



APPENDIX I HERITAGE TRANSPORT ROUTE
ASSESSMENT



The Plains Wind Farm – Transport Route, Pinch Point 8 – Burra

Heritage Impact Statement

PREPARED FOR



ENGIE Australia and New Zealand

DATE

25 March 2024

REFERENCE

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The Plains Wind Farm – Transport Route, Pinch Point 8 – Burra

Heritage Impact Statement

0667692



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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
AC	Alternating current
BESS	Battery energy storage system
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DA	Development Approval
DC	Direct current
DCCEEW	Department of Department of Climate Change, Energy, the Environment and Water
DEH	Department of Environment and Heritage
DEW	Department for Environment and Water
DEWNR	Department for Environment, Water and Natural Resources (now DEW)
ERM	Environmental Resources Management Australia Pty Ltd
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

Acronyms	Description
GW	Gigawatts
GWhr	Gigawatt hours
Ha	Hectares
HIS	Heritage Impact Statement
ICOMOS	International Council on Monuments and Sites
LALC	Local Aboriginal Land Council
MNES	Matters of National Environmental Significance
MW	Megawatts
NHL	National Heritage List
NTA-SA	The National Trust of Australia – South Australia
PDI	<i>Planning, Development and Infrastructure Act 2016</i>
PV	Photovoltaic
RNE	Register of the National Estate
SIG 1.1	Significant Impact Guidelines – Matters of National Environmental Significance
SIG 1.2	Significant Impact Guidelines - Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies
The Burra Charter	The Australia International Council on Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance (2013)
WHL	World Heritage List
WTG	Wind turbine generators

EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd was commissioned by ENGIE Australia and New Zealand to prepare a Heritage Impact Statement for the removal of a tree and installation of hardstand material at Burra, South Australia (Proposed Action). The Proposed Action is required to facilitate the transportation of blade components for The Plains Wind Farm in Hay, New South Wales.

The Transport Route Assessment for The Plains Wind Farm (Ares Group March 2024) identified pinch point 8 ('Proposed Activity Area') that includes one tree in the path of the large rear overhang of blades. The Proposed Action includes:

- The trimming or removal of a tree within the curtilage of the National heritage listed *Australian Cornish Mining Sites: Burra* and the State heritage listed *Burra Railway Station*; and
- the installation of hardstand material within the *Australian Cornish Mining Sites: Burra* and western property boundary of the Bon Accord Hotel on West Street.

Due to the nature of the proposed works and location sensitivity within National and State heritage listing curtilages, the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *South Australian Heritage Places Act 1993* has been carefully considered.

This Heritage Impact Statement has identified that the removal of the tree will not have an adverse impact on the heritage significance of the National Heritage Values of the *Australian Cornish Mines Sites: Burra*, or State Heritage Values of the Burra State Heritage Area or the Burra Railway Station. The installation of hardstand material is also not anticipated to have adverse impacts on the local heritage values of the Bon Accord Hotel.

Overall, this assessment has found that the Proposed Action will not result in the identified National Heritage Values of the *Australian Cornish Mine Sites: Burra* being lost, degraded, or damaged or notably altered, obscured or diminished. The Proposed Action would not have a significant impact on the heritage values of the National Heritage Place, and therefore, an EBPC Referral would not be required.

The Proposed Action includes the potential removal of a tree within the Burra State Heritage Precinct and Burra Railway Station. Therefore, this report should be lodged as part of an 'application for approval of development' with the Regional Council of Goyder. The Regional Council of Goyder would then refer the application to Heritage South Australia in Department for Environment and Water for heritage assessment.

SUMMARY RECOMMENDATIONS

Key recommendations to mitigate the impact of the Proposed Action on identified National and State heritage values, include:

- Recommendation 1: Lodgment of this Heritage Impact Statement report to the Regional Council of Goyder;
- Recommendation 2: Avoidance of Extensive Ground Disturbance for the installation of the hardstand and the removal of the tree;
- Recommendation 3: Heritage Induction for all contractors;
- Recommendation 4: Unexpected Finds Protocol; and
- Recommendation 5: Replacement of Removed Tree.

1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by ENGIE Australia and New Zealand (ENGIE) to prepare this Heritage Impact Statement (HIS) for road works required along the proposed transport route for The Plains Wind Farm (the Project). The Proposed Action is located along the Burra bypass route in South Australia (SA). This bypass route is required to facilitate the transportation of blade components for the Project, from the Port of Adelaide to just south of Hay in NSW.

1.1 PROJECT OVERVIEW AND DESCRIPTION OF THE ACTIVITY AREA

The Project is a proposed wind farm located in Hay, NSW. The Project extends across an area of approximately 1,996.9 hectares (ha) (the wind farm development footprint). The wind farm will consist of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). The Project is located within the boundaries of the Hay Local Aboriginal Land Council (LALC).

The Project will feature some of the largest wind turbines and towers currently available with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components. These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades.

The Transport Route Assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide (Ares Group, 2024). This port is currently being used by several wind farm projects and has the capacity and laydown area required for the Projects components. The proposed transport route for wind turbine blades requires modification at 11 pinch points (*Figure 1.1*). Most of the transport route for the blades is on state highways via Angle Vale, Gawler, Tarlee, and Burra in SA, and Broken Hill, Wilcannia, and Hay in NSW.

ERM prepared a Heritage Assessment (HA) of the proposed transport route (ERM March 2024) which presented an assessment of the heritage values along the proposed transport route. The HA identified that Proposed Activity Area in Burra SA is within the curtilage of National and State Heritage Places. The HA recommended a HIS be prepared for the Proposed Activity Area that included an assessment of significance of the Burra Railway Station.

1.2 PROPOSED ACTIVITY AREA

The Proposed Activity Area comprises pinch point 8 along the proposed transport route in the town of Burra in South Australia. Pinch point 8 is located on the left hand turn from Copperhouse Street onto West Street (*Figure 1.2*).

1.3 PROPOSED ACTION

The Proposed Action involves the trimming or removal of one tree within the Proposed Activity Area to provide clearance for the large rear overhang of the blades. The tree is within the north-west boundary of the Burra Railway Station (Parcel D89521 A75).

The installation of hardstand material is also required where the truck and trailer wheels leave the existing road surface to make the required turn. Approximately 150 square metres of hardstand is required within the western property boundary of the Bon Accord Hotel on West Street (Parcel F206504 A99 & A100) (*Figure 1.3*).



Legend

- Pinch Point
- Adelaide to Hay Route SA

Source:
 Routes: Client Provided (March 2024)
 Imagery: ESRI World Topographic Map

Coordinate System:
GCS GDA 1994


Date: 19/03/2024
 Created By: MB
 Drawing Size: A3

0 10 20Km

1:600,000

1.1 - Transport Route Location

Burra HIS
The Plains Wind Farm Transport Route
 Engie





Legend

- Activity Area (Pinch Point 8)
- Adelaide to Hay Route SA

Source:
 Routes: Client Provided (March 2024)
 Imagery: ESRI World Imagery

Coordinate System:
 GDA2020 MGA Zone 54

Date: 19/03/2024

Created By: MB

Drawing Size: A3

0 20 40m

1:1,000

1.2 - Activity Area

Burra HIS
 The Plains Wind Farm Transport Route
 Engie






FIGURE 1.3 WORKS REQUIRED AT PINCH POINT 8, THE LEFT TURN AT COPPER HOUSE STREET AND WEST STREET, BURRA (ARES GROUP 2024: 50-51)

1.4 SCOPE AND METHODOLOGY

This report is consistent with best practice conservation principles for heritage items, including the Australian ICOMOS Charter for Places of Cultural Significance 2013 (Burra Charter). The report has been prepared in accordance with the EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (SIG 1.1), Commonwealth of Australia, 2013), and *Heritage Impact Statement Guidelines for State Heritage Places* (DEWNR (now DEW) 2013).

This HIS aims to:

- Identify the statutory requirements in relation to the Project;
- Identify the heritage values of the impacted areas within the Proposed Activity Area and any other listed heritage items in the vicinity of the Proposed Activity Area;
- Assess the potential impacts of the proposed works on listed heritage values; and
- Provide recommendations and mitigation measures, as required.

1.5 SITE INSPECTION

An inspection of the entire transport route (encompassing the Proposed Activity Area) was undertaken from 17 to 21 July 2023 by ERM Managing Heritage Consultant Lorien Perchard. All photographs in this report were taken during the site inspection by ERM personnel unless otherwise identified. The Proposed Activity Area was inspected by Lorien Perchard on 17 July 2023. The site inspection also involved consultation on site with the owner of the Bon Accord Hotel.

1.6 AUTHORSHIP

ERM Heritage Consultant Mia Linton-Smith prepared this report with assistance from Managing Technical Consultant Toyah Morath. ERM Technical Consulting Director Erin Finnegan, completed technical review. ERM Partner, Mark Davey, completed a quality control review.

1.7 LIMITATIONS

This HIS has been prepared with respect to potential heritage impacts arising from the construction required to accommodate the Project works within the areas specified by ENGIE and includes information provided by ENGIE and other consultants of the design team.

ERM was not able to locate a Heritage Assessment (HA) of the State Heritage listed Burra Railway Station. The State listing for this place does not include an assessment against heritage criteria. ERM has undertaken this assessment, along with an assessment of the Bon Accord Hotel at a high level only, to identify any potential heritage values associated with the impacts from Proposed Action.

2. STATUTORY FRAMEWORK AND HERITAGE CONTEXT

2.1 IDENTIFIED HERITAGE PLACES

The following statutory and non-statutory lists and registers have been reviewed to identify the location and significance of historic heritage items and places in the vicinity of the Proposed Activity Area:

- World Heritage List (WHL);
- National Heritage List (NHL);
- Commonwealth Heritage List (CHL);
- South Australia State Heritage Places List;
- South Australia Planning and Design Code: Part 11 – Heritage Places
- Register of the National Estate (RNE); and
- The National Trust of Australia – South Australia (NTA-SA).

The Proposed Activity Area has been found to be within or intersecting several historic heritage listings. For ease of reference these listings have been listed in *Table 2.1* below and presented in *Figure 2.1*.

TABLE 2.1 HERITAGE LISTINGS WITHIN THE PROPOSED ACTIVITY AREA

Heritage List	Item Name	Place ID
Statutory Listings		
National Heritage List	<i>Australian Cornish Mining Sites: Burra</i>	106304
South Australia State Heritage Places List	<i>Burra State Heritage Area</i>	16183
	<i>Burra Railway Station (Station Buildings, Water Columns and Tank)</i>	10009
Non-Statutory Listings		
RNE	<i>Burra Railway Station, Water Columns and Tank, Railway TCE, Burra, SA, Australia</i>	16576

There are no World Heritage Listed items within the Proposed Activity Area (though Burra is being considered for nomination to the World Heritage List as part of the Australian Cornish Mining Sites) (Regional Council of Goyder, 2022). There were no identified local heritage places or NTA-SA registered places within the Proposed Activity Area. Refer to *Appendix A* for National and State heritage listings.

2.2 POTENTIAL HERITAGE PLACES

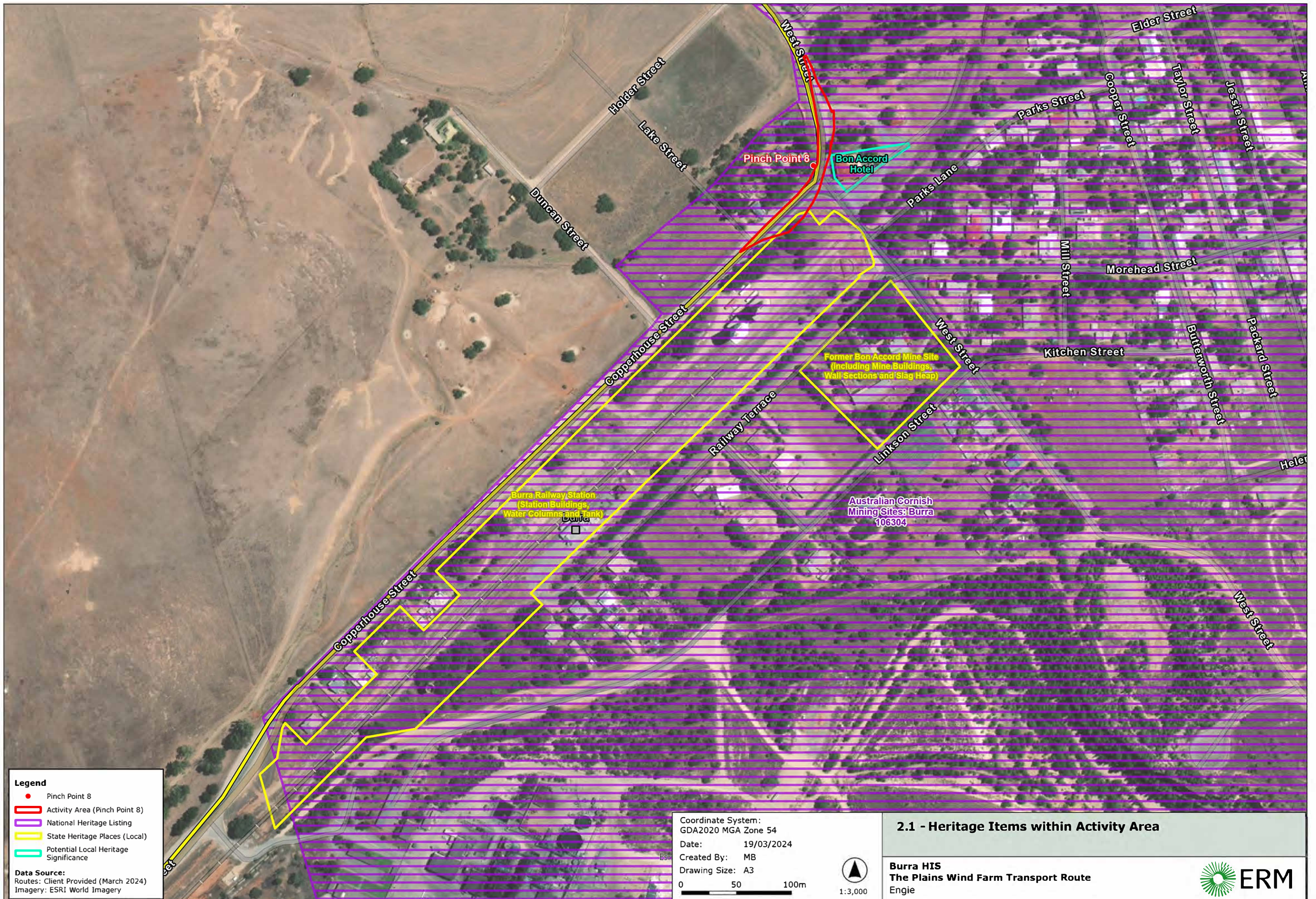
2.2.1.1 BON ACCORD HOTEL

The Bon Accord Hotel is not listed as a local heritage place; however, it does hold potential heritage values at local level given its close ties with the Burra community and local history. It has also been identified as a landmark building to the community as part of the Rail/Bon Accord Area, in the Burra State Heritage Area. Constructed in the 1870s, the Bon Accord Hotel holds historical importance as one of the earliest and enduring establishments in Burra. It is closely linked to the prosperous copper mining history of the region, having served as a gathering place for miners and a hub for social activities during the peak of the Burra mining operations. The hotel hosted the Burra Air Force Associated annual dinner in 1951 and 1952 (Burra Record 1952: 1), before it was moved to the Burra Town Hall. The hotel has been renovated numerous times since its establishment, with changes mostly remaining sympathetic to the original Victorian architecture and detailing, including the local bluestone façade on the back exterior of the hotel (front exterior has been painted over).

Consultation with Owners of Bon Accord

During the site inspection of the Proposed Activity Area (17 July 2023), ERM’s Managing Heritage Consultant Lorien Perchard discussed the Proposed Action with the owner of the Bon Accord Hotel. Lorien was advised at the time that the tree within the west boundary of the lot was not of any heritage value; however, it is believed to have been one of many Pepper Trees planted in the mid-late 19th century.

During the drafting of this HIS, ERM contacted the owner of the Bon Accord to discuss the proposed works and any impact to potential heritage values (such as the removal of a tree of landscape value or significant planting history or commemoration) (see *Appendix B* for this consultation log). However, the tree within the west boundary of the property is no longer proposed to be removed.



Legend

- Pinch Point 8
- Activity Area (Pinch Point 8)
- National Heritage Listing
- State Heritage Places (Local)
- Potential Local Heritage Significance

Data Source:
 Routes: Client Provided (March 2024)
 Imagery: ESRI World Imagery

Coordinate System:
 GDA2020 MGA Zone 54

Date: 19/03/2024

Created By: MB

Drawing Size: A3

0 50 100m

1:3,000

2.1 - Heritage Items within Activity Area

Burra HIS
 The Plains Wind Farm Transport Route
 Engie



2.3 COMMONWEALTH LEGISLATION

2.3.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The primary objective of the EPBC Act is to protect the environment, particularly those aspects that are matters of national environmental significance (MNES). The EPBC Act outlines a legal framework for the protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places. The EPBC Act established the CHL and NHL and provides protection for places on the WHL. The EPBC Act also references the RNE (now repealed).

The key sections of the EPBC Act that are of direct relevance to this assessment are:

- Part 3, Division 1: Requirements Relating to Matters of National Environmental Significance;
- Section 15B: Requirement for approval of activities with a significant impact on National Heritage values;
- Section 15B specifically relates to National Heritage Places. National Heritage are MNES and therefore protected by the EPBC Act. If the Minister decides that an action will or is likely to have a significant impact on a matter of National Environmental Significance, then the action will require approval under the EPBC Act;
- Section 341ZC: Requirement to minimise adverse impacts on the heritage values. A Commonwealth agency must not take an action that has, will have or is likely to have an adverse impact on National Heritage values of a National Heritage place unless:
 - there is no feasible and prudent alternative to taking the action; and
 - all measures that can reasonably be taken to mitigate the impact of the action on those values are taken.

This might be direct impacts from physical disturbance or could also include secondary impacts in the event of activities that would impact on the visual aspect, cultural importance, landscaping and curtilage of an adjacent listed property.

Under the EPBC Act, a 'significant impact' is an impact which is adverse – it is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value and quality of the environment which is impacted. Any actions which will or are likely to significantly impact the environment need to be assessed.

2.3.1.1 SIGNIFICANT IMPACT GUIDELINES

The *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (SIG 1.1)¹; provides overarching guidance on determining whether an action is likely to have a significant impact upon matters of national environmental significance which are protected under national environment law including:

- Listed threatened species and communities;
- Listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine area;
- World heritage properties;
- National heritage places;
- The Great Barrier Reef Marine Park;
- Nuclear actions; and
- A water resource, in relation to coal seam gas development and large coal mining development.

These guidelines have been developed to assist any persons in particular categories who proposes to take an action to decide whether they should submit a referral to the Australian Government Environment Minister (the Minister) These guidelines outline a 'self-assessment' process, including detailed criteria to assist persons in deciding whether referral may be required.

2.3.1.2 EPBC ACT REFERRAL PROCESS

Under Part 9 of the EPBC Act, any action that is likely to have a 'significant impact', or other MNES is known as a 'controlled action' under the Act, may require approval of the Minister. Generally, a significant impact is an action that has an important, notable consequence. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value and quality of the environment that is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.

If an action is likely to have a significant impact, *an EPBC Act referral* must be prepared and submitted to the Minister for approval (refer to Part 3, Division 1 and Section 28 of *the EPBC Act*). The EPBC Referral process is shown as a flow chart in *Figure 2.2*.

¹ Commonwealth of Australia, Department of Sustainability Environment Water Population and Communities 2013

EPBC Act environment assessment process—referral

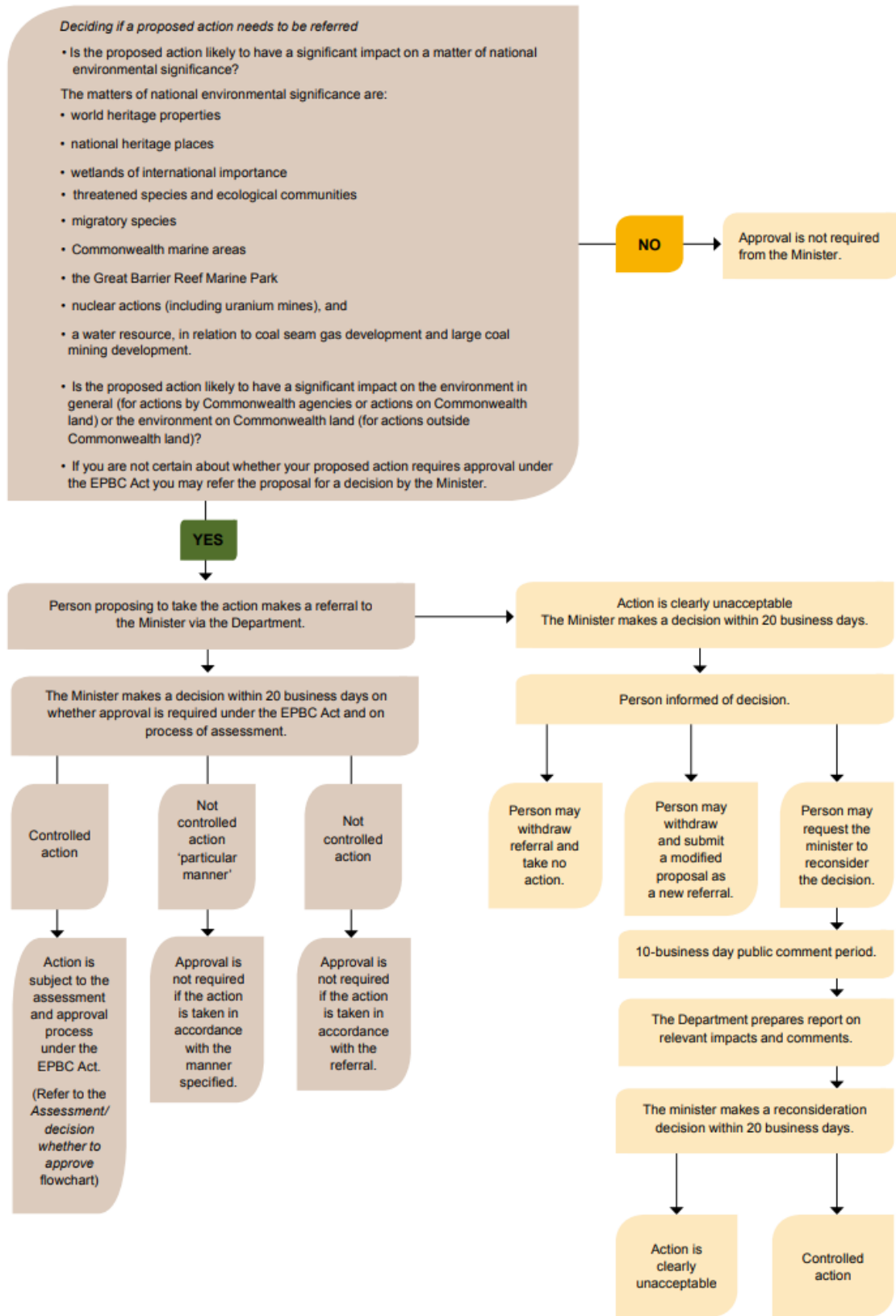


FIGURE 2.2 EPBC REFERRAL PROCESS (DCCEEW 2023)

2.3.1.3 THE NATIONAL HERITAGE LIST

Inclusion on the NHL protects places that have outstanding value to the nation. The Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. The Minister's Approval is required for 'controlled' actions which would have a significant impact on items and places included on the NHL.

The Proposed Activity Area is within the curtilage of the *Australian Cornish Mining Sites: Burra* [Place ID: 106304], gazetted as a place on the NHL on 9 May 2017.

2.4 SOUTH AUSTRALIA STATE LEGISLATION

2.4.1 HERITAGE PLACES ACT 1993

The *Heritage Places Act 1993* makes provision for the identification, recording, and conservation of places and objects of non-Aboriginal heritage significance. It establishes the South Australian Heritage Council, Heritage Fund, and Heritage Register. For the purposes of the Act, a State heritage area is referred to as a 'place'.

The 'Burra Railway Station Complex' is listed on the South Australia Heritage Places as Place ID 10009, and Heritage number 14317. This listing includes the station buildings, water column, and water tank. The Proposed Activity Area also encompasses an area within the *Burra State Heritage Area*, with the Burra Railway Station and the Bon Accord Hotel forming the Rail/ Bon Accord as a heritage precinct, outlined as 'Precinct 10' in the Swanbury Penglase Burra CMP (2019: 191-192). The Burra CMP also outlines important tree groupings on the south side of Railway Terrace; however, this tree grouping is approximately 90 m south-east of the trees subject to removal as part of the Proposed Action (Swanbury Penglase 2019: 192).

Entry in the South Australia Heritage Places database means that proposed changes within the registered heritage curtilage are subject to an approval process through the Department of Environment and Water (DEW) and the local council. For a state heritage place the definition of development includes 'demolition, removal, conversion, alteration or painting of, or addition to, the place, or any other work that could materially affect the heritage value of the place.' This includes tree removal (DEWR 2013 (now DEW)). As the Proposed Action falls within the Burra State Heritage Area, this HIS will need be lodged as part of an 'application for approval of development' with the Regional Council of Goyder, who would then refer the application to Heritage South Australia in DEW for heritage assessment.

2.4.1.1 PROTECTION OF HISTORICAL ARCHAEOLOGICAL SITES

The *Heritage Places Act 1993* regulates protection and management of historical archaeology in South Australia. Significant archaeological sites are protected under the Act, even though it does not refer directly to them. Instead, it provides protection to significant archaeological objects, which means any matter forming part of an archaeological deposit, or any artefact, remains or material evidence associated with an archaeological deposit, that relates to the non-Aboriginal settlement of South Australia, or to an activity undertaken by a person as part of the exploration of South Australia but does not include the remains of a ship or an article associated with a ship.

If significant objects are likely to be impacted, it is important they are investigated and recorded first so that the information they contain is captured and preserved.

2.4.1.2 PLANNING AND DESIGN CODE

The Planning and Design Code is a statutory instrument of the *Planning, Development and Infrastructure Act 2016* (PDI Act). The Code contains a register of local heritage and significant trees. This overlay only extends up to Gawler, approximately 110 km south of Burra.

A search of the 'Roadside Significant Sites' overlay on the South Australia Map Viewer, confirmed the Proposed Activity Area (Copperhouse Street and Copperhouse Street and West Street junction) do not contain any roadside significant sites of local significance.

2.4.1.3 DEVELOPMENT OF A STATE HERITAGE PLACE

The DEW and the South Australian Heritage Council are responsible for protecting and conserving cultural heritage places of state significance under the *Heritage Places Act 1993*. A HIS is required for development proposals to demonstrate how the heritage values of a place have been taken into account, including a summary of any impacts to heritage fabric or contributory values of a place. To undertake most work within the boundary of a State Heritage Place, the PDI requires a planning authority to refer a development application affecting a State Heritage Place or State Heritage Area to the Minister responsible for the *Heritage Places Act 1993* for response. The intention of this HIS is to assist the Heritage Officer with identifying heritage impacts and the rationale for change, as per the *Heritage Impact Statement Guidelines for State Heritage Places* (DEWNR (now DEW) 2013).

2.5 NON-STATUTORY CONSIDERATIONS

2.5.1 THE BURRA CHARTER: THE AUSTRALIAN ICOMOS CHARTER FOR PLACES OF CULTURAL SIGNIFICANCE 2013

The Australian ICOMOS (International Council on Monuments and Sites) Charter for the conservation of places of cultural significance (the Burra Charter) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra. Minor revisions were made in 1981 and 1988, with more substantial changes in 2013. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places. The principles, as follows, are the basis for heritage management and conservation processes:

- The place is important;
- Understand the fabric;
- Significance should guide decisions;
- Do as much as necessary, as little as possible;
- Keep records; and
- Do everything in logical order.

A copy of the Burra Charter can be accessed online at <http://icomos.org/australia>.

3. UNDERSTANDING THE PLACE: CONTEXTUAL HISTORY

The following contextual history has been largely extracted from the existing Draft HA for the proposed transport route (ERM October 2023). ERM has undertaken additional historic research with regards to the Burra Railway Station and the Bon Accord Hotel for context specific to the Proposed Activity Area.

3.1 THE SOUTH AUSTRALIAN HISTORIC THEMES FRAMEWORK

An evaluation of the South Australia Historic Themes Framework has guided our contextual analysis of the Proposed Activity Area outline below. It is a comprehensive framework developed to organise and assess historical themes relevant to the state. The themes encompass various aspects of South Australia’s heritage, in particular to this Proposed Activity Area, Theme 4. This theme explores the foundation and expansion of early settlements like Burra, and their role in fostering economic and social development for the state. Examination of the architectural styles, infrastructure, and social structures, like the Bon Accord Hotel and the Burra Railway Station, that played a role in building and sustaining the history of the state.

3.2 BURRA’S FIRST PEOPLES

The Proposed Activity Area is within the Ngadjuri Aboriginal tribal and language boundary.

The traditional lands of the Ngadjuri people extends from Gawler in the south to Orroroo in the north (Swanbury Penglase, 2019: 20). The Ngadjuri were semi-nomadic people; however, their reliance on water sources resulted in population concentrating near streams throughout their lands. The Ngadjuri are known to have lived rich ceremonial lives. They performed dances at annual meetings of different groups that took place around Adelaide (Gray, 1930). Initial colonial contact in the region occurred in c.1839, and sheep runs were established soon after. Some of the Ngadjuri people became shepherds, shearers and roustabouts. Various diseases were introduced by colonial settlers which resulted in a decline in the Ngadjuri population during the 1850s (Burra History Group Inc, 2023).

3.3 EARLY COLONIAL SETTLEMENT AND DEVELOPMENT

In the early nineteenth century, the coastline of South Australia was explored by Matthew Flinders and Captain Charles Sturt (Burra History Group Inc, 2023). Survey of the land in South Australia commenced upon the arrival of Colonel Light and his party towards the end of 1836. The first pastoral land was sold at auction in 1837 in Adelaide and by 1839 179,841 acres had been sold (Scott, 1887). In 1842, nine counties were proclaimed and pastoralists took up licenses to occupy the lands to the north of Adelaide, where the soil was suitable for agricultural pursuits. The first major metal mines developed in Australia were in South Australia. This included 'Wheal Gawler' a silver and lead mine that commenced operations at Glen Osmond in 1841. This was followed soon after by mining of copper ores at Kupunda in 1844 and Burra in 1845. These mines sparked widespread interest in metal mining and caused the first major decentralisation from Adelaide (South Australian Mining History, 2023).

By 1846, the counties were subdivided into 'Hundreds' (areas of approximately 100 square miles) and were later further subdivided into 'Sections' which were either sold by auction in South Australia or were pre-sold in Britain as town or agricultural blocks. By 1860 land within the proclaimed 'Hundreds' was generally sold, and typically at least one town was present within each (The Mid North and Southern Flinders Ranges, 2023). By 1850, South Australia was the third largest copper producer in the world. A network of roads from Burra to Port Adelaide (one of which is now the Barrier Highway) had been established by 1870 to cart ore and to deliver heavy machinery to the numerous mines (*Figure 3.1* [The proposed transport Route coloured red]). By 1870 railways had been established inland of Adelaide, and as far north as Burra (Burra History Group Inc, 2023).

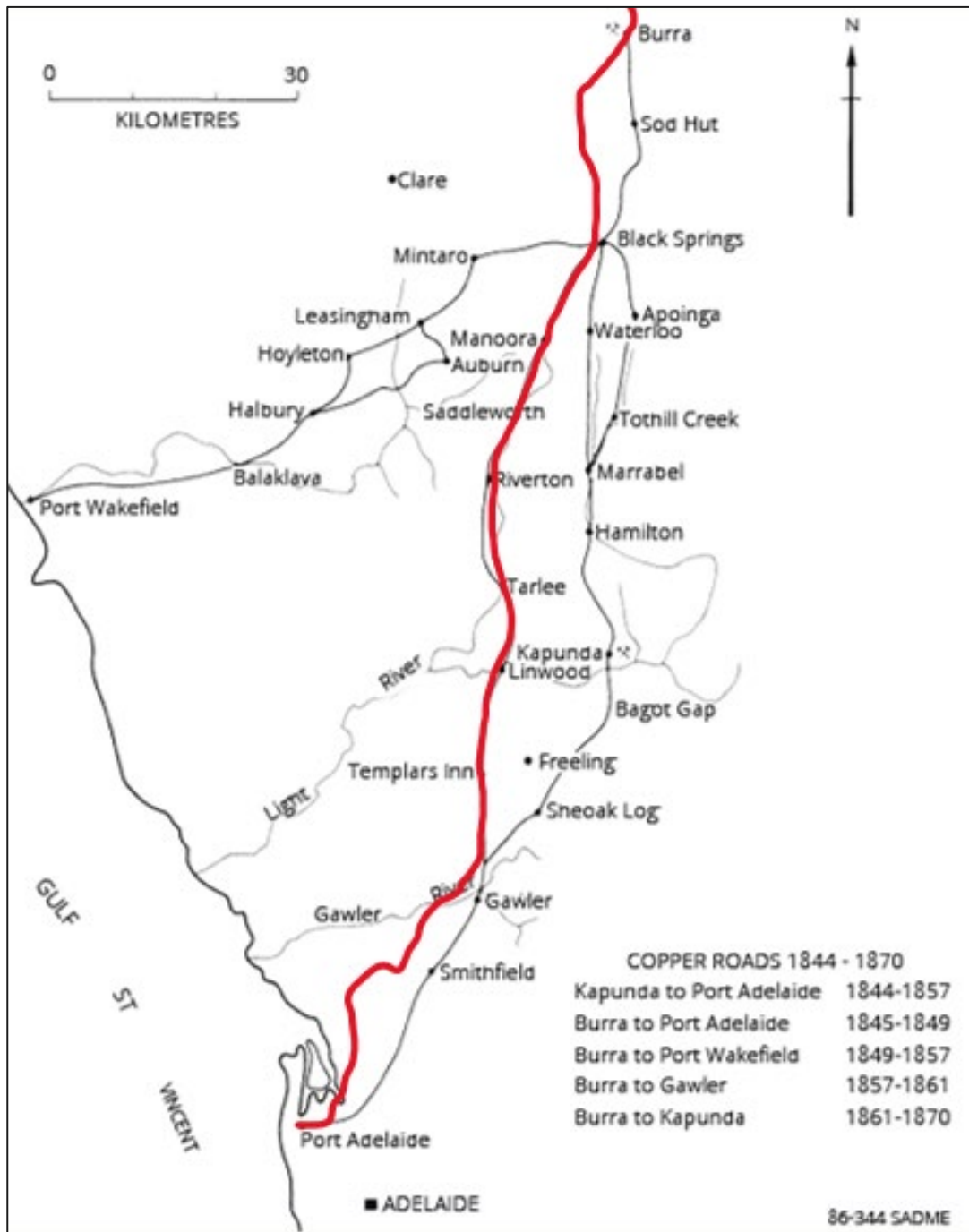


FIGURE 3.1 MAP ILLUSTRATING CARTAGE ROADS FROM BURRA TO THE COAST FROM 1844-1870 (BURRA HISTORY GROUP INC, 2023: [BURRA HISTORY - ROADS](#))

3.3.1.1 BURRA'S MINING HISTORY

The discovery of copper at Burra Burra Creek in 1845 by Thomas Pickett led to the Special Survey of 20,000 acres at Burra. The Burra Burra Mine (which later became known as the 'Monster Mine') was subsequently opened by the South Australian Mining Association (SAMA) in September 1845 (Swanbury Penglase, 2019: 21-22). Shortly after the opening of the mine, the SAMA laid out the private company town of Kooringa, located to the south of the mine on the company's land. The location of 20,000 acres Special Survey for copper mine at Burra is arrowed in *Figure 3.2* below. From 1845 to the mid-1860s, Kooringa was the central business centre for the surrounding mining townships (Swanbury Penglase, 2019: 32). In 1846 the Scottish Australian Investment Company established the Bon Accord Mine on land adjoining the Burra Burra Mine, and in 1849 the Smelting Works was established to the east of the Burra Burra Mine. Following the closure of the Burra Burra Mine in 1877, the townships collectively developed as pastoral and agricultural centres. The various townships including Kooringa, Aberdeen, and New Aberdeen became known as Burra by 1940 (Swanbury Penglase, 2019: 37). *Figure 3.3* shows a 1924 map of the township of Kooringa with the Burra transport route in red and the approximate location of Proposed Activity Area arrowed.

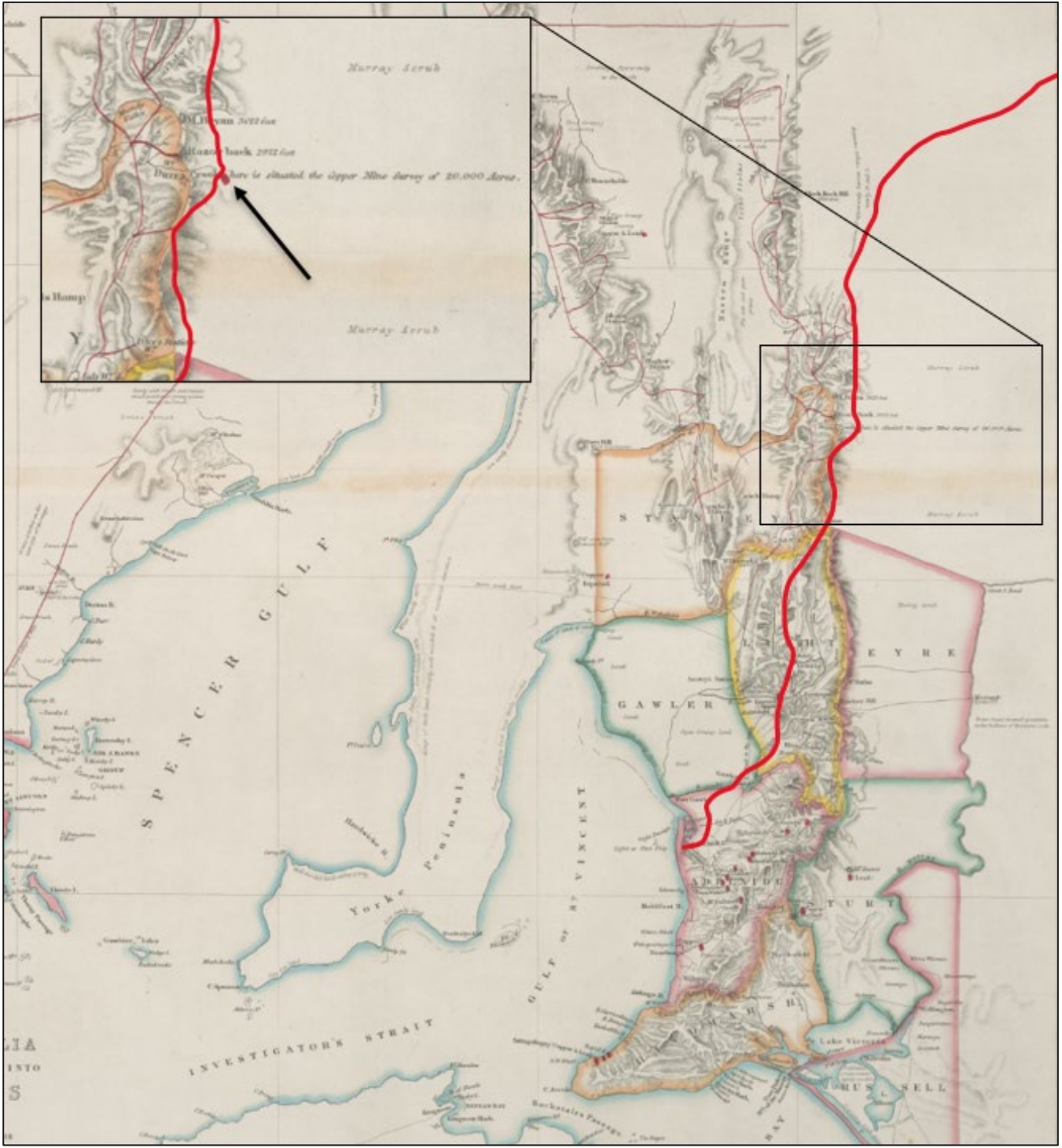


FIGURE 3.2 MAP SHOWING THE DIVISION INTO COUNTIES (1844) (NATIONAL LIBRARY OF AUSTRALIA, MAP RM 2625)

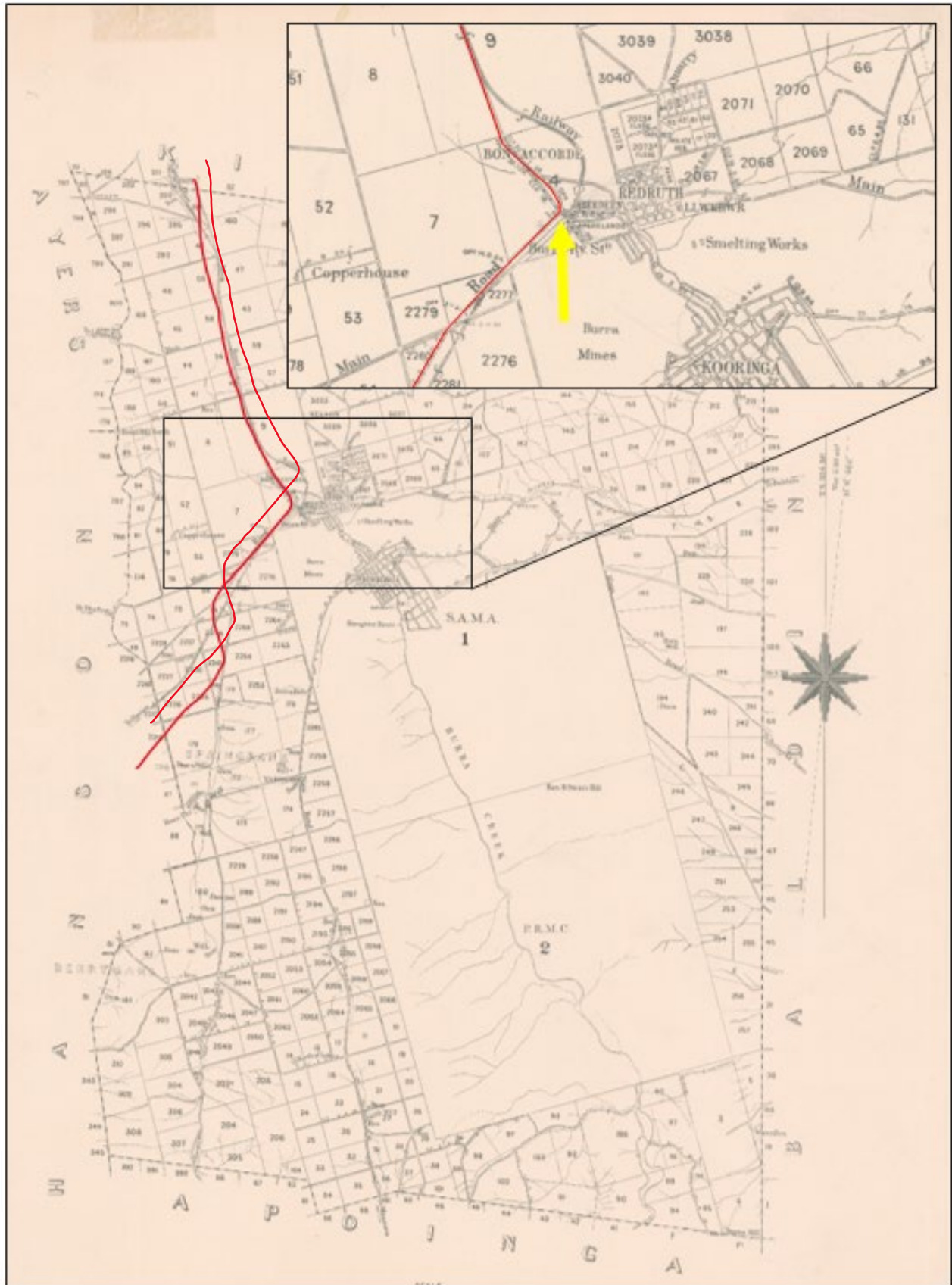


FIGURE 3.3 CADASTRAL MAP OF HUNDRED OF KOORINGA (1924) (NATIONAL LIBRARY OF AUSTRALIA, MAP G9011.G46 SVAR)

3.3.1.2 BURRA RAILWAY STATION

The first train arrived in Burra Railway Station in 1870 and became a key transport hub in the region, facilitating transport of goods and passengers during the height of the local copper mining industry, and beyond. The original timber station was intended to be temporary. The building had no waiting rooms and refreshments were presented on a table on the platform. The original building also did have private lavatories for the men. As the population and industries grew in Burra the community strived for a new railway station. In 1880, the community requested a new railway station, stating the current station “does not meet the present requirements” (Burra Record 1881: 3). The new building was requested to be 320 meters east of the old station away from the dangerous position being near the turntable. The new building was designed to address the issues with the original building.

By the end of the mining phase in the 1880s, the agriculture phase created an influx of the use of Australian Colonial and Victorian architecture. An element in Burra’s architecture is the distinctive use of rich, local bluestone (DEW 2012). The new stone railway station was erected in 1883, constructed of the iconic local bluestone (*Photograph 3-1* and *Photograph 3-2*). The original arched roof over the platform and tracks remained until they were demolished in 1935 (DEH 2006).



PHOTOGRAPH 3-1 NEW STATION BUILDING 1883 (BURRA COMMUNITY LIBRARY)



PHOTOGRAPH 3-2 BURRA RAILWAY STATION PLATFORM 1907 (MELVA MCINNES)

The railway station helped the growth of Burra’s agricultural industry, especially its wheat production. The account of traffic passing through the Burra Station in the week of 6 February 1909 was noted as a ‘considerable increase on last years’. 117 passengers were booked for the week, and almost 94 tons of common goods were received (flour, corn husks, potatoes, timber etc.). Traffic that was forwarded from Burra included 188 tons of wheat and stated that the wheat forwarded for the current season is approximately 2,500 tons (25,000 bags), which was almost 550 tons more than the previous season (Kapunda Herald, 1909: p.3; Kapunda Herald 1909: p.6).

In 1962, the two wheat silos were added to the site. These silos are a visual marker for the Burra Train Station as they can be seen throughout the town. The railway closed for passenger services to Adelaide in 1986, and the last grain transportation in 1999.

The interior of the station building has since been repurposed and renovated to a Bed & Breakfast, and the dining carriage at of the front of the station also underwent conservation works (*Photograph 3-3 and Photograph 3-4*).



PHOTOGRAPH 3-3 BURRA RAILWAY STATION & WHEAT SILOS IN BACKGROUND FROM RAILWAY TERRACE (ERM, 2023)



PHOTOGRAPH 3-4 DINING CARRIAGE AT FRONT OF BURRA RAILWAY STATION (ERM, 2023)

Today the Burra Railway Station is located within the Rail/Bon Accord heritage precinct in Burra North, an area that encompasses the former government and private settlements of Redruth and Aberdeen, and terrace houses and cottages built by miners and smelt workers (Regional Council of Goyder 2021).

3.3.1.3 THE BON ACCORD HOTEL

Constructed in 1874 by Alexander Stewart, the Bon Accord Hotel was one of the main establishments at the time of the Burra mining operations. It is located within what was known as the New Aberdeen township, established in 1872. Bon Accord translates to 'good agreement,' likely named after the Bon Accord Mine, which was purchased and named in 1846 by speculators from Aberdeen, Scotland (National Trust 2023). The hotel played a central role in the social life of the Burra community, especially being situated near the Burra Railway Station, welcoming visitors and mining workers. The Bon Accord Hotel has formed part of the changing social dynamics of the town and served as a symbol of community cohesion throughout its history. The hotel provided stabling for horses with a large paddock for grazing at the back of the hotel (Visit Burra 2019). This rear paddock is today used as a carpark, caravan parking and picnic area.

Following the mining phase in 1877, Victorian styled architecture was on the rise. This style commonly included grand verandahs and detailed woodwork, features that are consistent with the Bon Accord Hotel. The Bon Accord Hotel was renovated in 1908 under the new proprietor Mr. Alf Birdseye. These renovations were described by Mr. Birdseye as "... making extensive alterations which are sure to meet the approval of his customers" (Burra Record 1908: 3). The distinctive use of local bluestone is a key element in Burra's architecture, which can be seen after the Bon Accord's renovations in 1908 (*Photograph 3-5*). The front façade of this bluestone exterior has since been painted over, though the rear bluestone remains (*Photograph 3-6* and *Photograph 3-7*).



THE BON ACCORD HOTEL, BURRA. —Mr. Alf. Birdseye, Proprietor.

PHOTOGRAPH 3-5 THE BON ACCORD HOTEL AFTER 1908 RENOVATIONS (KAPUNDA HERALD, 1908)



PHOTOGRAPH 3-6 CURRENT BON ACCORD HOTEL WITH REAR BLUESTONE EXTERIOR, LOOKING SOUTH-WEST (KEVIN EATTS)



PHOTOGRAPH 3-7 BON ACCORD HOTEL WITH REAR BLUESTONE EXTERIOR, LOOKING SOUTH-EAST (ERM, 2023).

Since being constructed, the hotel has been owned and managed by at least seven proprietors between its establishment in 1874 to 1951. Throughout this period, the hotel has undergone numerous renovations and alterations, including implementing a picket fence, gravelling, painting, and removing the verandah (Burra Record 1932: 1; Burra Record 1935: 3; Burra Record 1945: 2). One of these noted improvements was undertaken by Mr. Symonds in 1933, comprised of planting '*caribs and flowering gums*' on the corner of the hotel (Burra Record 1933: 1). While the Pepper Tree was not one of the flowering gums mentioned, the invasive species was one of several of the same species planted around the local area following the mass land clearing to make way for the Bon Accord Mine (pers comms 17 July 2023 & Oxigen Landscape Architects 2007: 3).

4. SITE DESCRIPTION

4.1 LANDSCAPE CONTEXT

The Proposed Activity Area is located at Copperhouse Street and West Street junction, located 1.95 km north of the Burra town center. An overview of the pinch point is shown in *Photograph 4-1* with the tree for proposed removal outlined in yellow. Overall, it is a flat area with overhead powerlines along the west side of the road verge. There are no overhead powerlines on the east side of the road. There is a small curb at the West Street turn-off, this curb does not extend to the rest of the road corridor through Copperhouse Street.



PHOTOGRAPH 4-1 PINCH POINT 08, LOOKING NORTH-EAST ON COPPERHOUSE STREET TOWARDS THE BON ACCORD HOTEL. THE TREE SUBJECT TO REMOVAL IS OUTLINED IN YELLOW (ERM, 2023)

4.1.1 BURRA RAILWAY STATION

The Proposed Activity Area located in the Burra Railway Station is located to the south of the Copperhouse Street and West Street junction, in a small wire fenced area. The tree is within Parcel D89521 A75. The Proposed Activity Area is in an area with loam and poorly structured red clay soil.

The tree is located approximately 5 - 10 m from the edge of the road corridor (Photograph 4-1 to Photograph 4-5, where the tree subject to removal is highlighted in yellow). The tree has been identified as *Schinus mole* also known as Pepper Tree.



PHOTOGRAPH 4-2 LOOKING SOUTH-WEST AT THE TREE (ERM, 2023)



PHOTOGRAPH 4-3 LOOKING NORTH-EAST AT THE TREE WITH BON ACCORD HOTEL IN BACKGROUND (ERM, 2023)



PHOTOGRAPH 4-4 LOOKING SOUTH-WEST AT THE TREE (ERM, 2023)



PHOTOGRAPH 4-5 LOOKING SOUTH-EAST AT CLEARED AREA OF BURRA RAILWAY STATION AREA ON THE CORNER OF WEST STREET & COPPERHOUSE STREET (ERM, 2023)

4.1.2 BON ACCORD HOTEL

The Proposed Activity Area is located adjacent to the Bon Accord Hotel on the corner of West Street. Approximately 150 square metres of hardstand is required within the western property boundary of the Bon Accord Hotel on West Street (Parcel F206504 A99 & A100). This area is generally flat and is grassed (*Photograph 4-7* and *Photograph 4-8*).



PHOTOGRAPH 4-6 LOOKING EAST AT BON ACCORD HOTEL (ERM, 2023)



PHOTOGRAPH 4-7 LOOKING NORTH AT PROPOSED AREA OF HARDSTAND NEAR ROAD CORRIDOR (ERM, 2023)



PHOTOGRAPH 4-8 LOOKING SOUTH AT PROPOSED AREA OF HARDSTAND NEAR HOTEL (ERM, 2023)

4.2 ARCHAEOLOGICAL POTENTIAL OF THE PROPOSED ACTIVITY AREA

The Proposed Activity Area is a highly disturbed rural/residential area. The site inspection undertaken on 17 July 2023 did not identify any items of potential archaeological significance. Additionally, the historical information found for both sites does not indicate the potential for historical archaeology. However, an unexpected finds protocol should be implemented in the event of any archaeological discoveries (refer to *Section 7.2.4*).

5. SIGNIFICANCE ASSESSMENT

5.1 NATIONAL HERITAGE LIST

5.1.1 AUSTRALIAN CORNISH MINE SITES: BURRA

The Australian Cornish Mine Sites: Burra is listed on the NHL (Place ID 106304) for its a) historic values (events, processes) and f) creative or technical achievement. The former copper mine at Burra represents a milestone in Australia’s mining history, marking the beginning of Australia’s metal mining industry.

The removal of the tree within the Proposed Activity Area is unlikely to impact the historic values, or creative or technical achievement of the Australian Cornish Mine Sites.

5.2 STATE HERITAGE LIST

5.2.1 BURRA STATE HERITAGE AREA

Information sourced from DEW (2012):

The Burra State Heritage Area was registered as a State Heritage Place on 28 January 1993.

“Burra is recognised as a State Heritage Place because of the town’s significant links with mining in the history and development of South Australia. This area is of economic and cultural heritage significance to Australian Mining History.

The town of Burra began in 1846 as the company settlement of Kooringa. As the population and the demand for freehold land increased, other villages were surveyed further north. These settlements - Redruth, Llwchwr, Aberdeen and Hampton - reflected the cultures of the various immigrants who flocked to the Burra Mine. In 1876 the individual townships were formed into the Corporation of the Town of Burra, but retained their identity until 1940, when the name Burra was adopted.

Burra's built heritage remains largely intact, thanks to a caring community and the efforts of the National Trust. This historic town is now one of South Australia's best-conserved reminders of industry and everyday life in the nineteenth century. While the town's economy is now linked to the surrounding agricultural and pastoral communities, its copper heritage is evident everywhere.”

5.2.2 RAIL/BON ACCORD HERITAGE

5.2.2.1 BURRA RAILWAY STATION (STATION BUILDINGS, WATER COLUMNS AND TANK)

The Burra Railway Station Complex was registered as a State Heritage Place 8 November 1984. A Statement of Significance is not provided in the South Australia Heritage Places citation for Burra Railway Station. ERM has assessed the Burra Railway Station against the *Heritage Places Act 1993 (Guidelines for Interpreting State Heritage Criteria)* and found the Burra Railway Station meets criterion a) historic and d) representative.

TABLE 5.1 SUMMARY SIGNIFICANCE ASSESSMENT AGAINST SHR CRITERIA: BURRA RAILWAY STATION

SA State Heritage Register Criterion	ERM Assessment
a) It demonstrates important aspects of the evolution or pattern of the state’s history	<p>The original Burra Railway Station was established in 1870 and played a crucial role in facilitating the growth of the mining industry in the region. As the town continued to expand, a new station was constructed in 1883. This new station not only served as a transportation hub but also provided essential infrastructure to support the flourishing community during the subsequent agricultural phase. The station's improved facilities and connectivity allowed for development and sustenance of the town and its residents as they transitioned from mining to agriculture as the primary economic driver.</p> <p>The Burra Railway Station meets the state tier threshold for heritage significance under criterion a).</p>
d) it is an outstanding representative of a particular class of places of cultural significance.	<p>The Burra Railway Station demonstrates intact vernacular architectural characteristics associated with South Australian railway stations of the time. The building incorporates the local bluestone into the exterior of the station built 1883.</p> <p>The Burra Railway Station meets the state tier threshold for heritage significance under criterion d).</p>

5.2.2.2 BON ACCORD HOTEL

The Bon Accord Hotel has not been identified as a local heritage place; however, it has been included within the Rail/Bon Accord Heritage (Precinct 10) as part of the Conservation Management Plan for Burra State Heritage Area (Swanbury Penglase 2019: 191). ERM has provided a preliminary assessment against the *Heritage Places Act 1993 (Guidelines for Interpreting State Heritage Criteria)* and found the Bon Accord likely to be of local heritage value under criterion a).

TABLE 5.2 SUMMARY SIGNIFICANCE ASSESSMENT AGAINST SHR CRITERIA: BON ACCORD HOTEL

SA State Heritage Register Criterion	ERM Assessment
a) It demonstrates important aspects of the evolution or pattern of the state’s history	<p>Constructed in 1874 by Alexander Stewart, the Bon Accord Hotel was one of the main establishments at the time of the Burra mining operations. The hotel played a central role in the social life of the Burra community, especially being situated near the Burra Railway Station, welcoming visitors and mining workers. The Bon Accord Hotel has formed part of the changing social dynamics of the town and served as a symbol of community cohesion throughout its history.</p> <p>The Bon Accord Hotel meets that local tier threshold for heritage significance under criterion a).</p>

6. ASSESSMENT OF HERITAGE IMPACT

This section provides an assessment of the potential impact of the works within the Proposed Activity Area to address obligations of the EPBC Act and the *Heritage Places Act 1993*, using SIG 1.1, as well as *South Australia’s Heritage Impact Statement Guidelines for State Heritage Places*.

6.1 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action involves the trimming and removal of a tree within the Proposed Activity Area to allow for the large rear overhang of the blades during the transportation of these components. This tree is within the north-west boundary of the Burra Railway Station (Parcel D89521 A75).

The Proposed Action will also require the installation of hardstand material where the truck and trailer wheels leave the existing road surface to make the required turn on the corner of west street within the Bon Accord Hotel lot boundary. Approximately 150 square metres of hardstand is required within the western property boundary of the Bon Accord Hotel on West Street (Parcel F206504 A99 & A100).

6.2 EPBC ACT OBLIGATIONS

SIG 1.1 outlines a ‘self-assessment’ to determine if an action has, will have, or is likely to have a significant impact on a MNES. It states an action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause:

- One or more of the National Heritage values to be lost;
- One or more of the National Heritage values to be degraded or damaged; or
- One or more of the National Heritage values to be notably altered, modified, obscured or diminished.

SIG 1.1 states an action would be considered significant if there is a real chance or possibility that the action will:

1. *Permanently remove, destroy, damage or substantially alter the fabric of a National Heritage property;*
2. *Extend, renovate, refurbish or substantially alter a National Heritage property in a manner which is inconsistent with relevant values;*
3. *Permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a National Heritage property;*
4. *Involve activities in a National Heritage property with substantial and/or long-term impacts on its values;*
5. *Involve construction of buildings or other structures within, adjacent to, or within important sight lines of, a National Heritage property which are inconsistent with relevant values; and*
6. *Make notable changes to the layout, spaces, form or species composition in a garden, landscape or setting of a National Heritage property which are inconsistent with relevant values.*

SIG 1.1 has been used to assist with the analysis of potential heritage impacts of the proposed actions to assets under assessment in this report and identify management and mitigation measures.

6.2.1 ASSESSMENT OF IMPACT – NATIONAL HERITAGE VALUES

To make a decision as to whether to refer an action to the Minister, the following questions identified in SIG 1.1 should be considered:

TABLE 6.1 ASSESSMENT OF IMPACT – SIG 1.1 QUESTIONS

SIG 1.1 Question	ERM Response
1. <i>Are there any matters of national environmental significance located in the area of the proposed action (noting that 'the area of the proposed action' is broader than the immediate location where the action is undertaken; consider also whether there are any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)?</i>	Yes. The Proposed Activity Area is located within the town of Burra, which is listed for its National Heritage Values (NHL Place ID: 106304).
2. <i>Considering the proposed action at its broadest scope (that is, considering all stages and components of the action, and all related activities and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance?</i>	No. There is nil potential for impacts to Burra's National Heritage Values. The tree proposed for removal is not contributory to the National Heritage Values of Burra.
3. <i>Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)?</i>	As there are nil impacts to National Heritage Values, there are no proposed mitigation measures recommended.
4. <i>Are any impacts of the proposed action on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)?</i>	No. There is nil potential for impacts to Burra's National Heritage Values.

6.3 SA LEGISLATIVE OBLIGATIONS

The following assessment of impact has been guided by the *Heritage Impact Statement Guidelines for State Heritage Places* (DEWNR (now DEW) 2013). The table below outlines the list of issues (where applicable) required to be addressed as part of as HIS for all development proposals. The Guidelines state that not all the questions below will require responses; however, all the tables of questions should be referred to so that all potential heritage impacts are considered and mitigated.

6.3.1 ASSESSMENT OF HERITAGE IMPACT – STATE HERITAGE VALUES

TABLE 6.2 ASSESSMENT OF IMPACT – QUESTIONS TO BE ADDRESSED

Proposed change to a heritage place	Questions to be addressed	ERM Response
For all development proposals	<i>Has the advice of a heritage consultant or specialist been sought? Has the consultant's recommendations been implemented? If not, why not?</i>	Yes. ENGIE has engaged ERM to prepare this HIS alongside a suite of heritage documentation to ensure compliance with all statutory requirements and in accordance with leading practice guidelines across the length of the transport route.
	<i>Is the proposal the best technical and conservation solution for the heritage place?</i>	Yes. The Proposed Action is considered necessary to ensure the safe and practical navigation of the corner with the large blade and tower components.
	<i>Will the proposed works have an adverse heritage impact, and if so, how can this be mitigated?</i>	No. The Proposed Action will not have an adverse impact on the State Heritage values of the Burra State Heritage Area or the Burra Railway Station.
	<i>How does new development (e.g. buildings, structures, landscape works), or future development that results from subdivision, affect the setting of the heritage place, and views and vistas to and from the heritage place? How can this be mitigated?</i>	The Proposed Action will not result in adverse impacts to important views and vistas within the Burra State Heritage Area or the Burra Railway Station. It will also not impact the broader setting of these heritage places.
	<i>Can the proposed works incorporate removal of unsympathetic alterations and additions to improve the integrity of the heritage place?</i>	Not applicable.

Proposed change to a heritage place	Questions to be addressed	ERM Response
Tree removal or replacement	<i>Does the tree contribute to the significance of the heritage place?</i>	The tree identified for removal has not been identified as a character tree within any heritage listing and is not known to hold contributory significance as part of these listings. The Pepper Tree is likely to be a historical planting, however it has not been identified in the 'Street Trees in Burra North 2007' Report as a significant character tree on Copperhouse Street. It has also not been identified in the 2019 CMP for Burra as 'Important Tree Groupings or Street Trees' (Swanbury Penglase 2019: 191).
	<i>Why is the tree to be removed?</i>	The tree will potentially need to be removed to make way for the large turbines as it is positioned to turn the corner at Copperhouse Street onto West Street.
New Landscape works	<i>How has the impact of the new work on the heritage significance of the existing landscape been minimised?</i>	The hardstand required for the Transport Route will be limited to approximately 150 square metres within the western property boundary of the Bon Accord Hotel on West Street (Parcel F206504 A99 & A100). This work will not impact on the local heritage values of the Bon Accord Hotel.
	<i>Has evidence (archival or physical) of previous landscape work been investigated? Are previous works being reinstated?</i>	Not applicable.
	<i>Are any known or potential archaeological artefacts affected by the landscape works? How can this be mitigated? Has advice been sought from a suitably qualified archaeologist?</i>	ERM Managing Heritage Consultant undertook a heritage survey of the Proposed Activity Area on 17 July 2023 and did not identify any potential historical archaeological artefacts or areas of archaeological sensitivity.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

Overall, this assessment has found the Proposed Action will not result in the identified National Heritage Values of the Australian Cornish Mine Sites: Burra being lost, degraded or damaged or notably altered, modified, obscured or diminished. The Proposed Action would not have a significant impact on the heritage values of the National Heritage Place, and therefore, an EBPC Referral is not required.

The assessment has also found that the removal of a tree within the lot boundary of the State Heritage Burra Railway Station and Burra State Heritage Area is unlikely to have an adverse impact on the heritage values of these places. Any potential impacts from the tree removal along the north-west boundary of the Burra Railway Station could potentially be softened by implementing the replacement planting of recommended species (such as the SA Blue Gum [*Eucalyptus leucoxylon ssp. Leucoxylon*]) in accordance with the Burra North Street Tree Management report (2007).

Similarly, the assessment has found that the installation of hardstand within the Bon Accord Hotel lot boundary is unlikely to have an impact on the local heritage values of the place.

7.2 RECOMMENDED MANAGEMENT STRATEGIES

7.2.1 RECOMMENDATION 1: LODGEMENT OF HIS

This HIS will need be lodged as part of an 'application for approval of development' with the Regional Council of Goyder, who would then refer the application to Heritage South Australia in DEW for heritage assessment.

7.2.2 RECOMMENDATION 2: AVOIDANCE OF EXTENSIVE GROUND DISTURBANCE

Extensive ground disturbance for the installation of the hardstand and the removal of the tree should be avoided. If the proposed works extend outside of the area under assessment in this report, additional assessment may be required.

7.2.3 RECOMMENDATION 3: HERITAGE INDUCTION

Prior to the commencement of works, all contractors should be briefed on the requirements of the EPBC Act, *Heritage Places Act 1993*, and the Unforeseen Discovery Protocol (described in *Section 7.2.4* below).

7.2.4 RECOMMENDATION 4: UNEXPECTED FINDS PROTOCOL

While the potential for historic archaeological is considered low within the Proposed Activity Area, all historical archaeological sites are protected under the *Heritage Places Act 1993*. As such, if any suspected archaeological finds are discovered during the proposed action, works should cease immediately. It is the responsibility of the developer to perform due diligence and ensure compliance with the Act. The management of potential historical archaeological sites should be in accordance with *Heritage Places Act 1993* guidelines (such as the *Archaeology Fact Sheets*) and policies, and the policy provided in the Regional Council of Goyder ACMS: Burra Conservation Management Plan Policy – ‘Unforeseen discovery of historical archaeological remains’, which states:

In the event of an unforeseen discovery of historical archaeological remains, work should immediately cease in the area and the discovery reported to Heritage SA, for advice, prior to continuing work. Heritage SA will determine if a permit may be required under Section 27 of the Heritage Places Act and what actions are required by the applicant to attain a permit. Works must not re-start in the area until confirmation is received from DEW.

7.2.5 RECOMMENDATION 5: REPLACEMENT OF REMOVED TREE

While the Peppercorn Tree proposed for removal has not been found to hold contributory heritage values, it does provide some landscape value as an established tree. To mitigate against any potential loss of landscape value and to soften the impact of its removal from the landscape, ENGIE should consult with the Regional Council of Goyder and the owner of Bon Accord Hotel on their preferred approach for tree replacement.

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STATEMENT OF LIMITATIONS

This report is based solely on the scope of work described in *Section 1.4* (Scope of Work) and performed by Environmental Resources Management Australia Pty Ltd (ERM) as commissioned by ENGIE Australia and New Zealand (the Client). The Scope of Work was governed by a contract between ERM and the Client (Contract).

No limitation, qualification or caveat set out below is intended to derogate from the rights and obligations of ERM and the Client under the Contract.

The findings of this report are solely based on, and the information provided in this report is strictly limited to that required by the Scope of Work. Except to the extent stated otherwise, in preparing this report ERM has not considered any question, nor provides any information, beyond that required by the Scope of Work.

This report was prepared in March 2024 and is based on conditions encountered and information reviewed at the time of preparation. The report does not, and cannot, take into account changes in law, factual circumstances, applicable regulatory instruments or any other future matter. ERM does not, and will not, provide any on-going advice on the impact of any future matters unless it has agreed with the Client to amend the Scope of Work or has entered into a new engagement to provide a further report.

Unless this report expressly states to the contrary, ERM's Scope of Work was limited strictly to identifying typical environmental conditions associated with the subject site(s) and does not evaluate the condition of any structure on the subject site nor any other issues. Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials or any identified impacted soil or groundwater on the site(s) should not be interpreted as a guarantee that such materials or impacts do not exist.

This report is based on information provided by the Client or third parties (including regulatory agencies). All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved. Whilst normal checking of data accuracy was undertaken, except to the extent expressly set out in this report, ERM:

- Did not, nor was able to, make further enquiries to assess the reliability of the information or independently verify information provided by;
- Assumes no responsibility or liability for errors in data obtained from the Client, any third parties or external sources (including regulatory agencies).

Although the data that has been used in compiling this report is generally based on actual circumstances, if the report refers to hypothetical examples those examples may, or may not, represent actual existing circumstances.

Only the environmental conditions and or potential contaminants specifically referred to in this report have been considered. To the extent permitted by law and except as is specifically stated in this report, ERM makes no warranty or representation about:

- The suitability of the site(s) for any purpose or the permissibility of any use;
- The presence, absence or otherwise of any environmental conditions or contaminants at the site(s) or elsewhere; or
- The presence, absence or otherwise of asbestos, asbestos containing materials or any hazardous materials on the site(s).

- Use of the site for any purpose may require planning and other approvals and, in some cases, environmental regulator and accredited site auditor approvals. ERM offers no opinion as to the likelihood of obtaining any such approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environment works.

The ongoing use of the site or use of the site for a different purpose may require the management of or remediation of site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.

This report should be read in full and no excerpts are to be taken as representative of the whole report. No responsibility or liability is accepted by ERM for use of any part of this report in any other context.

Except to the extent that ERM has agreed otherwise with the Client in the Scope of Work or the Contract, this report:

- Has been prepared and is intended only for the exclusive use of the Client;
- Must not to be relied upon or used by any other party;
- Has not been prepared nor is intended for the purpose of advertising, sales, promoting or endorsing any Client interests including raising investment capital, recommending investment decisions, or other publicity purposes;
- Does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in or in relation to the site(s); and
- Does not purport to provide, nor should be construed as, legal advice.



APPENDIX A HERITAGE LISTINGS

Place Details

[Send Feedback](#)

Australian Cornish Mining Sites: Burra, Barrier Hwy, Burra, SA, Australia

Photographs



List National Heritage List

Class Historic

Legal Status [Listed place](#) (09/05/2017)

Place ID 106304

Place File 3/08/042/0012

No

Summary Statement of Significance

The former copper mine at Burra represents a milestone in Australia's history of mining. During the nineteenth century the scale and richness of the copper mine at Burra marked the beginning of a mining industry.

Using technology and skills transferred from Cornwall to Australia, the 'monster mine', for the first ten years of its life was the largest mine in Australia. Copper wealth at this time was a critical revenue needed for the survival of the then new colony of South Australia. From 1850 to 1860 the Burra mine produced five percent of the world's copper. South Australia soon became known as the Copper recognition of its substantial industrial development focused on copper mining and the export of copper overseas.

The surface and underground mining operations at the Burra mine were mainly Cornish in nature. Smelting skills, technology and equipment were also imported from Wales and operated by Welsh experts. Cornish technology and skills transferred to Australia and demonstrated at Burra were essential aspects in the establishment of Australia's first copper mines. The Cornish steam engine, as revolutionary, enabling for the first time the mining of metals at depths not previously possible. The deep rock mining skills brought to Australia by Cornish miners also facilitated the further expansion of Australia's mining industry.

The Cornish Steam engine and its use in the copper mines of South Australia also demonstrates the early course and pattern of Australia's industrialisation. Burra and Moonta former mine areas in remaining evidence of these Cornish machines and their application in Australia in the mid to late nineteenth century.

Burra is of outstanding heritage significance to Australia because of its very high capacity to demonstrate this major national industrial milestone. At Burra copper mining was of a substantial scale other previous smaller copper mines. The transfer of Cornish mining skills and technology is best demonstrated here more than any other place in Australia.

Official Values

Criterion A Events, Processes

The 'Burra' copper mine operated profitably for thirty two years from 1845 to 1877. This mine was one of the early and first copper mines in Australia, established following finds of copper in 1841. The copper mines at Burra and Kapunda (a much smaller mine) mark the beginning of Australia's base metal mining industry.

This new form of deep, hard rock mining required new skills and technology not then present in Australia. Mining for copper required the skills of miners who knew how to establish mines and to run them in a way which created the best return for the effort and cost required to access the ore body.

Cornish technology, embodied in the steam engines, work practices and ore processing methods applied in the early copper mines of South Australia, was critical to the establishment and ongoing viability of these mines. The application of steam power in particular was essential. Without steam power copper mining was impossible. Over the course of the nineteenth century Australia built a pre-industrial agrarian based society and economy to one which was rapidly industrialising. At Burra, Cornish miners established a system of mining on a 'greenfield' site, transplanting from world's most advanced centres of machine innovation (Cornwall) an emergent form of industry which was being shaped by a new revolutionary machine, the steam engine.

South Australia's colonial relationship with Britain enabled access to Britain's steam engine technology which at the time was protected to prevent transfer to competitor nations. Steam power 'improving' technology - it was revolutionary. The power of one boiler for example replaced the power of one thousand men.

Burra is of outstanding importance because Burra remains, with Moonta, one of only two areas in Australia where Cornish mining technology, skills and culture is demonstrated to a high degree. Burra represents the Cornish mining system's successful transplantation in Australia.

Features which express these values include an outstanding collection of nineteenth century civic, residential, church and Cornish mining built structures, all located within the former villages of Aberdeen, Aberdeen, Llwchwr, Hampton) and mine at Burra.

In relation to the demonstration of Cornish mining technology, skills and practice the following items in or near to the Burra Mine Area are significant including but not limited to the former Ore Sorting Floor, the former Crusher Chimney (Cornish), the former Morphet's Pump House, the former Engine/Crusher House, the former Mine Manager's Dwelling and Office, the former Graves Pump House, the former Haulage Engine Chimney (Welsh), the former Powder Magazine, Peacock's Chimney (Cornish), the former SA Mining Association Store Room, Yard and Wall and the former SA Mining Association Storeman's Dwelling (Market Street).

The Burra Mines Historic Site as a whole is also significant as a place which on the surface and underground demonstrates the layout of surface and underground mining operations. The remaining shafts including but not limited to Morphet's shaft, Hector shaft and Waterhouse Shaft with their connecting horizontal levels are significant for their ability to demonstrate underground mining association with the arrangement of surface mining structures.

In relation to the demonstration of smelting technology used to improve the economic viability of the mine, the following items in the Smelter area to the east of the Burra Mine Area are significant but not limited to the Former Burra Smelteryard and Storehouse, the former Burra Smelts Historic Site (including Smelter Ruins, Smelter Furnace Ruins, Smelts Manager's Residence and Office) and former Smelts Superintendent's Dwelling and Wall.

In relation to the demonstration of the Cornish miner's living conditions and ways of life which enabled them to mine, the following items are significant including but not limited to the former Burra Mine (tributary of Burra Creek), the former Dugout Sites (Burra Creek), the small, attached dwellings on Truro Street in Redruth (street numbers 8, 9, 10, 11, 12, 13, 14, 16 and 18), the stone cottage Upper Thames Street in old Kooringa (street numbers 2, 4, 6, 8, 10, 12, 16), the former Burra Primitive Church (9 Upper Thames Street), the Paxton Square cottages (33), the former Burra Bill Chapel (Kingston Street), the former Smelter's Home Hotel (SAHR 10419 ' Market Street), the Burra Hotel (SAHR 10404 ' Market Street), the former Burra Salvation Army Citadel (11 Kingston Street), the former 1840s timber dwelling (39 Commercial Street ' SAHR 10434) and Burra Town Hall (original Miners' and Mechanics' Institute). While the Cornish miners were mostly Methodist in faith the former Anglican Churches are significant for their representative demonstration of the importance of religion in these miner communities including St Mary's Anglican Church and St Mary's Anglican Church.

In relation to the demonstration of the speculative nature of mining operations, the former Bon Accord Mine Buildings (SAHR10023) are significant including but not limited to the 1859 mine blacksmith's forge, carpenter's shop and a manager's residence. The following additional features also reflect the Cornish influence within the town of Burra including but not limited to the stone wall on the east side of Commercial Street and Ware Street, Burra (SAHR 10435) and the stone wall located on the west side of Commercial Street (SAHR 10436) in Burra.

Burra is distinctive in its development from a group of smaller townships including Kooringa (Company town), Redruth (Government surveyed town), Aberdeen (Scottish speculators), New Aberdeen (association), Llwchwr (Welsh Smelter workers) and Hampton (new mining settlement named after the assayer at the smelting works). The names of these townships reflect the mining history and the haphazard nature of its development as a mining settlement. The Hampton Township Precinct (SAHR 10359) represents the impact of the decline of the mine and the consequent loss of population. The Burra Mine closed in 1877. The features of significance include but are not limited to Jacka House, the remnant street and allotment layout, fences, walls and remnant stone domestic built structures. Introduced trees such as almond, pine, olive and pepper trees and the remains of the quarries that provided stone for the dwellings.

Burra Cemetery (SAHR 10432 Spring Street, Burra) is also significant as a place which, through the headstones within the cemetery, chronicles the lives and misfortunes of the mining community. These stories are valued as an important complementary record of the life of Cornish miners in Burra.

Criterion F Creative or technical achievement

At Burra, Cornish miners established a system of mining on a 'greenfield' site, transplanting from Cornwall - one of the world's most advanced centres of machine innovation - an emergent form of industry which was being shaped by a new revolutionary machine, the steam engine. Welsh smelting technology was also successfully established at the mine soon after its establishment.

This achievement created a 'prototype' system which could then be repeated and applied in other later significant mining ventures such as Broken Hill in NSW, Bendigo in Victoria, Kalgoorlie in South Australia and Charters Towers in Queensland. Cornish mining traditions continued to be used and improved as Cornish miners moved from one mine to another across the country. This achievement also played an important role in the evolution of Australia's industrialised modern economy.

Features which express these values include the remnant mining structures within the Burra Mines Historic Site (SAHR 10970) and all of the significant features listed under criterion (a).

Description

The place comprises the Burra Mines State Heritage Area including the Burra mine area and the surrounding collection of small historic town settlements associated with the Burra mine. The Burra mine contains one of the earliest major smelting works established in Australia.

Burra is made up of a number of former past townships. Kooringa was the company town settled just to the south of the mine. Redruth was one of the government townships laid out in the 1850s; New Aberdeen and Hampton was one of the privately surveyed villages built to accommodate miners returning from the gold fields in the 1860s. Aberdeen and New Aberdeen were established by Scottish speculators who hoped the mine would extend north. This extension failed to materialise. All these areas contain surviving architecture and archaeological remains dating from a period of Australia's early copper mining (1845-1877).

The Burra Mines Historic Site is within the Burra State Heritage Area. It is west of Burra Creek, between Burra and North Burra (the old townships of Kooringa and Redruth and Aberdeen), and includes the remaining structures of the former Burra "Monster Mine". This area retains much of Burra's significant mining heritage and includes both the early underground workings and the open-cut mine face at the site. The open cut mine feature is a product of a later period of mining undertaken in the 1970s. The barren landscape also contains the 'artificial hills' of mine tailings, as well as abandoned built structures and archaeological sites.

History

Indigenous history

The Ngadjuri people are the Traditional Owners of the mid north region of South Australia, including the area now known as Burra. Aboriginal people have used the terrain from Burra to Broken Hill over thousands of years. Archaeological evidence of the Ngadjuri's engagement with their land includes campsites, economic sites, such as where tools were made, quarries, stone arrangements, sac burials, rock engravings (petroglyphs) and painting sites. Several sites in the area represent major gathering places that demonstrate multiple activities, including, domestic, economic and ceremonial (Warrior et al, 2005:67;67).

In 1834 the South Australia Act, also known as the Foundation Act, was passed in the British Parliament. This Act made provision for 300,000 square miles to become the territory in which British began the colony of South Australia. The territory was described as 'waste and unoccupied'. However, the Letters Patent related to the Act that was issued in 1836, said that nothing could be done which would "affect the rights of any Aboriginal natives of the said Province to the actual occupation or enjoyment in their own persons or in the persons of their descendants of any lands therein now actually enjoyed by such natives." (Cunneen and Libesman 1995 in Warrior et al, 2005:73).

The South Australia Act had precedence over the Letters Patent, which appears to have been largely ignored as squatters took land and later sought title for it. Early attempts were made to establish relationships with the Ngadjuri people which included the appointment of a Protector of Aborigines in 1836. Missionaries were sent to teach Christianity and ration stations were set up to issue biscuits and blankets (Raynes 2002: 7-10).

The Mid North region was one of the first areas in South Australia settled by Europeans after colonisation, due to its suitability for farming. Dispossession of Aboriginal people from their land event resistance. Resistance in the area included taking animals, pulling down fences and lighting bushfires (Warrior et al 2005:77). Auhl (1986:233) states that during the exodus of miners from Burra to gold rush in the 1850s, the Ngadjuri took the opportunity to hasten the departure of Europeans and became "more insolent and aggressive". However, the Ngadjuri also filled the labour shortage, as Protector of Aborigines reported that there were over 20,000 sheep in the charge of Aboriginal shepherds.

Mining

The discovery of silver lead ore, was made in the Adelaide suburbs in 1841 (Both & Drew 2008). With the discovery of minerals, it became South Australian practice to recruit experienced teams of men from Cornwall to open new mines; this also happened at Kapunda in 1844, and at Reedy Creek (Tungkillo) and Glen Osmond in 1847.

There is a strong historical connection between the Cornish in Australia and the mining industry, but South Australia's Cornish community was established before any metalliferous mining industry on the Australian continent. The utopian free-enterprise ethos of early South Australia attracted a high proportion of immigrants from Cornwall and the West Country generally, where the Methodist faith liberalism and anti-establishment beliefs had a strong following. One in ten applications for passage to South Australia in the first five years of the introduction of the free Migration Scheme – representative families – came from Cornwall (Migration Museum 1995: 97); 3-4% of today's Australians claim Cornish descent (Cornish Association of Western Australia 2014). Even before a single mine had been opened, the population of South Australia was about 8-10% Cornish-born, the largest enclave of Cornish immigrants in Australia (Payton 1984: 12). Precisely because these immigrants included a large number of experienced miners, they were able to play a major role in establishing enterprises very early in South Australia's history (Blainey 1969: 106).

In 1842, regulations were introduced stipulating that the minimum amount of land that could be purchased in unsurveyed districts was 20,000 acres at one pound per acre. This became, therefore, the minimum amount of land that could be purchased in unsurveyed Crown land. Four such special mineral or "Monster Surveys" were made and purchased before the system was abolished in 1851. Those were Burra Creek and Mt. Remarkable and Reedy Creek in 1846. The first discoveries of minerals outside the surveyed districts were near Burra Burra Creek in 1845, by two shepherds at two separate localities. To acquire the mineral rights, the Burra Creek Special Survey was jointly purchased in late 1845 by two parties that were formed to raise the purchase sum of £20,000. These parties were the South Mining Association (SAMA) and the Princess Royal Mining Company (PRMC). After purchase, the survey, measuring eight miles by four miles, was laid out to incorporate the two discoveries, one in each lot were drawn to determine ownership of the two halves. SAMA gained the northern half and what was to become the Burra Burra Mine (Fuss & Satchell 2011: 4).

The nature of the mine's foundation significantly influenced the development of the settlements on and around it. The settlement patterns of the Burra Burra became strikingly different from those in the Copper Triangle districts on the Yorke Peninsula. Rather than being a planned town, the Burra Burra comprised a cluster of towns during the mining era (and, indeed, for much of the following century) around the mine property of the SAMA (Auhl 1986: 4). Kooringa was the first and largest settlement, located south of the mine site entirely on the mining company's land. Allotments could only be obtained on a maximum 21-year lease. This had profound implications for the physical and social development of the township, and its residential and commercial properties, as individuals were not prepared to invest in substantial houses or business premises until they could obtain freehold. As a result, none of the better quality houses in the town were erected before 1870. There were also doubts over the value of the mine as there seemed to be no regular stratification in the copper seams (Fisher 1851: 11).

Other townships developed adjacent to the northern boundary of the SAMA company property. This included the government township of Redruth, laid out on a grid pattern centred on a Police Reserve which contained a police station built in 1847. Several other speculative private townships were also laid out, including Aberdeen, Llwchwr and Hampton (Auhl 1986: 101). In 1876, the three main townships of Redruth and Aberdeen, were formed into the Corporation of the Town of Burra but retained their separate identities until 1940, when the name Burra was officially adopted. This settlement pattern is evident in present-day cadastral plans and aerial photographs.

Even at Redruth and the township of Hampton, where freehold was available, there were few substantial homes before 1870 and certainly none at Hampton. Miners were wary of investing in a town which might have only a brief life (Fisher 1851: 11). Freehold only became available in Kooringa from 1869, when mine income was failing and the company saw that selling the land (while retaining the mine) would best serve its interests.

For most of the life of the mine, the town had no local government at all and, hence, virtually no capital investment in normal town amenities. Only when the mine faced closure did the SAMA decide to improve the town would increase its value as an asset. Neither did the townsfolk generally want local government if it meant merely paying rates to improve the value of the mining comparison rather than their own. When the government did lay out the grid pattern township, it was at Redruth immediately north of the mine property, a convenient location for such government institution as a station, lock-up, stables, court and gaol.

Hampton was subdivided in 1857, next to the local quarry. It consisted of about 30 dwellings and a Bible Christian Chapel (Government of South Australia 2014n: 4-5), and was largely occupied by returned miners from the gold fields in Victoria in the 1860s (Auhl 1986: 101). Hampton lay beyond the reach of the 1880s water supply and also of the 1920s electrification. It contributed little to the town's revenue and so received virtually no capital investment in roads, drainage, kerbing or footpaths. Over a century, it gradually withered away to become a ghost town (Auhl 1986: 101). Its relative remoteness contributed to its decline; but this, in turn, meant it was virtually untouched by any modernisation or modification and was not redeveloped for other use.

The biggest mines naturally attracted the largest concentrations of Cornish miners (Auhl 1986: 1). The discovery of the Burra Burra copper deposit in 1845 set in train what was becoming the usual pattern of mining in the colony. Captain Roberts, the Cornish manager of a small mine in the Adelaide Hills, was recruited along with a team of nine experienced Cornish miners to open the mine. "The Monster Mine" proved to be more than any earlier discovery, bringing fabulous wealth to the shareholders and the colony in general. "Copper Roads" were constructed between 1845 and 1870 to export the copper (Fuss & Satchell 2011: 2) to England but to Singapore, Calcutta, Bombay, Madras, Batavia and Mauritius (Auhl 1986: 11).

The operations attracted an influx of Cornish miners already in the colony and prompted a recruiting drive to bring more from Cornwall (Birt 2001: 11). Cornish miners knew how to excavate with fire and explosives, to design safe and efficient underground workings, to recognise valuable ore, to extract it and raise it to the surface for crushing and processing. Their boots and tools, helmets and candles, their systems including "Tutwork" (payment was dependent upon the volume of ground dug) and "Tribute" (whereby a miner or group of miners was remunerated according to the value of the ore) and their management structure, industrial relations, company finances, book-keeping, language and folklore, all arrived with them from Cornwall (Fisher 1851: 8; Auhl 1986: 83). As the mines went deeper, more machinery from Cornwall to pump out water and raise ore. For fifty years the Cornish mines in Cornwall had been the world leaders in steam-powered industrial technology, and steam engines and Cornish foundries were exported all over the world.

The Burra workforce had grown to over 2,000 people by 1850 and it became the largest inland town in Australia (Auhl 1986: 1). Henry Roach from Redruth in Cornwall was appointed mine captain and surrounded with staff whose surnames identify their Cornish origins: Osbourne, Trevorrow, Andrewartha, Tremewan, Santo, Boswarva, Spargo, Tregear (Payton 2007: 43-4). The Burra Burra industrial landscape that arriving Cornish immigrants recognised instantly: tall stone engine houses with their enormous slow-moving iron bobs working the pump rods in the shafts and boiler houses tall characteristically Cornish, round stone and brick smokestacks. There are ten Cornish engine houses still standing in Australia out of 33 built during the nineteenth century (Drew & Connell 1999) whose are still standing within the Burra Mines, and the archaeological remains of more also survive. All the boilers, engines and pumps came from foundries in towns like Hayle, Cranbourne and Cornwall (Birt 2001: 11). Immigrants also recognised the landscape of the town alongside the mines. The housing, mostly small attached and row cottages and the simple Methodist chapels were model buildings of the mining towns of Cornwall (Fisher 1851: 4-6). The entire culture of a Cornish town was present: the social structure, religion, politics, educational practices, cuisine, sport and recreation music and burial practices.

The railway arrived in 1870; and it was hoped, in vain, that the reduced transport costs would enable the mine to remain viable despite falling copper prices and rising costs of raising ore (Auhl 1986: 403). The goods platforms originally included an ore platform (Auhl 1986: 403), and the size of the station reflected the town's importance as it made the transition from mining town to rural agricultural settlement (Fuss & Satchell 2011: 88). The stripping of the bush to service the mine had created a cleared landscape ripe for agriculture and the construction of the copper transport network had opened up South Australia north. Burra was on the main line to Broken Hill and, from 1917 to 1937, the line from Adelaide to Port Wakefield and Perth. From thereon, Burra's production was connected to the rest of the world.

Burra Charter

In 1979, the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance was adopted at a meeting of Australia ICOMOS in Burra (Government of South Australia 2014c). It was given the title of the 'Burra Charter'. The Charter defines the basic principles and procedures to be followed in the conservation of Australian heritage places. The Charter accepted the philosophy and concept

ICOMOS Venice Charter but developed and documented them in a form which would be practical and useful in Australia. The Burra Charter has been called Australia's most significant document of principles and procedures for the conservation of heritage places (Heritage Perth 2011).

The Cornish steam engine

Steam power was transformative. The introduction of the steam engine into Australia marks a significant milestone in the industrialization of Australia. Through its colonial relationship with Britain, transfers like the importation of the Cornish engine, were significant in enabling Australia to keep pace with the broader industrial transformation of Europe.

The Cornish engine was based on Watt's pumping engine with improvements made by Cornish engineers working in Cornwall. The effects of the Cornish Beam Engine on mining and ore processing were revolutionary and this revolution was transferred to Burra in the 1840s and Moonta in 1860s, Cadia Copper Mine in New South Wales in 1870s, and gold mines in Victoria in 1860s. It was during rapid development in steam technology that Australia moved into the industrial era as its early mining ventures became mechanised. Before this transfer of Cornish steam technology, Australia was an agricultural economy. This was the Industrial Revolution moving to Australia. As mining in Cornwall fell into terminal decline, South Australia became the largest producer of copper in the world (Drew 2011:12).

Cornish Mining Technology

In the early eighteenth century, Cornwall became the world's biggest producer of copper with the arrival of steam power. As Cornish mining boomed, Cornish engineers influenced the development of steam power. Most notable was Richard Trevithick, a Cornish engineer who pioneered the use of high-pressure steam and made great contributions to the efficiency of steam engines. Because of their high efficiency, these machines were installed for pumping in Cornish mines and exported worldwide. Cornwall became the major centre for the manufacture of engines and large horizontal boilers for the remainder of the nineteenth century. The period of greatest development was between 1825 and 1850, when a more or less standardised Cornish beam engine came into general use. At the peak of the Cornish mining boom between 1850 and 1860, hundreds of beam engines were working in Cornwall. Several large foundries in Cornwall manufactured these Cornish engines at that time (Drew 2011:19).

In the mid eighteenth century, the Cornish system of working mines was established along with the new techniques which allowed mining to progress underground. The form and arrangement of a mine depended on the nature of the mineral deposit to be excavated. Cornish mines worked tabular or rectangular mineral deposits known as veins or loads. Depending on the dip of the lode, a shaft was sunk vertically to the lode at a given depth or inclined following the lode. These shafts were rectangular and of two types; small winding or whim shafts which were often inclined or larger vertical engine shafts used for winding (Drew 2011:2).

Opening up the mine by sinking shafts and driving levels was called 'tut work', which prepared the lode for extraction of ore or tribute. Hence two kinds of mining activity were undertaken: development and ore extraction, which were generally carried out simultaneously. The Cornish system of mining was the first to develop the concept of ore reserve, which they called the 'eyes' and their removal was called 'picking out the eyes of the mine' (Drew 2011:3).

Governance and Management

The Cornish innovation is also evident in their associated traditional methods of mine management and employment systems. Cornish employment systems were known as 'Tribute and Tut work'. The method of working constituted and advanced the Cornish technical mining achievement. Tut workers were contracted by the fathom and the rate depended on the nature of the rock to be excavated. The other hand involved the excavation of ore and removal to the surface and was paid as a proportion of the value of ore mined. Individual Cornish miners organised themselves into self-selected teams which were usually four to eight men and/or boys. The underground workings were surveyed into blocks or pitches. Each pitch and tut work contract or take was numbered and let by public auction. Working Day for a period of two months.

Evidence of the application of the Cornish employment systems in South Australian mines is abundant in newspaper reports throughout the second half of the nineteenth century. There are advertisements for tut work bargains and tribute pitches at the Burra and Moonta mines in the late 1840s and 1860s. Detailed descriptions are provided of Survey Day at the Burra and Moonta mines which are similar to accounts from Cornwall (Drew 2011: 8).

Ore Dressing

The ore dressing process was first developed by Cornish miners in the eighteenth Century which initially involved breaking by hand (spalling) followed by hand picking. This was undertaken at the extensive dressing floors which were a characteristic feature of Cornish mines throughout the nineteenth century. In the early 1800s, mechanical improvements to rock breaking and concentration were introduced in Cornwall and soon this innovation became the standard technology at mines throughout the world during the next 100 years. Cornish beam engine technology was quickly adopted to technology. Cornish crushing rolls replaced hand picking and consisted of two cast iron rolls about 60cm in diameter running against each other. Ore was fed between the rolls, crushed and passed below but any undersized ore was lifted by a raft wheel and tipped back for re-crushing. Two storey Cornish crush houses were distinctive features of nineteenth century copper mining landscape and engine houses. More than 20 were erected at mines throughout South Australia including five at Moonta and Burra (Drew 2011:8).

Condition and Integrity

Burra is a town recognised for its mining heritage. The town and mine features vary in their condition. The town buildings are mostly in good condition and the remnant mining structures are mainly in poor condition. Burra Mines Historic Site. Many of these mining structures are remnant features in now a relict mining landscape.

All of the mining and town features noted are listed on the South Australian Heritage Register and are afforded heritage protection under South Australian law. All of the remnant surface mining features are in poor condition with variable maintenance.

Location

Approximately 640ha at Burra comprising the Burra State Heritage Area (Heritage Number 27549 and State Heritage ID 16183) designated as a state heritage area in 1993.

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State Heritage Areas of South Australia



Burra Railway Station Complex (building, water columns and tank)

Railway Terrace, Burra

SAHR 10009 – confirmed as a State Heritage Place 8 November 1984

The present station building was erected in 1883, and replaced the wooden and corrugated iron structure built in 1870, when the railway finally reached Burra.

The original arched roof over the tracks and platforms was retained at this time, but later demolished in 1935. The cast iron water tank and the water columns are adjacent to the station building.

The opening of the railway from Roseworthy to Burra in 1870, culminated a series of proposals that finally linked the copper mining town with its ultimate shipping point (Port Adelaide). It unfortunately also coincided with a decline in productivity and world copper prices. Despite desperate attempts, such as open-cut mining, to revive the Burra Mine, it finally closed in 1877.



Burra Railway Station, 1993



Burra Station, 2005

The railway line, known as the Northern Extension Railway, was built in two sections, from Roseworthy to Forresters, and from Forresters to Burra.

Work on the Burra end of the line started in 1865, with five contracts let for earthworks along its length. The Burra terminal section was let last, because of indecision about the site of the station.

Known for some years as the Aberdeen Station, the Burra Station was eventually located near the Bon Accord Mine, and was opened on 29 August 1870.

More than 3 000 people attended the opening, which involved the arrival of two trains from Adelaide, one of which carried the Governor, Sir James Fergusson. After the opening, the guests were entertained at a luncheon in the decorated goods shed, followed by a concert, and a ball later in the evening.

Economy had been the keynote for buildings constructed along the line, hence the use of timber and corrugated iron for the station.

By 1883 the wooden building at Burra proved inadequate for the large numbers of passengers passing through the station. This new Victorian-style station, complete with refreshment rooms, was built by October of that year.

The refreshment rooms were closed on 1 July 1936.



Platform & water column, 2005



Place Details

[Send Feedback](#)

Burra Railway Station Water Columns & Tank, Railway Tce, Burra, SA, Australia

Photographs



List	Register of the National Estate (Non-statutory archive)
Class	Historic
Legal Status	Registered (21/10/1980)
Place ID	16576
Place File No	3/08/240/0035

Nominator's Statement of Significance

The Railway Station, Water Columns and Tank are important because they contributed to the expansion of the railway system to the north of the State, to an important transportation link for agricultural production at the time of the Railway's arrival in 1870. The Railway Station is an important example of a country rail terminal in the Victoria style. The Railway Station contributes to the historic character of Burra, particularly in its own immediate context.

Official Values Not Available

Description

A most attractive building with repeating gables and unusual wave form verandah, decorative chimneys and quoins contrasting features with dark stone walls. Construction is ashlar coursed squared rubble, rendered brickwork details, corrugated iron gable roofs, timber and iron verandah.

History Not Available

Condition and Integrity

No obvious defects, well maintained..

Location

Railway Terrace, Burra.

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APPENDIX B CONSULTATION LOG



ERM

Date	Method of contact by ERM	Stakeholder	Discussion/reason for contact	Consultation outcome
17/07/2023	Face to face	Tim Phillips – Owner Bon Accord Hotel	Lorien Perchard met with Tim Phillips at the Bon Accord Hotel during the transport route field survey for Pinch Point 8.	Tim advised that the tree for removal is believed to have been part of a series of plantings of Pepper Trees during the mid-late 19 th century in Burra. The trees were planted to provide some cover following mass land clearing to make way for the Bon Accord Mine and the town’s agricultural growth.
17/07/2023	Email	Tim Phillips – Owner Bon Accord Hotel	Tim emailed Lorien to provide a series of historic photographs of the Bon Accord and the Burra Railway.	No response required.
27/10/2023	Call	Ruth – Burra Railway Station B&B manager	Left a voicemail to Ruth at the Burra Railway Station, to please get in touch to confirm the trees heritage status along Copperhouse Street near the original station turntable.	Did not receive a response.

Date	Method of contact by ERM	Stakeholder	Discussion/reason for contact	Consultation outcome
2/11/2023	Email	Tim Phillips – Owner Bon Accord Hotel	<p><i>Hi Tim, I hope you are well. I am reaching out as ERM are preparing a heritage impact assessment for a pinch point along The Plains Renewable Energy Park transport route that is located in Burra, SA. The pinch point intersects the Bon Accord on its western side, specifically it might require the removal of a tree in order to allow for the blade swing. I believe you met Lorien during her site inspection and have passed on some wonderful photos of the Bon Accord and the train station. Thank you! What we want to ensure is that the removal of the tree has no impact to any potential heritage values of the Bon Accord. We understand that the Bon Accord is not locally listed. We just wanted to make sure we're covering our bases.</i></p> <p><i>The tree in question is the pink peppercorn on the corner of West St (below). Please let me know if you have any concerns.</i></p>	Did not receive a response.



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