European settlement for pastoral and farming activities. Occasional evidence of farm activity (e.g. low dams, wind breaks, fences, etc.) is observable in places, but no heritage places additional to those discussed above were identified by the survey.

To a degree, the extant fence lines and road alignments reflect historical patterns of subdivision and land use. However, for the most part, the Project mining area comprises a narrow section of land between the Namoi River and the Approved Mine, where the historic property and road patterns have been disturbed for many years by previous agricultural and mining activities.

The fence lines and unsealed roads in this area contribute little to a 'reading' of historical patterns of subdivision and land use, and are already known through previous historical research.

The destruction or disturbance of Site 23 would not constitute an adverse heritage impact. The destruction or disturbance of Site 22 would be a low-level heritage impact. However, that impact would be appropriately managed by observing the recommendations contained in Section 7.0 of this report (i.e. archival recordings of the site).

4.0 The Northern Borefield

Two potential heritage places were identified within or proximal to the Northern Borefield:

- A bottle dump (Site 40); and
- A homestead located approximately 150 m to the east of the Northern Borefield (Site 42).

These sites were located at the following coordinates:

- Site 40 – 56J, 228581; 6599835.
- Site 42 – 56J, 228565; 6598984.

The locations of these sites are illustrated in Figures 1 and 3 above.

4.1 Site 40 - Bottle Dump

Site 40 is a collection of discarded waste, including broken glass bottles dating to the twentieth century and modern plastic containers. It is the result of relatively recent dumping activity.

Rubbish dumps of this nature are common in rural settings. Site 40 dates to a recent period that is well-documented.

Site 40 does not contain material that would yield archaeological data that could not be obtained from other sources or sites, or which might be relevant to substantive research questions (e.g. those relevant to the historical themes described in Section 2.4 above).

Therefore, the archaeological remains associated with Site 40 do not meet the threshold for local significance as defined in Section 4A of the NSW *Heritage Act 1977*, and do not constitute 'relics' under Section 4 of the Act.

If this site were disturbed or destroyed in the construction of the Northern Borefield, this would not constitute an adverse heritage impact.

4.2 Site 42 - Bungalow Homestead

Site 42 is a residential dwelling known as 'Bungalow', with a group of modern farm buildings to its rear (Fig. 7). The house is occupied and an internal inspection was not undertaken.

Anecdotally, the house dates to the early decades of the twentieth century. However, the present occupants advised that the interior has been heavily modified, with little of the original fabric remaining. The exterior has been significantly modified, including a new verandah, new windows and frames, new doors and cladding. At the time of the site visit, little of the original fabric could be discerned and the exterior reads as a modern rural home.



Figure 7. View of the front elevation of Site 42, Bungalow Homestead.

Given its highly altered state and the small quantity of surviving original fabric, this structure makes little, if any, contribution to an understanding of the area's local history and does not embody heritage values for its aesthetic characteristics [(Criteria [a] and [c]).

It has no association with an important person or group of people. There is no obvious evidence of local community attachment to the place (Criteria [b] and [d]).

Structures of this kind are not rare in either NSW or the local area, and it is a poor representative example of its type (Criteria [f] [and [g]).

Domestic dwellings and rural compounds like Site 42 can yield a range of archaeological artefacts, principally generated by 'discard behaviour'. Such artefacts can include artefacts such as bottles, tin cans, broken ceramics (plates, bowls, etc.), mislaid or discarded tools, toys, coins, and the like. Such artefacts are usually found in relatively close proximity to the buildings that they derived from: in this case, approximately 150 m from the proposed works. Therefore, there is low potential for archaeological deposits to be disturbed by the proposed Northern Borefield (Criterion [e]).

In conclusion, Site 42 fails to meet the threshold for heritage places of local significance. If the proposed Northern Borefield were constructed in its vicinity, this would not constitute an adverse heritage impact.

4.3 Summary

For the most part, the proposed Northern Borefield infrastructure would be located in a modified pastoral environment (Fig. 8). This land has been cleared of tree cover, with a few stands of mature eucalypts retained in places as shade trees for cattle. Occasionally, small-scale farming infrastructure (e.g. water pumps, water tanks, etc.) are visible, but these are of relatively recent date (i.e. post-World War II) and are not heritage items.

The proposed pipeline intersects fence lines and unsealed roads that reflect historical patterns of subdivision. However, the introduction of a pipeline and water supply bores to this landscape would not impede a reading of those historical patterns.

Sites 40 and 42 do not constitute heritage places and the proposed Northern Borefield would result in no adverse heritage impacts.



Figure 8. View facing south looking towards the proposed area of the Northern Borefield, showing the typical landscape.

5.0 The Project Rail Spur and Loop

The Project rail spur would pass to the north-west of the group of historic heritage sites known as the Kurrumbede Homestead Complex (see Sites 1-9 in Fig. 4 above). The Project rail spur would also pass to the south-east of a homestead historically associated with the Kurrumbede Homestead Complex, namely The Rampadells (see Site 35, Fig. 4).

The potential indirect heritage impacts relating to the Kurrumbede Homestead Complex and The Rampadells arising out of the proposed Project rail spur are discussed separately in Section 6.0 below.

This section therefore confines itself to one other potential heritage place that was identified within the vicinity of the Project rail spur:

- The remains of starter's racing barriers located approximately 750 m north of the Kurrumbede Homestead (and once forming part of the Kurrumbede Homestead Complex), which would be encircled by the Project rail loop (Site 18).

Site 18 is mapped immediately adjacent to the footprint of the Project rail loop, and so has been conservatively assessed as being directly disturbed during its construction of the rail loop.

Site 18 is located at the following coordinates: 56J, 229234; 6590202 and is illustrated in Figure 4 above.

5.1 Site 18 - Racing Barriers

5.1.1 Description

Site 18 comprises the remains of timber racing barriers set within an open area cleared of trees (Fig. 9). They appear to date to the early twentieth century. They are located approximately 750 m north of the Kurrumbede Homestead (see Fig. 4 above) and were once used by the residents of Kurrumbede, who were keen greyhound racers.

The remnant timber posts and rails are collapsing with age and are reaching the end of their natural use-life. Their original relationship with the Kurrumbede Homestead Complex is not immediately apparent, and the homestead itself is not visible from them.

The area surrounding Site 18 is presently a level open area and there is no clear evidence of a racing track. For example, the area is not noticeably oval in shape with encircling fences. Rather, there is no fence (or posts) that would serve as the inside rail; and there are no markings on the ground surface to indicate its former boundaries or designated running tracks.

If the identification of this area as a racing track is correct, it appears to have been an informal one, cleared of trees but otherwise little more than an open area.

5.1.2 History

Anecdotally, a local resident stated that older members of the local community advised that Kurrumbede once had a horse-racing track and he indicated a number of timber posts and rails that he thought were the remains of the racing barriers. Historical research partially supports the informant's information, as the Mackellars of Kurrumbede were regular attendees of the local picnic races and Eric Mackellar owned a racehorse (*The Sydney Mail and New South Wales Advertiser* 19 May 1909:51).

However, historical research suggests that the race track may in fact have been for dog racing, which was a favourite pastime of the Mackellar brothers, rather than for horse racing. An investigation of the NSW documentation provides newspaper references to Kurrumbede in connection with the Mackellar brothers, Eric and Malcolm, who had a passion for greyhound breeding and hare coursing (*National Advocate* [Bathurst] 16 September 1908:2; *Referee* 17 June 1925:9).



Figure 9. View facing east of the timber remains of the starter's racing barriers (Site 18). The Kurrumbede Homestead Complex is located approximately 750 m to the south (left of image).

5.1.3 Potential Impacts

The timber barriers (Site 18) forming part of the former horse/dog racing track north of the Kurrumbede Homestead Complex would be encircled by the Project rail loop.

The proposed alignment of the Project rail loop would run close to the east of Site 18 (i.e. less than 100 m) and continue between Site 18 and the group of Kurrumbede's outbuildings located approximately 400 m to the south (see Fig. 4).

During the construction phase of the Project, these barriers would be vulnerable to direct physical damage, due to the movement of heavy machinery across the area.

5.1.4 Summary

Site 18 would be encircled by the Project rail loop and vulnerable to damage, and will likely be disturbed during the proposed works.

However, the track makes only a minor contribution to the significance of the wider Kurrumbede Homestead Complex, and it would be appropriate to exclude it from its heritage curtilage should the Kurrumbede Homestead Complex be listed on any Heritage Register.

The retention of the barriers, and the open area where racing may have occurred, is not essential for the conservation of the Kurrumbede Homestead Complex or for an appreciation of its heritage values.

In terms of potential physical damage to Site 18, it would be appropriate for the proposed works to proceed, provided the recommendations included in Section 7.0 are observed (i.e. avoid disturbance if possible, acknowledging that direct disturbance may result from construction of the rail loop).



Figure 10. View facing south towards the Kurrumbede Homestead Complex from Site 18 (located at a distance of approximately 750 m). From this vantage point, the homestead is not discernible. The roofs of some of Kurrumbede's outbuildings are visible. The Project rail loop would encircle Site 18 and the elevated Project rail spur would pass between the position of the photographer and the visible outbuildings.

5.2 Potential Archaeology

The areas within the Project rail spur are characterised by generally level grassland, mostly cleared of trees, but with some patches of thicker scrub and small stands of eucalypts. These areas have been used since European settlement for pastoral and farming activities. Occasional evidence of farm activity (e.g. low dams, wind breaks, fences, etc.) is observable, but no heritage places were identified by the survey additional to those discussed above.

If archaeological material were to exist within the Project rail spur, it might have the potential to 'tell the story' of farming and the rural way of life in the local area. However, such archaeological material would have been subjected to many decades of natural attrition and disturbance caused by tree clearing, the movement of livestock, flooding and other natural processes.

Any surviving archaeological material would likely be disturbed and scattered material culture deriving from typical rural agricultural activities. Such material would likely have limited potential to yield data that cannot be obtained from other sites or sources, and would have limited capacity to address substantive research questions.

Furthermore, pedestrian archaeological surface surveys of a representative sample of the Project rail spur and associated infrastructure did not return any evidence of archaeological relics. This is consistent with historical research undertaken for this report, which indicates that the areas that would be impacted by the Project have been used for low-level agricultural and pastoral purposes following European settlement. There is no physical or historical evidence to indicate that these areas were used for other purposes (e.g. the construction of a residence), which might generate archaeological relics.

Therefore, there is low potential for historical archaeological material to exist within the area to be impacted by the proposed works associated with the Project rail spur. Even if any archaeological evidence is found within this area, it would likely be of low significance and would have low potential to meet the threshold of a 'relic' as defined by Section 4 of the NSW *Heritage Act 1977*.

6.0 Potential Indirect Impacts

6.1 Kurrumbede Homestead Complex

6.1.1 Description

The Kurrumbede Homestead Complex is located at 1693 Blue Vale Road, Gunnedah within a large rural allotment (being Lot 21 on DP754929). The property is located east of the Namoi River on a rise above the flood plain, approximately 19 km to the north-west of Gunnedah.

The site comprises a suite of farm buildings dating from 1907-1908 to around the 1950s, including:

- The main homestead residence ('Kurrumbede') (Fig. 12);
- A subterranean 'meat locker' (Site 1) (Fig. 13);
- Two weatherboard cottages, both in a poor state of repair (Sites 2-3) (Figs. 14-15);
- A corrugated metal silo adjacent to a work shed (Site 4) (Fig. 16);
- Timber stables (Site 5) (Fig. 17);
- A work shed (Site 6) (Fig. 18);
- Quarters for farm workers (Site 7) (Fig. 19);
- A workers' cottage (Site 8) (Fig. 20);
- A shearing shed (Site 9) (Fig. 21); and
- Stockyards (Fig. 22).

The main residence and outbuildings together read as a functional unit, with historical associations (Fig. 11). There were (and continue to be) visual inter-connections between the buildings. However, the main residence has a south-facing aspect and was designed to 'turn its back' on the work areas to the rear (north). Therefore, the expansive views from the front verandah of the main residence look south (i.e. away from the Project) and views to the north are obscured to some degree at ground level by the outbuildings and existing vegetation.

Views into and out of the main residence are deliberately constrained by the established landscaping. In two locations, the eye is deliberately led down ornamental entrances: a driveway from the east of the main residence and a landscaped pathway to the west. Views outwards to the north, west and east from the outbuildings to the rear of the main residence are generally uninterrupted, capturing gently undulating grassland and eucalypts fringing the Namoi River on the north and west. The low mountains are visible on the horizon approximately 13 km to the east.

The Project would result in the south-west corner of the open cut extending to approximately 1.2 km from the Kurrumbede Homestead, at its closest point. While the open cut would not be visible from Kurrumbede, the proposed works will involve the construction of various mining infrastructure between Kurrumbede and the open cut. The result is that Kurrumbede would be located approximately 300 m from a section of the Project rail spur and approximately 830 m from the nearest piece of visible Project infrastructure (i.e. the CHPP).



Figure 11. Aerial view of Kurrumbede Homestead Complex showing the extant building structures. The main homestead is circled in red and the stockyards are circled in green (Source: Google Earth 2018).



Figure 12. View facing north towards the front (south) elevation of Kurrumbede Homestead. The nearest piece of visible Project infrastructure, not including the Project rail spur, would be the Project CHPP, approximately 830 m to the north-east beyond the homestead in this image.



Figure 13. View facing north-east of the subterranean meat locker forming part of the Kurrumbede Complex (Site 1).



Figure 14. View facing north-east of one of the weatherboard cottages north of the main residence and forming part of the Kurrumbede Complex (Site 2).



Figure 15. View facing south-west of one of the weatherboard cottages north of the homestead and forming part of the Kurrumbede Complex (Site 3).



Figure 16. View facing south of a hay silo and work shed north of the homestead and forming part of the Kurrumbede Complex (Site 4). The nearest piece of Project infrastructure, not including the rail spur, would be a dam approximately 550 m beyond the structures in this image.



Figure 17. View facing south-east of the stables (Site 5) at Kurrumbede.



Figure 18. View facing north-east of a timber work shed forming part of the Kurrumbede Complex (Site 6).



Figure 19. View facing west of the farm workers' quarters forming part of the Kurrumbede Complex (Site 7).



Figure 20. View facing east of the front elevation of the worker's cottage forming part of the Kurrumbede Complex (Site 8).



Figure 21. View facing the rear elevation of the shearing sheds forming part of the Kurrumbede Complex (Site 9).



Figure 22. View facing north of the stockyards. Elements of the Project infrastructure (e.g. the two proposed dams) would be located approximately 300 m from the position of the photographer in this image.

6.1.2 History

The historical development of Kurrumbede may be summarised as follows:

- The Kurrumbede Homestead Complex is located on land that once formed part of the historic Burburgate Station, which was subdivided and auctioned in 1905.
- The main residence was owned by the prominent Sydney surgeon Dr Charles Mackellar. It was the residence of his two sons. However, Kurrumbede has an association with Mackellar's daughter, the Australian poet Dorothea Mackellar. From 1908, Kurrumbede was a favourite retreat of Dorothea Mackellar when on vacation from her Sydney residence, and a number of her poems feature descriptions of the rural landscape around Kurrumbede.
- The original homestead residence was a 14-room structure designed by Sydney architect, John Reid. It is notable for its innovative construction using concrete blocks manufactured from locally available raw materials and is one of the earliest known examples in NSW. The residence contained 14 rooms and was completed in two major stages, with the majority of construction completed by 1908. Major alterations and additions were made c. 1954.

6.1.3 Significance

The main Kurrumbede residence has potential significance at the State level and could qualify for listing on the NSW State Heritage Register (SHR) for satisfying the following assessment criteria:

- Criterion (b) – Association with a person of importance to the cultural history to NSW.
- Criterion (c) – Aesthetic qualities.
- Criterion (d) – Social significance.
- Criterion (f) – Rarity.

It is also significant at the local level for its role in the historical development of the local area (Criterion [a]). The suite of farm buildings, visually and functionally connected to the homestead, embody the principal characteristics of a typical rural pastoral property and meet the threshold for local listing for this criterion (Criterion [g]). Most of the outbuildings could be considered as integral elements of the property and make an important contribution to the significance of the homestead.

This HHA adopts a precautionary approach and concludes that:

- The main Kurrumbede residence is of potential State significance relative to Criteria (b), (c), (d) and (f) of the NSW assessment criteria (see Section 2.2 above).
- The main residence is of local significance relative to Criteria (a) and (g) of the NSW assessment criteria.
- The outbuildings to the north and north-east of the main Kurrumbede residence make a contribution to its setting and overall significance. Together, they constitute a suite of functionally, historically and visually inter-related structures.

This report assesses potential adverse heritage impacts arising out of the Project on the basis of a curtilage that captures the ancillary buildings.

This report concludes that, as the main Kurrumbede residence plus the assumed curtilage is located on a much larger rural property (owned by Whitehaven), heritage values are not associated with the 'whole of property'. This report assumes that the main residence's heritage curtilage would not extend to the Namoi River, but views in this direction are considered in the assessment of potential adverse impacts in this report.

It is possible that the boundary of the heritage curtilage would be extended further north to include Site 18 (see Section 5.1 above). This report concludes that the curtilage would not be required to extend to Site 18 to conserve the heritage values of the Kurrumbede Homestead Complex.

6.1.4 Potential Impacts

The proposed development would not directly impact the physical fabric of the suite of structures comprising the Kurrumbede Homestead Complex.

However, if the works were to proceed, there would be some potential indirect heritage impacts in terms of:

- Blasting vibration and overpressure;
- Visual setting;
- Auditory setting;
- Air quality; and
- Its ongoing use.

6.1.4.1 Blasting Vibration and Overpressure

The Project would not directly impact Kurrumbede or its outbuildings. However, the Project would involve controlled mine blasting which would generate ground vibration and overpressure that has the potential to impact the structures at Kurrumbede, especially the concrete block main residence that used innovative construction methods.

A Noise and Blasting Assessment has been prepared by Wilkinson Murray (2018) as part of the EIS for the Project, and concludes:

- On the basis of the structure's good condition a vibration limit of 10 millimetres per second (mm/s) and airblast limit of 133 decibels (dB) are nominated for this structure.
- On the basis of the structure's good condition, blasting is proposed to occur at a minimum distance of 1,235 m.
- Based on this minimum distance from blast events of 1,235 m, the predicted airblast and vibration levels at Kurrumbede (1v) are as follows:

Airblast – 120.2 dB.

Vibration – 9.7 mm/s.

These predicted levels are well below the relevant building damage criteria for airblast and vibration for the vast majority of the blasts that would occur significantly farther away from Kurrumbede than the minimum distance assessed (as described above).

Notwithstanding, it is recommended that airblast and vibration monitoring should be undertaken at the Kurrumbede Homestead and that the results of monitoring be used as a guide to blast design (i.e. blast designs should be revised if actual airblast/vibration levels approach criteria) (see Wilkinson Murray 2018).

Therefore, with respect to potential vibration impacts, the Project would not adversely impact the structures at Kurrumbede. However, the recommendations in Section 7.0 below should be observed.

6.1.4.2 Visual Impacts

Part of the significance of Kurrumbede is its rural setting. The potential low-level heritage impacts of the Project on the visual setting of the Kurrumbede Homestead Complex differs according to the vantage point. It is relevant that:

- The residence was designed to turn its back on the work areas to the north (i.e. the direction in which the proposed infrastructure would be located). The outbuildings and the existing plantings to the north of the Kurrumbede Homestead provide a level of screening for views to the north, north-west and north-east from the ground level from the rear and sides of the residence.
- The residence is oriented to maximise views to the south, south-east and south-west. Its main entrance and verandah, for example, are on the southern elevation.
- This design intent is also reflected in the landscaping around the homestead. Screen plantings have been located on the eastern and western sides of the residence, extending beyond the south-east and south-west corners. As a result, views out of Kurrumbede have been deliberately directed to a relatively narrow corridor to the south and deliberately screened to the east, south-east, west and south-west.

The sense that a visitor to Kurrumbede has of the residence's present setting is of a rural landscape and of low undulating hills forming part of the Namoi's floodplain interspersed with mature eucalyptus trees. From vantage points at the rear of the residence's back garden, and from the outbuildings, the proposed infrastructure and Project mining landforms would be visible as new additions to the landscape of an industrial character. Views of the mountains to the north and north-east, and views of the floodplain and its low undulations to the north-west, north and north-east would be somewhat altered by the train load-out facility, conveyor and other infrastructure.

An assessment of specific views is presented below.

Views into Kurrumbede Homestead

Figure 23 below illustrates views into Kurrumbede from a number of locations approximately 1 km to the east, north-east, and north of the structures. Although the main residence was located on high ground above the Namoi River floodplain, it has low visibility from a distance of as little as approximately 1 km. This is partly due to the undulating ground between the selected viewpoints and partly because the main residence was deliberately screened from outside views by landscaping. The taller trees associated with this landscaping are barely visible as a cluster of trees on a rise; however, the main residence that they surround is not visible. The outbuildings are more visible than the main residence, sometimes because of the colour of the roofs (red CGI) and sometimes because of the silver, reflective nature of the CGI walls.

However, from a distance of 1 km these structures become very difficult to discern in the landscape. Therefore, the proposed development would not significantly impact views into the

Kurrumbede Homestead Complex and in that regard would not constitute an adverse heritage impact.

Figure 24 below illustrates the view to Kurrumbede from approximately 700 m to its south-west from between the homestead and the Namoi River (see Fig. 1 for the location of this viewpoint from Site 19). This view demonstrates that Kurrumbede has low visibility from a relatively short distance, partly due to the historic landscaping designed specifically with the intention of screening views into the residence, but also because of the intervening trees and undulating landform. From the west and south-west, the location of Kurrumbede presents as a cluster of trees on a low rise, but their function in relation to the house, and the house itself, are not readily discernible. From this vantage point, the proposed infrastructure (located some hundreds of metres further north) would not adversely impact the rural setting of the Kurrumbede Homestead Complex.

Figure 25 below shows the view towards Kurrumbede from the south-west quarter of the proposed mine infrastructure area, approximately 1 km from the residence. From this location, the residence is not visible, screened by its historic landscaping. The group of outbuildings are also difficult to discern behind scattered trees. This view into the Kurrumbede Homestead Complex would not be significantly adversely impacted by the proposed works.

Figure 26 below captures the view facing west towards Kurrumbede from the unsealed road leading to the residence from the east. This view into Kurrumbede (i.e. its main approach) would not be impacted by the proposed works, but a person standing in this position would be able to see the proposed infrastructure if they turned to the right (i.e. north). This would impact the appreciation of Kurrumbede's rural setting to a small degree.

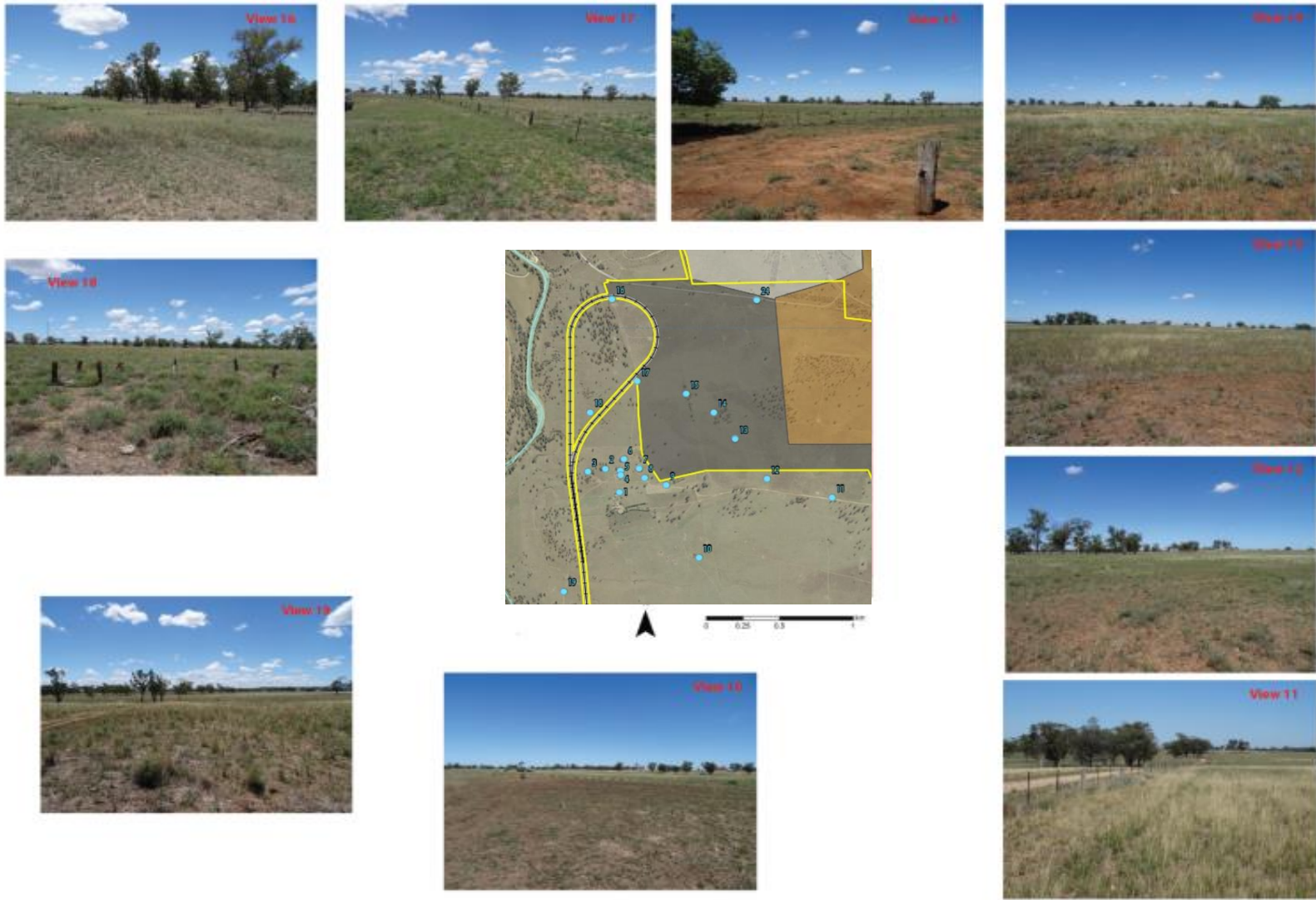


Figure 23. Views into Kurrumbede from approximately 1 km. The homestead is screened by landscaping and is barely discernible.



Figure 24. View towards Kurrumbede from approximately 700 m to its south-west showing the difficulty in discerning the complex in the landscape from a distance. Kurrumbede is in the cluster of trees indicated by the arrow.



Figure 25. View towards Kurrumbede from the south-west quarter of the proposed ROM pad. A dam with low bunds would be located approximately halfway between the position of the photographer in this image and the Kurrumbede Homestead (indicated by the arrow).



Figure 26. View west towards Kurrumbede homestead from a distance of approximately 1 km from the unsealed road that leads to the residence from the east. The residence's red roof is visible amongst the landscaping (indicated by the arrow).

Views from Kurrumbede Homestead

Figure 27 below illustrates views from the Kurrumbede compound outwards to the south, and north and north-east towards the proposed development. The most important view out of Kurrumbede (i.e. from the point of view of the architect and the original occupants) was towards the south from the front elevation and the main verandah. The views from the main residence to the east and north-east (i.e. the direction of the Project) were screened, from an early date, by landscaping that currently remains in situ. Therefore, the grasslands and distant hills to the east and north-east have low visibility when viewed from ground level at the house.

Views south from Kurrumbede's front elevation would not be impacted by the Project. Views to the south (Fig. 28), south-east and south-west (Figs. 29-30) would remain generally unaltered. The Project rail spur, which would be elevated above existing ground level, would be located at a distance of approximately 300 m to the west. However, this view is already considerably truncated by historic plantings. As a result of these historic screen plantings between the homestead and the Project rail spur, the Project rail spur would not be a prominent additional feature in the landscape when viewed from this position (although it would be possibly more noticeable when a train passes through, glimpsed through the trees and hedges).

Views east from Kurrumbede's front verandah (Fig. 31) are truncated by deliberate screen plantings designed to prevent views into the house from the east and north-east. The proposed infrastructure would be located further north than views from this vantage point would allow, except for a proposed new access road (located approximately 540 m to the north-east of the residence), which would be screened by the plantings in any case.

Views north from the rear (north) of the Kurrumbede residence are truncated by the caretaker's residence located to the rear of the residence, as well as by scattered plantings and approximately 1.2 m high hedges (Fig. 32). From this location, the roofs of some of the outbuildings are visible but longer views (i.e. approximately 200 m in the distance) are disrupted. From this vantage point, the upper part of the Project CHPP and the associated conveyor belt would be partially visible, extending above the roofs and plantings. However, these views would be partial and broken up by the intervening features. Views of other elements of the infrastructure, including the dams and the ROM pad located to the north-east would be similarly broken up.

The eastern side of the Kurrumbede residence is more open than the garden area to the west. However, the house is screened from the outside by a hedge and taller trees (Figs. 33-34). The proposed infrastructure located to Kurrumbede's north and north-east would be most visible from this side of the residence, although such views would be broken up by the historic screen plantings. The taller elements of the infrastructure (e.g. the upper part of the Project CHPP and the upper part of the associated conveyor belt) might be partially discernible in the far distance but they would not be a prominent visual feature in the landscape from these viewpoints.

Night Views

The Project would operate 24 hours per day. During those hours, elements of the infrastructure would be illuminated, including the ROM pad and the work area within the Project CHPP. These locations would be several hundred metres from Kurrumbede Homestead and the light shed would not constitute a significant adverse impact on the rural setting of the Kurrumbede Homestead Complex insofar as it relates to the place's heritage values.

Train rail movements occurring at night time would result in an intermittent light source passing approximately 300 m to the west of the Kurrumbede Homestead Complex. This would not constitute an adverse heritage impact on the rural setting of the Kurrumbede Homestead Complex, as light from the trains would not be focussed towards the Kurrumbede Homestead Complex.



Figure 27. Views from Kurrumbede outwards showing the surrounding garden areas and outbuildings.



Figure 28. View facing south from the main verandah on the front elevation (south) of Kurrumbede Homestead, broken up by the historical plantings in the front garden. The elevated rail line would be approximately 300 m to the south-west (to the right and out of shot).



Figure 29. View facing south-west from the front elevation of the Kurrumbede Homestead. The elevated rail spur would be approximately 300 m behind the deliberate screen plantings observable here and largely invisible.



Figure 30. Pathway leading south-west from the south-west corner of Kurrumbede's garden. The existing plantings screen views to the south, west and north-west from this vantage. The elevated rail line would pass approximately 300 m beyond the visible plantings.



Figure 31. View east from Kurrumbede's front (south) verandah. The existing plantings screen views in this direction and the proposed access road located approximately 540 m to the north-east would not be visible.



Figure 32. View facing north from the rear (north) of Kurrumbede Homestead. The roof indicated by the arrow is the caretaker's cottage. Note the hedges to the east and north, beyond which the roofs of some outbuildings are visible. The Project infrastructure would be located approximately 650 m to 1 km from this point, when facing in this direction.



Figure 33. View from the south-west corner of the Kurrumbede residence, capturing the screen plantings and tennis court. The elevated rail spur would be approximately 300 m beyond the tennis court and from this vantage point, would be difficult to discern.



Figure 34. View facing east-north-east from the eastern side of Kurrumbede Homestead, showing the existing plantings screening outside views in places. The Project infrastructure would be located approximately 650 m to 1 km from this vantage point, when facing in this direction.

Views from/within Kurrumbede's Outbuildings

The discussion above has confined itself to the views out of the Kurrumbede residence, from vantage points in close proximity to the residences footprint and from behind its screen plantings. From outside that area, the views become less restricted.

Views from within the group of outbuildings to the north of Kurrumbede are generally open, especially to the north-west and to the north and north-east (i.e. the location of the proposed infrastructure), although broken up in places by the low undulations in the land and by mature eucalyptus trees on the flood plain. These views capture low mountains in the far distance to the east and the gum trees that fringe the Namoi River to the west. This sense of openness contributes to the historically rural setting of the Kurrumbede Homestead Complex.

The Project rail spur passing to the west, north-west and north of the Kurrumbede Homestead Complex would be visible from the group of outbuildings, some of which would be only a short distance (i.e. less than 100 m) from the Project rail spur (Fig. 35). This rail spur would present as a new feature in the landscape and be interposed between the Kurrumbede Homestead Complex and the Namoi River. It would present as a long, elevated and unvegetated mound. The proposed rail infrastructure would constitute a low-level adverse heritage impact on the visual setting of the Kurrumbede Homestead Complex. This impact would periodically increase with the passing of Project trains.



Figure 35. View facing north-west from Site 3 showing the visual link between Kurrumbede's outbuildings and the gums fringing the Namoi River. The Project rail spur would pass between the position of the photographer and the trees fringing the Namoi in the distance.

Most of the proposed infrastructure, including its tallest and bulkiest elements, would be located to the north and north-east of the Kurrumbede Homestead Complex. These views, looking outwards from the group of outbuildings to the rear (north) of the Kurrumbede residence, presently capture the undulating floodplains with both Bull Mountain and the Tulcumba Range visible in the far distance (Fig. 36-38).

These views, which are presently of a rural landscape, would capture new industrial features associated with the mine infrastructure area and Project mining landforms. These alterations to existing views would constitute an adverse heritage impact on the historic rural setting of the Kurrumbede Homestead Complex.



Figure 36. View east from the western side of Site 2, one of Kurrumbede's outbuildings. Tulcumba Range is visible in the far distance. The bulk of the proposed infrastructure would be approximately 150 m behind the timber house (Site 2). The tallest element (i.e. the coal loader and conveyor belt) would be approximately 200 m to the north (left), out of picture.



Figure 37. View north-east towards Site 6. The proposed ROM pad would be located approximately 200 m behind the timber structure of Site 6 and would be an industrial feature in the presently rural landscape.



Figure 38. View north-east towards the stockyards located to the north-east of Kurrumbede Homestead. The proposed train load-out facility, conveyor and infrastructure to the east would be visible from this vantage point.

6.1.4.3 Air Quality Impacts

The Air Quality and Greenhouse Gas Assessment (AQGA) undertaken by Ramboll (2018) for the Project assessed air quality impacts for the Project. Relevant to this report, the AQGA presents modelled emissions of particulate matter (PM) and ground level concentrations of PM and deposited dust for the Project.

In summary, while there would be increased levels of dust deposition and in PM concentrations at Kurrumbede (referred to as Receiver ID 1v), this would not impact the physical fabric of the Kurrumbede residence (e.g. by promoting accelerated deterioration or through soiling) provided the recommendations contained in Section 7.0 below are observed.

6.1.4.4 Ongoing Use

Given the proximity of the Kurrumbede residence to the Project operations (and given it is located on Whitehaven-owned land), Whitehaven has elected to use Kurrumbede for other uses (e.g. office space) rather than a residence during the life of the Project.

Making a heritage residence no longer a residence would usually constitute an adverse heritage impact. This impact would be partly mitigated by observing the recommendations contained in Section 7.0 below.

The limitations on public access (which currently exist given Kurrumbede is located on a private property) and use at Kurrumbede are ultimately reversible, although only in the long term (the Project has a life-of-mine of 25 years). The potential impacts pertaining to public access can be further mitigated by considering the use of the Kurrumbede site for cultural events that showcase the heritage buildings. This is a matter that would be addressed in detail in the proposed Heritage Management Plan.

6.1.4.5 Auditory Impacts

Wilkinson Murray (2018) conducted a Noise and Blasting Assessment for the Project, including assessments for a range of mine-owned and private rural dwellings.

Relevant to this report, Wilkinson Murray (2018) presents modelled predicted operational noise levels for a range of receivers nearby to the Project, including Kurrumbede (referred to as 'Receiver ID 1v').

Kurrumbede is already located in an area of historic mining activity and the Approved Mine would result in noise levels of approximately 43 A-weighted decibels (dBA) during operations.

The Project would result in an increase in operational noise levels for the Kurrumbede Homestead of up to 51 dBA (during the night) and 47 dBA (during the daytime). For comparison purposes, a relative scale of common noise sources in dBA is provided in Table 5 below.

This predicted noise level produced by the Project would constitute a low-level, periodic, adverse heritage impact on the rural setting of the Kurrumbede Homestead Complex.

Table 5. A relative scale of common noise level thresholds in dBA (Source: United States Department of the Interior 1994 and Richard Heggie Associates 1995).

Noise Level (dBA)	Relative Loudness	Common Indoor Noise	Common Outdoor Noise
110 to 130	Extremely noisy	Rock band	Jet flyover at 1,000 m
100	Very noisy	Internal demolition work (jackhammer)	Petrol engine lawn mower at 1 m
90	Very noisy	Food blender at 1 m	Diesel truck at 15 m
80	Loud	Garbage disposal at 1 m; Shouting at 1 m	Urban daytime noise
70	Loud	Vacuum cleaner at 3 m; Normal speech at 1 m	Commercial area heavy traffic at 100 m
60	Moderate to quiet	Large business office	
50	Moderate to quiet	Dishwasher next room; Wind in trees	Quiet urban daytime
40	Quiet to very quiet	Small theatre or large conference room (background); Library	Quiet urban night-time
30	Quiet to very quiet	Bedroom at night; Concert hall (background)	Quiet rural night-time
20	Almost silent	Broadcast and recording studio	
0 to 10	Silent	Threshold of hearing	

6.1.5 Summary

In summary, the Project would not directly impact the Kurrumbede Homestead Complex.

In relation to indirect impacts:

- There would be no adverse impacts on structures within the Kurrumbede complex due to vibration created by the construction or operation of the proposed works. In any event, this assessment has adopted a cautious approach and recommends an ongoing program of monitoring in relation to potential impacts due to vibration.
- There would be few adverse impacts on views from most locations near the residence and within its formal gardens. The identified visual impacts would be confined to views to the north and north-east, where the proposed infrastructure would be discernible in the distance but broken up by existing built form and landscaping. Those impacts could be further mitigated by following the recommendations presented in Section 7.0 below.
- Views north, north-east and east, when viewed from the outbuildings and the rear of the main residence, would be altered by the introduction of visible elements of the Project. This would be a low-level adverse impact on the setting of the rural Kurrumbede Complex.

- Views into the Kurrumbede Homestead Complex from the east, south and south-west would not be impacted.
- The proposed works would result in increased dust. However, this would not impact the physical fabric of the Kurrumbede residence (e.g. by promoting accelerated deterioration or through soiling) provided the recommendations contained in Section 7.0 below are observed.
- Whitehaven would use Kurrumbede as office space rather than as a residence. Access to Kurrumbede is presently restricted in any case, given it is located on private land and due to its proximity to the Approved Mine operations. Therefore, assessed against current circumstances, the proposed works would have only a minor adverse impact on Kurrumbede in terms of public access or use as a residence. This impact can be mitigated by observing the recommendations presented in Section 7.0 below.
- The Project would generate audible noise that could be heard at the homestead as low-level background noise. This would be a low-level adverse heritage impact on the auditory setting of the Kurrumbede Homestead Complex.

All of the adverse impacts identified above are reversible, although only in the long term. The proposed life of the Project is 25 years.

6.2 Site 35 - The Rampadells

6.2.1 Description

The Rampadells (Fig. 39) is located at 12187 Kamilaroi Highway, Blue Vale, NSW on a property owned by Whitehaven, with the Namoi River to the east and Gulligal Lagoon to the west. The site is approximately 2 km to the south-west of Kurrumbede Homestead Complex at approximately E228022/N6588074 (GDA94/MGA Zone 56) on Lot 1/DP755502.

Since its construction in 1905-1906, The Rampadells (Site 35) has been a quiet rural residence in a natural riverine setting on the western side of a bend of the Namoi River, east of Gulligal Lagoon (Fig. 40). The Rampadells is built of timber in the local vernacular with a corrugated metal roof and has a south-east facing aspect towards the Namoi River. The river is visible from the front verandah through eucalypts fringing the riparian zone. This vegetation effectively screens the property when viewed from the eastern bank of the Namoi River, and further to the north-east from Kurrumbede.

6.2.2 History

The Rampadells originally formed part of the Burburgate Estate, a well-established pastoral holding of 47,000 acres on the Liverpool Plains, north of Gunnedah. The property afforded frontage to the Namoi River: this proximity to a reliable water source enabled the early development of the land for pastoral activities.

In 1905, a tender advertised the auction of the Burburgate Estate: 58 subdivision blocks ranging in size from 100 to 4,000 acres (*Australian Town and Country Journal* 29 August 1906:26). At an auction in Gunnedah, Mr Joseph P. Clonan acquired Block 23 comprising some 308 acres and subsequently founded the property known as 'The Rampadells'. *The Australian Town and Country Journal* (4 July 1906:43) described The Rampadells as 'a splendid residence' on one of the best dairying blocks on the Burburgate subdivision, where Mr Clonan has 'made all preparation for dairying on a big scale'.

In June 1909, Eric and Malcolm Mackellar purchased The Rampadells to run in conjunction with the main homestead 'Kurrumbede' (*The Sydney Morning Herald* 13 July 1909:4). From this time, The Rampadells served as a residence for labourers in the employ of the Mackellar family, including carpenter Mr David Francis Weir and his wife (see *NSW Electoral Roll Liverpool Plains - Emerald Hill Polling Place* 1913 nos. 96-97 cited in Maclean 2016).

The Rampadells is also referenced in one of the earliest published works by the renowned Australian poet, Dorothea Mackellar, who periodically visited her family's property 'Kurrumbede' across the Namoi River from The Rampadells. Her poem, 'Burning Off' (1911), commences with the line: 'They're burning off at the Rampadells'.



Figure 39. View facing north-west of the front elevation of The Rampadells.



Figure 40. Aerial view of The Rampadells (Site 35) showing the residence and the Project rail spur to the east and south.

6.2.3 Significance

The homestead known as The Rampadells dates to the early twentieth century, after the initial phases of settlement in the local area. It makes a modest contribution to understanding the living conditions and work arrangements within the evolving pastoral industry in the area during this time (Criterion [a]).

The residence has a historic association with the Mackellar family, but lacks a close association with the prominent poet Dorothea Mackellar. The Rampadells does feature in one of Dorothea Mackellar's poems ('Burning Off' 1911), which enhances its significance by association to a small degree. It is also mentioned in the literature produced by the local community in relation to Dorothea Mackellar, which may suggest the house embodies a level of social significance. However, it was principally used by people in the employ of the Mackellar family and its subsequent owners (Criterion [b] and [d]).

The homestead reads as an attractive rural homestead in the local vernacular set within a pleasant and secluded riverine setting. It is (and has been since its construction) invisible from the public domain (except for rare users of the Namoi River from which it is visible through the trees). Architecturally, its aesthetic values are principally embodied by the front elevation directed to the nearby Namoi River, and less so, in the interior (Criterion [c]).

The form of the homestead is not rare, but surviving examples that display the same level of intactness (both interior and exterior) are becoming less common in the local area. It is therefore a good representative example of a rural homestead in western NSW at the turn of the twentieth century (Criterion [f] and [g]).

In summary, in relation to the heritage assessment criteria described in Section 2.2 above, The Rampadells is a heritage place of local significance.

6.2.4 Potential Impacts

The Rampadells would not be directly disturbed by the Project; however, potential indirect impacts are assessed below.

6.2.4.1 Vibration Impacts

Wilkinson Murray (2018) conducted a Noise and Blasting Assessment for the Project.

Predicted vibration levels are below the relevant building damage criteria and, therefore, blasting would not constitute an adverse heritage impact to The Rampadells.

The proposed alignment of the Project rail spur would pass approximately 600 m to the south-east and east of Site 35. At peak times, the Project rail spur would carry 16 train movements per day and, on average, 10 train movements per day. Any vibration from passing trains would have no potential to adversely impact heritage values of The Rampadells.

6.2.4.2 Visual Impacts

The Project rail spur would cross the Namoi River (elevated on a viaduct structure) approximately 600 m to the south-east of The Rampadells and then extend westward for approximately 5 km until it crosses Deadman's Gully.

The Rampadells is located on the western bank of the Namoi River, which is clearly visible from the front verandah. This view makes a contribution to the house's setting. It would not be impacted by the Project rail spur. Similarly, views to the homestead from the east bank of the river and from the south-east would not be adversely impacted. The house is well-screened by eucalypts lining the Namoi River when viewed from the east and south-east (Figs. 41-42). This vegetation would also obscure views of the Project rail spur and Project mining landforms.

In other words, views to the north, north-east, east and south-east would not be adversely impacted by the Project. In visual terms, the rural riverine setting of The Rampadells would not be significantly impacted by the introduction of the proposed elevated rail spur or Project mining landforms.



Figure 41. View towards The Rampadells from across the eastern bank of the Namoi River. The homestead is barely visible through the vegetation lining the river banks.



Figure 42. View from The Rampadells facing south-south-east towards the Namoi River, showing the eucalypts and other vegetation that would screen the rail spur from view from the homestead when facing in this direction.

6.2.4.3 Auditory Impacts

Wilkinson Murray (2018) conducted a Noise and Blasting Assessment for the Project, including assessments for a range of Whitehaven-owned and private rural dwellings.

Relevant to this report, Wilkinson Murray (2018) presents modelled predicted operational noise levels for a range of receivers in the vicinity of the Project, including The Rampadells (referred to as 'Receiver ID 1w').

Rail movements associated with the Project would result in noise levels of approximately 40 A-weighted decibels (dBA) at The Rampadells, which is classified in Table 5 below (as noise comparative to 'Quiet to very quiet' noise levels. This would not constitute an adverse heritage impact.

Noise from the Project operations is predicted to be less than 40 dBA.

6.2.4.4 Air Quality Impacts

Ramboll Environ (Ramboll) conducted an Air Quality and Greenhouse Gas Assessment (AQGA) (2018) as part of the EIS for the Project.

Relevant to this report, the AQGA presents modelled emissions of particulate matter (PM) and ground level concentrations of PM and deposited dust for the Project.

The predicted levels of dust deposition from the Project mining operations and transportation of coal by rail are unlikely to result in any amenity impacts or soiling of The Rampadells.

6.2.5 Summary

In summary, the Project would not directly impact the Rampadells. In relation to indirect impacts:

- Views to the north, north-east, east and south-east would not be impacted by the Project due to the screening provided by the existing vegetation along the Namoi River. Views to the Namoi River would be retained and remain uninterrupted.
- Ground vibration generated by blasting would be below building damage levels.
- The noise generated by passing trains would be audible. However, this would constitute only a periodic and low-level adverse heritage impact on the homestead's auditory setting.
- Dust levels are predicted to remain below criteria as a result of the Project and are unlikely to adversely impact heritage values.

7.0 Conclusions and Recommendations

7.1 The Project Mining Area

A weatherboard cottage of low local significance (Site 22) would be demolished as a result of the Project (see Section 3.1). The heritage values of the cottage rest principally in its ability to ‘tell the story’ of the local area’s settlement in the earlier twentieth century. The loss of this structure would constitute a low-level adverse heritage impact that would be appropriately mitigated through photographic archival recording.

There would be no other adverse heritage impacts within the Project mining area.

Recommendation

Prior to its demolition, a photographic archival record of Site 22 should be completed in accordance with the NSW Government guideline documents entitled *How to Prepare Archival Records of Heritage Items* (NSW Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office 2006). Digital photographic recording is adequate in this regard. Measured drawings would not be necessary.

7.2 The Northern Borefield

No heritage places were identified within the Northern Borefield. No potential adverse heritage impacts associated with the Northern Borefield were identified.

7.3 The Project Rail Spur and Loop

In addition to the Kurrumbede Homestead Complex (see Section 7.4 below), two potential places of heritage significance were identified in the vicinity of the Project rail spur.

The Project would not result in any significant adverse heritage impacts to The Rampadells (Site 35) in terms of its visual setting, physical fabric or auditory setting.

The retention of Site 18 is not essential for the conservation of the Kurrumbede Complex or for an appreciation of its heritage values. In terms of potential physical damage to Site 18, which is more probable than not, it would be appropriate for the proposed works to proceed provided the recommendations below are observed.

Recommendation

During the construction phase of the Project, take steps to avoid damage to the timber racing barriers at Site 18 due to the movement of heavy machinery and other activities. This should include the erection of temporary fencing around the stalls. Seek to minimise the movement of heavy machinery across the open area that appears to have been the former racing track. If damage to the timber racing barriers becomes unavoidable it is appropriate that they be removed without the need for any recording additional to that undertaken in the preparation of this report. It would not be necessary to salvage the highly deteriorated timbers.

7.4 Kurrumbede Homestead Complex

Whitehaven has committed to the preparation of a Heritage Management Plan for the Kurrumbede Homestead Complex prior to the commencement of construction of the Project.

Recommendations

- The Heritage Management Plan should include a detailed physical description of the structures comprising the Kurrumbede Homestead Complex and details of their heritage significance.
- The Heritage Management Plan must meet the requirements for such a document as expressed in the NSW government guideline entitled *Conservation Management Documents – Guidelines on Conservation Management Plans and Other Management Documents*, including the guideline entitled *Model Brief for the Preparation of a Conservation Management Plan and Other Documents*.
- The Heritage Management Plan must be prepared by suitably qualified heritage professionals.
- The Heritage Management Plan will include a mechanism for its review and update. The ongoing management of the Kurrumbede Homestead Complex must be in accordance with the Heritage Management Plan.
- Appropriate future uses, and appropriate physical intervention in the heritage structures to facilitate those uses, are matters that should also be addressed in the recommended Heritage Management Plan. Potential ‘wear and tear’ as a result of future uses should also be addressed in a maintenance schedule within the Heritage Management Plan.

In addition to the recommendations for a Heritage Management Plan:

Any potential indirect impacts of the Project on the Kurrumbede Homestead Complex would be mitigated by observing the following recommendations prior to any blasting work commencing:

- The main residence at Kurrumbede should be inspected by a structural engineer. The results of this inspection should guide the blast design.
- During blasting, airblast and vibration monitoring should be undertaken at the Kurrumbede Homestead in accordance with the recommendations contained in the ‘Noise and Blasting Assessment’. The results of the monitoring should be used as a guide to blast design (i.e. blast designs should be revised should actual airblast/vibration levels approach criteria).
- Waste rock emplacements are to be rehabilitated and revegetated to merge with the surrounding landscape to minimise visual impacts.

- The historic landscaping around the Kurrumbede residence, especially the screen planting, should be maintained. It would be appropriate and desirable to enhance the screen planting, especially to the residence's north and north-east, to further mitigate the visual impacts of the proposed infrastructure. The nature of new landscaping, and the ongoing maintenance of existing landscaping, are matters to be included in the recommended Heritage Management Plan.
- A program should be introduced to monitor the physical condition of the Kurrumbede residence and outbuildings in light of changes to dust and vibration (although these factors are not identified herein as significant risks). These are matters that should also be addressed in the recommended Heritage Management Plan.
- Immediate steps should be taken to ensure that the Kurrumbede residence and the outbuildings are made safe and weatherproof to prevent deterioration beyond normal wear and tear. This is a matter that should also be addressed in the recommended Heritage Management Plan.
- It would be appropriate for the Kurrumbede Homestead Complex, including the residence, to be used during the construction and operation of the proposed infrastructure. Appropriate uses might include office accommodation or as a venue for meetings.
- Consider use of Kurrumbede for cultural events. This is a matter that would be addressed in the proposed Heritage Management Plan.
- Minimise disturbance to the naturally occurring vegetation on the flood plain north of the Kurrumbede Homestead Complex, including existing mature eucalyptus trees. These will function to break up views of the Project rail spur and dams.
- End-of-mine remediation measures are to include a consideration of the Kurrumbede Homestead Complex and a desirable return to an open rural setting. This would include a program of revegetation (i.e. for the waste rock emplacement and the bunds on the dams).

The following Table 6 presents the questions in Section 2.4 in relation to 'new development adjacent to a heritage item', taken from the document entitled *Statements of Heritage Impact* (NSW Heritage Office 2002). It assumes that the above recommendations will be implemented.

Table 6. Responses to 'Statements of Heritage Impact' Questions for the Kurrumbede Homestead Complex.

Question	Reply
<p>How is the impact of the new development on the heritage significance of the item or area to be minimised?</p>	<p>The proposed infrastructure will be located as far from the Kurrumbede Homestead Complex as operational requirements permit.</p> <p>A Heritage Management Plan will be prepared for the Kurrumbede Homestead Complex prior to the construction of the Project.</p> <p>Screen planting around the Kurrumbede residence will be maintained and enhanced. The waste rock emplacement to be progressively rehabilitated and revegetated to minimise potential visual impacts.</p> <p>The condition of the residence will be monitored (for potential impacts due to changes in air composition and vibration), and an ongoing maintenance program (cleaning, etc.) will be implemented to avoid indirect damage or soiling.</p> <p>Consider use of Kurrumbede for cultural events to ensure a level of ongoing public access.</p> <p>The main residence to be inspected by a structural engineer before blasting commences, with the results informing blast design.</p>
<p>Why is the new development required to be adjacent to the heritage item?</p>	<p>The location of the Project rail spur and infrastructure has been determined by reference to operational requirements. The tallest and bulkiest new infrastructure (the loader and conveyor belt) would be located approximately 1 km from the Kurrumbede residence. A low dam and Project rail spur would be located in closer proximity to the residence (approximately 650 m and approximately 300 m respectively), but these are less intrusive elements in the rural landscape.</p> <p>The mine location is dictated by unalterable geophysical factors.</p>
<p>How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?</p>	<p>Kurrumbede is generally difficult to discern in the landscape from even relatively close distances due to its screen planting. Its roof can be glimpsed through those plantings on the approach from the east, and the cluster of trees around it are discernible as cultural plantings on this approach. The proposed infrastructure would fall within this field of vision on long vistas, reading as industrial infrastructure within an otherwise open rural setting.</p> <p>Most views out of the landscaped garden area around the residence will not be significantly impacted by the proposed works due to screen planting, natural vegetation and existing built form.</p> <p>In terms of views out from the landscaped garden area around the residence, the views to the north and north-east will be those most impacted, although views of the new infrastructure in this direction will be broken up (to a degree) by the historic screen planting and existing intervening built form. Enhanced screen planting in these locations will further mitigate these identified visual impacts.</p>

Table 6 (Continued). Responses to 'Statements of Heritage Impact' Questions for the Kurrumbede Homestead Complex.

Question	Reply
<p>How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects? (Continued)</p>	<p>Views to the north and north-east from within the area of the outbuildings will be significantly impacted by the proposed infrastructure. Industrial infrastructure will be visible within a historically open rural landscape. To the north-west, the Project rail spur will intervene between the outbuildings and the trees lining the Namoi River to the west.</p> <p>Views to the north, north-east and east, when viewed from the outbuildings and the rear of the main residence, would be altered to a small degree by the creation of the waste rock emplacement. This would be a minor adverse impact on the heritage place's setting.</p> <p>The identified impacts would be reversible, in the long term (i.e. the 25-year life of the mine).</p> <p>Lighting impacts would be minimised as far as possible; however, they would impact the rural setting at night.</p>
<p>Is the development sited on any known or potentially significant archaeological deposits?</p>	<p>No.</p> <p>N.B: An Aboriginal Cultural Heritage Assessment has also been prepared for the Project (Appendix G to the EIS).</p>
<p>Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?</p>	<p>Night lighting would be oriented to minimise light spillage.</p> <p>The waste rock emplacement will be revegetated to merge with the surrounding landscape.</p> <p>A Heritage Management Plan will be prepared including management measures for the Kurrumbede Homestead Complex.</p>
<p>Will the additions visually dominate the heritage item? How has this been minimised?</p>	<p>Views to and from Kurrumbede are currently limited from publicly accessible locations.</p> <p>Visual impacts are described in detail in Section 6 above. The proposed works would introduce industrial infrastructure into a historically open rural landscape. This will impact the visual setting of the Kurrumbede complex.</p> <p>The identified impacts would be reversible, in the long term (i.e. the 25-year life of the mine).</p>
<p>Will the public, and users of the item, still be able to view and appreciate its significance?</p>	<p>The Kurrumbede residence is located on private land and is not currently accessible to the general public. While it may not be used as a residence during the mine life, it could be used for other periodic uses (i.e. office space or cultural events) to increase public access.</p>

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Appendix A - Site Locations

Site #	Zone	Easting	Northing
1	56J:	229435	6589607
2	56J:	229337	6589784
3	56J:	229219	6589761
4	56J:	229442	6589769
5	56J:	229443	6589734
6	56J:	229465	6589852
7	56J:	229570	6589785
8	56J:	229606	6589718
9	56J:	229754	6589663
18	56J:	229234	6590202
22	56J:	231815	6590593
23	56J:	232139	6590704
25	56J:	228352	6593235
26	56J:	228590	6593208
27	56J:	228720	6593365
28	56J:	227262	6595265
30	56J:	226514	6593413
31	56J:	226402	6592957
32	56J:	226052	6587110
33	56J:	225939	6586716
34	56J:	226018	6586582
35	56J:	228022	6588074
36	56J:	227368	6586411
37	56J:	227379	6586507
38	56J:	227450	6586503
39	56J:	229121	6601965
40	56J:	228581	6599835
42	56J:	228565	6598984

Appendix B - History of the Area

2. HISTORICAL OVERVIEW

2.1 EXPLORATION AND FIRST SETTLEMENT

Surveyor-General John Oxley passed to the south of Gunnedah Basin during his 1818 expedition, but it was Alan Cunningham during his 1827 expedition to the Darling Downs who discovered the Namoi River.¹

However, the first recorded European in the area was not an explorer, but the escaped convict George ‘the Barber’ Clarke, who lived with the Kamilaroi for five years from 1826, and based himself at Barbers Lagoon on Wilberoi Reserve, 6.4 km south-east of Boggabri, and rustled cattle from the squatters further south. His descriptions of the river system of the north-west prompted Surveyor-General Major Thomas Mitchell’s expedition in 1831. Mitchell reached the Namoi (‘Ngamaay’ to the Kamilaroi) near Gulligal (approximately 2.4 km south-west of the Project area) on 16 December 1831. He found Clarke’s stockyard to the north, then traveled through the Leard Forest area looking for the Kindur River described by Clarke, before returning to the Namoi near Barber’s Pinnacle (‘Dhangguuldha’) and moving on to the north.²

2.2 PASTORAL HISTORY

The Boggabri region was beyond the Limits of Location, the boundary of the Nineteen Counties that had been established by the Colonial Governor in 1829, within which settlement was sanctioned and could be more easily controlled. However, the promise for better grazing land ‘further out’ enticed pastoralists to send their stock beyond the ‘Limits of Location’, and the squatting boom followed, the area of the Liverpool Plains south of the Namoi being extensively squatted between 1831 and 1835.

Edward Cox’s stockmen established his ‘Namoi Hut’ run at the confluence of the Namoi and Cox’s Creek in 1835, having probably followed Cox’s Creek north from the Mudgee area where the family had holdings, to its junction with the Namoi.³ The Namoi Hut property comprised of 19,200 acres by 1849.⁴ Others soon followed including I. Robertson (who was the first holder of Burburgate), Thomas Eather (on Hendriendi), Sir John Jamison (on Baan Baa to the north of Boggabri) and John Town (on Mikengowrie west of the Namoi opposite the Project area).⁵

¹ Feeken, E.H.J. & Feeken, G.E.E. 1970. *The discovery and exploration of Australia*, Nelson, Melbourne: Map 16

² Feeken & Feeken 1970: Map 16; Boggabri Adult Education Committee, 1957. *Boggabri, the story of our town*. Produced to commemorate the Golden Grain Festival, September 1957: 4.

³ Boggabri Adult Education Committee, 1957: 5.

⁴ Longmuir, J. (ed) 1956. *Gunnedah Centenary 1856-1956*. Gunnedah Centenary Committee: 17.

⁵ Boggabri Adult Education Committee, 1957: 7.

By the late 1830s it was clear that the Limits of Location were not in fact limiting the spread of settlement, and that the government was making no income from, or able to effectively control, the spread of squattages beyond the limits. Governor Bourke in 1836 introduced a licensing fee of ten pounds which every squatter had to pay each year for the right to depasture his stock on Crown land beyond the Limits of Location, the licensing system making it clear to the squatter that he was not the owner of the property, but a Crown tenant.⁶

As the government slowly came to grips with the reality of the spread of settlement, it created in 1839 eight pastoral districts ('squattling districts'), one of which, the Liverpool Plains District, included the Project area. By 1840 some 40 pastoral stations were already reported in the Liverpool Plains District. In 1847 the Orders-of-Council giving effect to a new *Leasing Act* of 1846, long-term leases became available in the pastoral districts that enabled graziers to occupy very large runs and secure freehold rights over key homestead blocks. In the Boggabri area this meant that leases of 14 years became available, with the squatter being able to purchase up to 640 acres at £1 per acre each year, to secure freehold over homestead and other improvements.⁷

John Panton took up two leases, at 'Boggybry' and 'Boggabri', in 1843 and 1844. Panton held six leases in the Namoi River and Liverpool Plains district, and 13 other runs in the New England, Macleay River and Wellington areas (Figure 3).⁸ Boggabri was listed as being 96 square miles (61,440 acres) in extent in 1849.⁹ William Charles Wentworth took up six leases in the Namoi River District and four in Liverpool Plains between 1837 and 1845, including the Burburgate run.¹⁰ The *Well's Gazetteer* of 1848 records 'Boggebrie. The station of J. Panton, in the district of Liverpool Plains, NSW, on the Nammoy River, 63 miles from Tamworth', and 'Burburgate. The station of W.C. Wentworth, in the district of Liverpool Plains, NSW, on the Nammoy River, 80 miles from Murrurundi.'¹¹ The proposed mining area is within the bounds of the Burburgate property, on what appears to have been the 'Bool' (or 'Bull') run in the 1840s.

Thomas Mort the Sydney merchant had acquired Boggabri station from Panton by 1866, which later passed to another Sydney merchant Ebenezer Vickery.¹²

⁶ Campbell, J.F. 1968. *Squatting on Crown Lands in New South Wales*, Royal Australian Historical Society, Sydney: 12, 15-16, 19, 24; McNaught, J. 1997. *Index to Certificates of Depasturing Licences: Licence to Depasture Crown Lands beyond the Limits of Location 1837-1860*, Richmond-Tweed Regional Library, Goonellebah: 2.

⁷ Roberts, S.H. 1935. *The Squatting Age in Australia 1835-1847*, Melbourne University Press, Carlton: 263-271; Boggabri Adult Education Committee, 1957: 7.

⁸ Listed in McNaught, J. 1997. *Index to Certificates of Depasturing Licences: Licence to Depasture Crown Lands beyond the Limits of Location 1837-1860*, NSW Archives AO Reel Numbers 5067-5081, Richmond-Tweed Regional Library, Goonellebah.

⁹ Longmuir 1956: 17.

¹⁰ McNaught 1997.

¹¹ Wells, W.H. 1848. *A geographical dictionary, or, Gazetteer of the Australian colonies: their physical and political geography, together with a brief notice of all the capitals, principal towns, and villages, also of rivers, bays, gulfs, mountains, population, and general statistics*. W. & F. Ford, Sydney: 61, 102.

¹² Boggabri Adult Education Committee, 1957: 11.

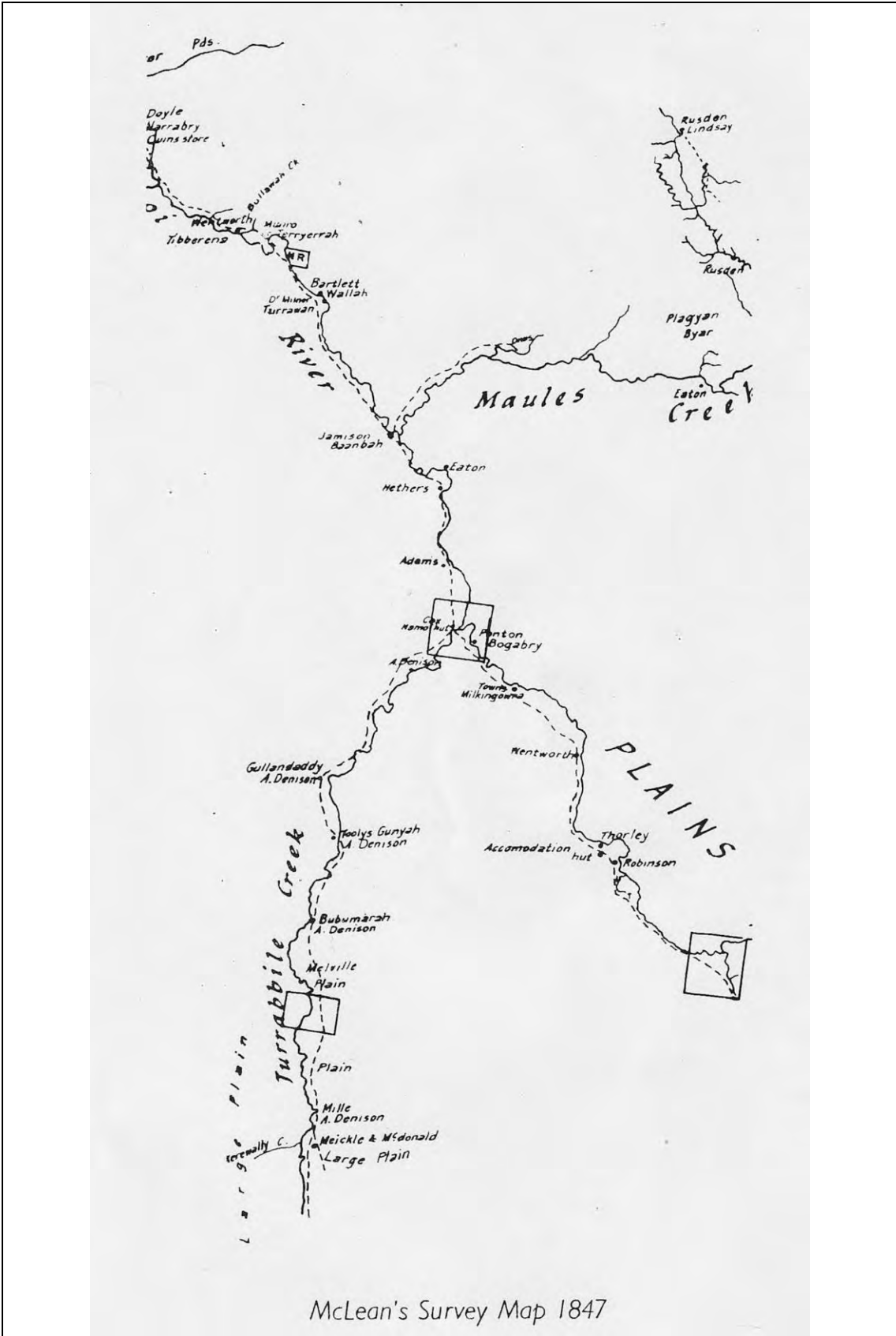


Figure 3

McLean's Survey Map of 1847, showing run locations along the Namoi River and Cox's Creek ('Turrabbile'). 'Panton Bogabry' is east of the project area. 'Wentworth' is Burburgate homestead area. Town's 'Mikengowra', west of the Project area, is below the Bogabry block.
 Source: Boggabri Adult Education Committee, 1957

Wentworth may have occupied Burburgate as early as the late 1830s, to the west of John Johnston's original Bulomin (Gunnedah) Run. The run was listed as being of 65,920 acres in 1849.¹³ In about 1848 John Charles Lloyd became the manager of the Burburgate run, and bought the property from Wentworth in 1853 (though there was a protracted legal battle with Wentworth over the sale arrangements).¹⁴ John's brother, Edward Henry Lloyd, joined him in 1848, and became manager in 1853 when John returned to England, and Charles William Lloyd joined Edward at Burburgate in 1854 as assistant manager. In 1858 Charles succeeded Edward as manager and resident partner at Burburgate.¹⁵ The Lloyds also owned Ghoolendaadi, Turrawan, Gundemain, Edgeroi, Gurley and other properties in the Gunnedah/Narrabri districts. Oscar De Satge, who became assistant manager at Burburgate and the other Lloyd properties in 1859, indicates that Burburgate was the head station of the Lloyd empire, and had the largest woolshed on the river, with 40 shearers and cover for a day's clip of 1,500 sheep.¹⁶



Figure 4
‘Sunset Burburgate’
1867. Artist unknown.

Source: National
Library of Australia

Charles Lloyd was one of the first graziers to erect wire fences to delimit paddocks, and install steam-driven pumps for washing sheep, in 1856. Forty miles of wire fencing was built initially, which Lloyd claimed to be the first of its kind adopted in NSW, and indeed it has been observed that these were the first big paddocks fenced in Australia.¹⁷

In 1861 Charles Lloyd installed wool scouring machinery, and by 1869 much of the Burburgate wool was shorn in grease and scoured.¹⁸ In 1863 Charles was also successful in the innovation of dipping sheep against scab.

¹³ Longmuir 1956: 17.

¹⁴ Abbott, G.J. 1974. ‘Lloyd, Charles William (1830-1919)’, *Australian Dictionary of Biography*, Vol 5, Melbourne University Press: 94-95.

¹⁵ Abbott, G.J. 1974. ‘Lloyd, Charles William (1830-1919)’, *Australian Dictionary of Biography*, Vol 5, Melbourne University Press : 94-95; McLean, R. 2006. *The Way We Were: Sesquicentenary of Gunnedah 1856 – 2006*. Gunnedah and District Historical Society, Gunnedah Shire Council.

¹⁶ De Satge, O. 1901. *Pages from the Journal of a Queensland Squatter*. Hurst and Blackett, London.

¹⁷ Walsh, G. 1993. *Pioneering Days: people and innovations in Australia's rural past*. Allen & Unwin, St Leonards, NSW: 13; Rolls, E. 1984. *A Million Wild Acres*. Penguin, Ringwood, Victoria: 166.

¹⁸ Rolls 1984: 176.



Figure 5
Woolshed Plain,
Burburgate, Liverpool
Plains, 1867. Artist
unknown. Taken from
east of Burburgate
homestead, approx
10 km south of the
Project area.

Source: National
Library of Australia

While Charles left for Sydney in 1863 and appears to have withdrawn from the family partnership, he is listed in 1866 as being the owner of Dripping Rock and five other runs in partnership with John. In the 1870s he moved again to the Namoi, to Tarriaro at Gulligal, just across the river from the Project.¹⁹

In 1865 Burburgate was acquired by Mort, Cameron and Buchanan, and subsequently by Ebenezer Vickery. Vickery (1827-1906) was a prominent merchant and manufacturer, and one of the largest land-owners and property speculators in NSW.²⁰ The property then came under the ownership of the Namoi Pastoral Company, which also acquired Lloyd's Edgeroi and Gundamain properties, approximately 30 miles out of Narrabri. There are press reports of the movement of stock between the properties in the 1880s.²¹

It is interesting to note that in 1866 Boggabri was a very small settlement with seven to eight houses, a hotel and about 50 people, while it was Gulligal, 15 km to the south-east, that was the postal township, both settlements being linked to the south with a twice-weekly coach service.²² The Gulligal settlement has ceased to exist, and is now farming land 2.4 km south-west of the Project.

The Burburgate Run was said in 1886 to comprise 220,000 acres, 'a struggling kind of run', of which 45,000 acres was freehold, and the property ran 60,000 sheep.²³ The NSW Department of Lands map 573244 of Burburgate property²⁴, stemming from the 1884 *Subdivision of Runs Act*, indicates a leasehold area of 174,700 acres, and a resumption area of 144,900 acres, or 319,600 acres in total. The resumption area was called in from the lease in 1894 for closer settlement.

¹⁹ Abbott 1974: 94-95.

²⁰ Walsh, G.P. 1976. 'Vickery, Ebenezer (1827-1906)', *Australian Dictionary of Biography*, Vol 6, Melbourne University Press: 333-334.

²¹ eg *The Maitland Mercury & Hunter River General Advertiser*, Tuesday 26 May 1885, 'Pastoral News, stock movements'

²² Whitworth, R.P. 1866. *Bailliere's New South Wales Gazetteer and Road Guide*, F.F. Bailliere, Sydney: 243-244.

²³ *The Maitland Mercury & Hunter River General Advertiser*, Tuesday 24 August, 1886, 'Irrigation at Burburgate'.

²⁴ 'Burburgate' within NSW Department of Lands <http://parishmaps.lands.nsw.gov.au/pmap.html>

The *Subdivision of Runs Act* of 1884 was a reform following the outdated Robertson land reforms for closer settlement of 1861. It limited free selection, and instead each squatter's run was to be divided into two portions, one retained by the lessee and the other 'Resumed Area' to be opened to settlement by small farmers. Figure 6 shows 'Burburgate North & South [annotated within the Lands Department to cross out 'North and South' and replaced it with 'Holding'], Liverpool Plains District, comprising Bogabri, Dripping Rock, Bull, Burburgate North, Burburgate South, Bondobala, Cowmore & Collygrah Runs, Counties of Nandewar and Pottinger', and this list is repeated in a pastoral handbook of 1889, being owned at that date by the Australasian Mortgage and Agency Company. By this date the combined acreage had shrunk to 179,765 acres (though this might have reflected the leasehold area alone).²⁵

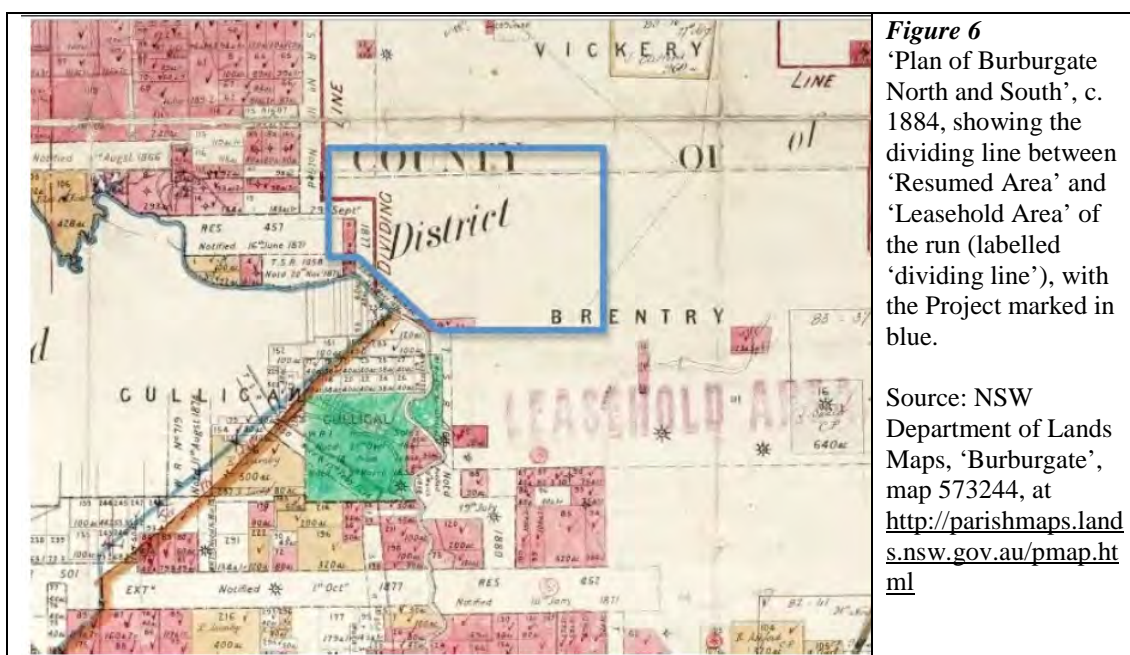


Figure 6
 'Plan of Burburgate North and South', c. 1884, showing the dividing line between 'Resumed Area' and 'Leasehold Area' of the run (labelled 'dividing line'), with the Project marked in blue.

Source: NSW Department of Lands Maps, 'Burburgate', map 573244, at <http://parishmaps.lands.nsw.gov.au/pmap.html>

However, the 1880s and 90s were periods of decline in the central and western regions, and increasingly the runs were in the hands of banks (623 runs and 577 occupation leases in Resumed Areas by 1889). By 1893, 8 million acres of settled land had been abandoned. This system was in place for a decade, but rural recession led to a decline in pastoral settlement, and the Resumed Areas were not effectively taken up. In 1894 the *Carruthers Land Settlement Act* returned the remaining balance of the Resumed Areas back to the leaseholder, to be resumed by government only when needed.²⁶ However, much of the Burburgate run was subdivided for rural settlement, and the Burburgate pastoral activities withdrew to the area closer to Gunnedah, south of the Project area, focused on the station homestead which is approximately 13 km south of the Project.

²⁵ Hanson, W. 1889. *The Pastoral Possessions of New South Wales*. Gibbs, Shallard & Co., Sydney: 212.

²⁶ Roberts, S.H. 1968. *History of Australian Land Settlement 1788-1920*. Macmillan of Australia, Melbourne: pp 309-311.

In 1905 the surviving Burburgate property, by that date reduced to about 47,000 acres, was sold to H.S Rich and Sons for subdivision for closer settlement, and 58 blocks of from 105 to 2,200 acres, and the homestead block of 4,088 acres, were subsequently auctioned at the Gunnedah School of Arts.²⁷

The history of the ownership of portions within the Project area, as indicated on parish maps, is presented in Table 1. Title searches have not been carried out to clarify or expand this sequence of ownership, so it is indicative rather than definitive. Note that the maps (Figure 7) referred to are working maps that have been annotated within the NSW Department of Lands, so the information provided is often more recent than the map date, as the maps were manually updated for many years.

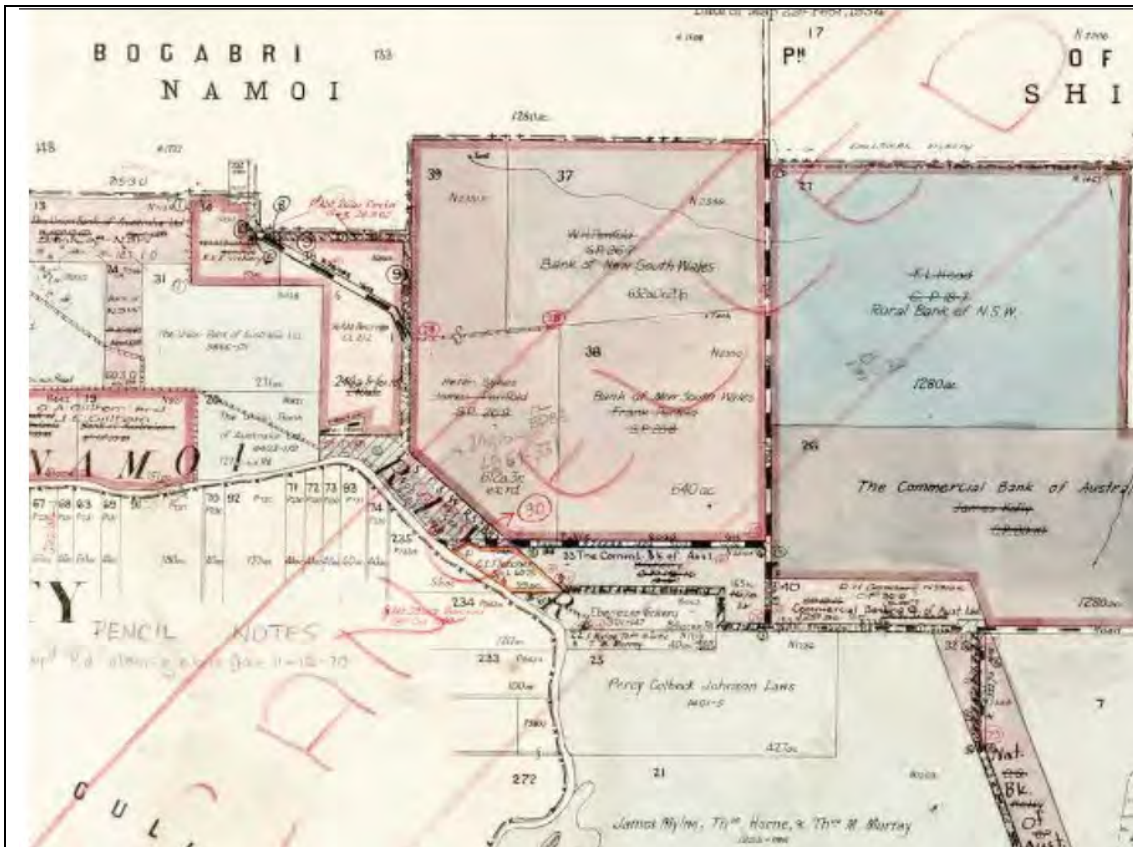


Figure 7
Map of Parish Brentry, 1934.

Source: NSW Department of Lands Map Image 11910201

²⁷ Sydney Morning Herald Friday 18 August 1905, *Sale of Burburgate Station*; McLean, R. 2006.

Table 1. History of Ownership of Portions within the Project Area

Project Area	Portion	Owner	Reference¹
Western Emplacement	Parish Brentry	Bool Run Leasehold Area	Parish Brentry 1884
	Parish Brentry, Portion 28	Bank of Australasia. Conditional Lease 1900. Subdivided into Portions 37, 38 and 39 in 1917 as 'Broadwater Settlement Purchase'	Parish Brentry 1896
		W.H. Penfold. Settlement Purchase 1926.	Parish Brentry 1917
	Parish Brentry, Portion 37	Bank of NSW (after 1934)	Parish Brentry 1934
		Frank Penfold. Settlement Purchase 1926.	Parish Brentry 1917
	Parish Brentry, Portion 38	Bank of NSW (after 1934)	Parish Brentry 1934
		James Penfold. Settlement Purchase 1926.	Parish Brentry 1917
	Parish Brentry, Portion 39	Peter Sykes (disposal 1961)	Parish Brentry 1934
		T.H. McDonald. Conditional Purchase 1910.	Parish Boggabri 1907
	Parish Boggabri, Portion 133	E.K.E Vickery 1926	Parish Boggabri 1923
		Parish Vickery	Burbugate North Run Leasehold Area
	Forest Reserve. Notified 1901. Annotated "low gravelly spurs, good grazing, not arable, pine and ironbark"		Parish Vickery 1881
	Frank Bray White. Homestead Farm (Settlement Purchase) 1920.		Parish Vickery 1881
Open Cut Pit	Parish Brentry	Bool Run Leasehold Area.	Parish Brentry 1884
	Parish Brentry, Portion 7	The Namoi Pastoral Company.	Parish Brentry 1884
		James Mylne, Thomas Horne and Thomas M. Murray.	Parish Brentry 1896
	Parish Brentry, Portion 10	Bank of New South Wales.	Parish Brentry 1884
	Parish Brentry, Portion 26	Michael Donaghue, Homestead Grant 1901.	Parish Brentry 1896
		James Kelly. OCP 1920.	Parish Brentry 1917
		Commercial Bank of Australia (after 1934).	Parish Brentry 1934
	Parish Brentry, Portion 27	Ronald A. Wilkinson. Homestead Grant 1904.	Parish Brentry 1896
		Frederick Leslie Hoad. Conditional Purchase 1918.	Parish Brentry 1917
		Rural Bank of NSW (after 1934).	Parish Brentry 1934
	Parish Brentry, Portion 28	Bank of Australasia. Conditional Lease 1900. Subdivided into Portions 37, 38 and 39 in 1917 as 'Broadwater Settlement Purchase'.	Parish Brentry 1896

Table 1. History of Ownership of Portions within the Project Area (continued)

Project Area	Portion	Owner	Reference¹
Open Cut Pit (continued)	Parish Brentry, Portion 37	W.H. Penfold. Settlement Purchase 1926.	Parish Brentry 1917
	Parish Brentry, Portion 38	Frank Penfold. Settlement Purchase 1926.	Parish Brentry 1917
	Parish Brentry Portion 40	Travelling Stock Route. Notified 17 July 1907.	Parish Brentry 1896
		D.H. Goaden. Conditional Purchase 1936.	Parish Brentry 1934
	Parish Vickery Portion 17	Burburgate North Run Leasehold Area.	Parish Vickery 1881
		Forest Reserve. Notified 1901. Annotated "low gravelly spurs, good grazing, not arable, pine and ironbark".	Parish Vickery 1881
		Frank Bray White. Homestead Farm (solider settlement) 1920.	Parish Vickery 1881
Eastern Emplacement	Parish Brentry	Bool Run Leasehold Area.	Parish Brentry 1884
	Parish Brentry, Portion 7	The Namoi Pastoral Company.	Parish Brentry 1884
		James Mylne, Thomas Horne and Thomas M. Murray.	Parish Brentry 1896
	Parish Brentry, Portion 11	Bank of New South Wales.	Parish Brentry 1884
	Parish Brentry, Portion 23	Joseph Augustus Curley, Homestead Grant.	Parish Brentry 1896
		Commissioner of the Government, Savings Bank of NSW.	Parish Brentry 1917
The Commercial Banking Company of Sydney Limited (after 1934)		Parish Brentry 1934	
Haul Road and Overpass Area	Parish Gunnedah Portion 36	Travelling Stock Route. Notified 13 March 1897.	Parish Gunnedah 1894
	Parish Gunnedah Portion 80	Ebenzer Vickery.	Parish Gunnedah 1894
	Parish Gunnedah Portion 445	W.J.A Bradbury.	Parish Gunnedah 1914
	Parish Gunnedah Portion 446	P.J. Neil.	Parish Gunnedah 1914

¹ All ownership data has been sourced from NSW Department of Lands maps (Land and Property Management Authority, Parish Map Preservation Project)

2.3 SCHOOLS

The nearest school to the Project area was at Gulligal, across the Namoi to the west. The Gulligal provisional school (i.e. in an area having at least 15 but fewer than 25 children requiring education) was established in 1882, operating to 1884, then again opening from 1915 to 1918. It became a public school (ie having at least 20 students) in 1919, and closed in 1938.²⁸

²⁸ Department of School Education Library (NSW), 1993. *Government Schools of New South Wales 1848-1993*, NSW Board of School Education, Parramatta.

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