



# Cannie Wind Farm

## Preliminary Historic Heritage Assessment

PREPARED FOR



RES Australia Pty Limited

DATE

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SIGNATURE PAGE

# Cannie Wind Farm

## Preliminary Historic Heritage Assessment

0697734



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## ACRONYMS AND ABBREVIATIONS

Acronyms	Description
AC	Alternating Current
AH Act	<i>Aboriginal Heritage Act 2006</i>
AH Regulations	<i>Aboriginal Heritage Regulations 2018</i>
BESS	Battery Energy Storage System
Burra Charter	The Australia International Council for Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance (2013)
Cannie	Cannie Wind Farm
CHL	Commonwealth Heritage List
Council	Gannawarra Shire Council
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
EES	Environment Effects Statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ERM	Environmental Resources Management Australia Pty Ltd
GW	Gigawatts
ha	hectare
ICOMOS	International Council on Monuments and Sites
ha	Hectares
Heritage Act	<i>Heritage Act 2017</i>
HO	Heritage Overlay
HRHP	Hogans Road Historic Place
HV	Heritage Victoria
km	Kilometres

<b>Acronyms</b>	<b>Description</b>
km <sup>2</sup>	Square kilometres
kV	Kilovolt
NHL	National Heritage List
m	Metres
mm <sup>2</sup>	Square millimetres
MNES	Matters of National Environmental Significance
MW	Megawatts
O&M	Operations and Maintenance
Project	Cannie Wind Farm
RAP	Registered Aboriginal Party
Referral Area	The Project area being referred under the EPBC Act and the EE Act
RES	RES Australia Pty Ltd
RNE	Register of the National Estate
Study Area	The Project area being assessed, which for some assessments may include an additional buffer area
VHI	Victoria Heritage Inventory
VHR	Victorian Heritage Register
WHL	World Heritage List
WTGs	Wind Turbine Generators

## EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd was engaged by RES Australia Pty Ltd to prepare a Preliminary Historic Heritage Assessment for the proposed Cannie Wind Farm, near Kerang in northwestern Victoria. This report presents the results of the Cannie Wind Farm site only and excludes the Transmission Corridor Study Area.

Background research and historic heritage register searches indicated no previously recorded sites within the Project Area, however, previous heritage investigations undertaken for this Project identified historic heritage material, including structural remains of a building, and a scatter of glass and ceramic fragments. The site was recorded by ERM as 'Hogans Road Historic Place (**HRHP**)' and the artefact typology suggests a late 19<sup>th</sup> or early 20<sup>th</sup> century date. The site is likely to have local archaeological significance, and as such, would meet the threshold required to be included in the Victorian Heritage Inventory. ERM recommends that additional assessment be carried out to ascertain the extent of the historical site and provide a detailed analysis on potential impacts to the heritage should the area not be possible to avoid.

The Cannie Wind Farm footprint as it is currently proposed will not impact HRHP and has a low likelihood to impact significant unknown historic heritage and historical archaeology across the balance of the Project Area. ERM has provided a series of mitigation recommendations, that include:

- *Site Card Preparation / VHI Registration*

A site card must be prepared for the Hogans Road Historic Place in accordance with Section 127 of the *Heritage Act 2017*:

*Reporting of investigations and surveys of land*

*(1) If an archaeological site is discovered during an investigation or survey of land for a relevant survey purpose, the person undertaking the investigation or survey must provide a site card to the Executive Director within 30 days after the discovery.*

The site card needs to be submitted to Heritage Victoria together with the relevant spatial information as soon as practicable. The site card would be evaluated by Heritage Victoria and, on approval, the site would be listed on the Victorian Heritage Inventory register.

- *Hogans Road Historic Place Area Avoidance*

The area containing and around Hogans Road Historic Place should be avoided by Project-related activities. If harm cannot be avoided, then a consent may be required from Heritage Victoria to impact the site if it becomes listed on the Victorian Heritage Inventory register. This consent may require a detailed archaeological investigation of HRHP and the surrounding area.

If Hogans Road Historic Place is not included on the VHI register, then no avoidance measures or consents would be required to carry out the works at this location.

- *Preparation of an Unexpected Finds Procedure and Historical Heritage Induction, and inclusion of these in the Project's Construction Environmental Management Plan for the Project Area.*

# 1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (**ERM**) was engaged by RES Australia Pty Ltd (**RES**) to seek the approvals required to support the development and delivery of the Cannie Wind Farm. This report presents the results of a Preliminary Historic Heritage Assessment of the Cannie Wind Farm site only and excludes the Transmission Corridor Study Area. A separate Preliminary Desktop Heritage Assessment has been prepared for the Transmission Corridor Study Area (ERM, 2024).

## 1.1 PROJECT DESCRIPTION

### 1.1.1 PROJECT OVERVIEW

The Cannie Wind Farm project (the **Project**) is located in the north-west region of Victoria approximately 33 kilometre (**km**) west of Kerang and 25 km south of the Murray River. The Project Area comprises the Cannie Wind Farm site and the Transmission Corridor Study Area. The total Project Area is 82,606 hectares.

The Cannie Wind Farm site has an area of 17,870 hectares (178.70 km<sup>2</sup>). It will accommodate up to 174 wind turbine generators (**WTGs**) with ~ 1,300 MW generation capacity. The development will also include a Battery Energy Storage System (**BESS**) with up to 200 MW / 800 MWh storage capacity. The wind farm site will connect to the Victoria to NSW Interconnector West project (**VNI West**), being delivered by Government, through the Transmission Corridor Study Area which has an area of 64,728 ha (647.28 km<sup>2</sup>).

The Project is targeting construction commencement in 2027 and operations in 2030.

### 1.1.2 SITE DESCRIPTION

The Project is proposed to be located in the Loddon Mallee region of north-west Victoria, approximately 33 km west of Kerang and 25 km south of the Murray River, which runs along the Victoria-New South Wales border. The nearest township is Quambatook, located approximately 9 km southwest.

The Avoca River demarcates the south-eastern boundary of the Wind Farm Area. The landscape within the Project Area is predominantly characterised by large open paddocks and cropping fields, roadside vegetation, and existing infrastructure including road reserves. Much of the remnant vegetation is altered and degraded.

The Project site includes several state and local government managed roads including Kerang-Quambatook Road, Quambatook-Swan Hill Road, Normanville Road, and Dumosa-Quambatook Road. The Transmission Corridor Study Area traverses the Robinvale Railway Line via the Quambatook railway station which is a freight railway line.

The conceptual design and layout of the Project are provided in *Figure 1-1 (Project Locality)* and *Figure 1-2 (Indicative Project Layout)*.

### 1.1.3 CONCEPT DESIGN AND LAYOUT

#### 1.1.3.1 CANNIE WIND FARM SITE

The Cannie Wind Farm will consist of the following elements:

- Up to 174 WTGs (maximum turbine tip height assumed to be 280.5 m in height);

- Internal access tracks;
- Operations and Maintenance (**O&M**) building and associated carparking;
- Up to 3 onsite substations;
- Site entrance(s) and access points;
- Turbine foundations and hardstands;
- Business identification signage;
- Underground cabling;
- Overhead transmission lines; and
- One battery energy storage system.

### 1.1.3.2 TRANSMISSION CORRIDOR

Three transmission corridor options are currently being investigated. The selection of the preferred corridor will be informed through engineering design, environmental investigations, and stakeholder feedback. The final easement will generally be 70 m in width and cleared of trees and any existing structures to facilitate maintenance access in operations.

The three corridor options being investigated include:

- **Option A:** located west of Bort-Quambatook Road and supports connection to the VNI West in from the south west.
- **Option B:** located directly south-east of the Referral Area and supports connection to the VNI West from the south-east.
- **Option C:** located east of the Project and supports connection to a new substation (to be delivered by others and not part of this Project) proposed to be located near Tragowel as part of the VNI West works.

### 1.1.4 TEMPORARY INFRASTRUCTURE AND CONSTRUCTION ACTIVITIES

Ancillary infrastructure and works expected to support the construction delivery of the Project include:

- Site establishment works including temporary site fencing and hoarding, site offices, and hardstand and laydown areas;
- Fencing and hoardings;
- Earthworks including cutting and spoil removal, and formation of drainage works;
- Constructing and using temporary onsite quarry;
- One guyed lattice meteorological mast structure, in the Wind Farm Area only.
- One or more concrete batching plants may be constructed in the Wind Farm Area only.

### 1.1.5 OPERATIONAL ACTIVITIES

The operations phase will include operation and management of the Project, and periodic inspection and maintenance activities. Remote operational monitoring and environmental monitoring programmes are also expected to be undertaken.

Periodic inspection and maintenance activities may include:

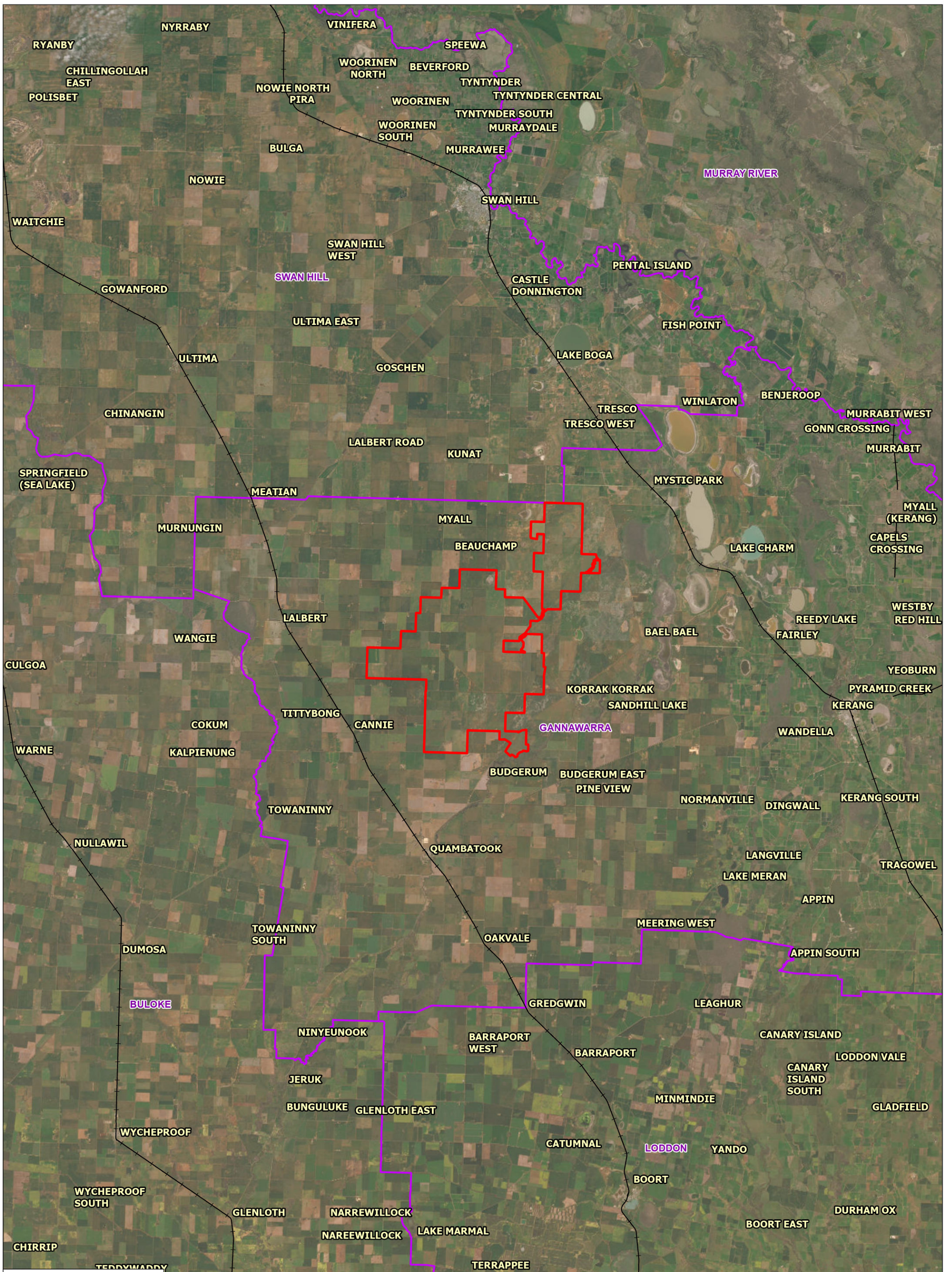
- Maintenance and remote monitoring of the Project's permanent infrastructure.



- Ongoing maintenance of relevant facilities on-site, predominantly associated with scheduled maintenance events or the ad hoc repair and replacement of equipment, structural components, access tracks, buildings and plant, control systems, connections, and cabling.
- Undertaking relevant administrative tasks.
- Ongoing environmental monitoring and reporting for the Project in accordance with the relevant approval conditions.

The Project will have an operational life of 30 years based on current industry standard design life, with the potential for extended operation life where technologies advance. There may also be the option to replace the existing turbines with new ones at end of life and re-power.





**Legend**

- Highway
- Road
- Railway
- Project Area
- Local Government Area



Coordinate System:  
GDA2020 MGA Zone 54

Date: 04/03/2024

Created By: CS

Drawing Size: A3

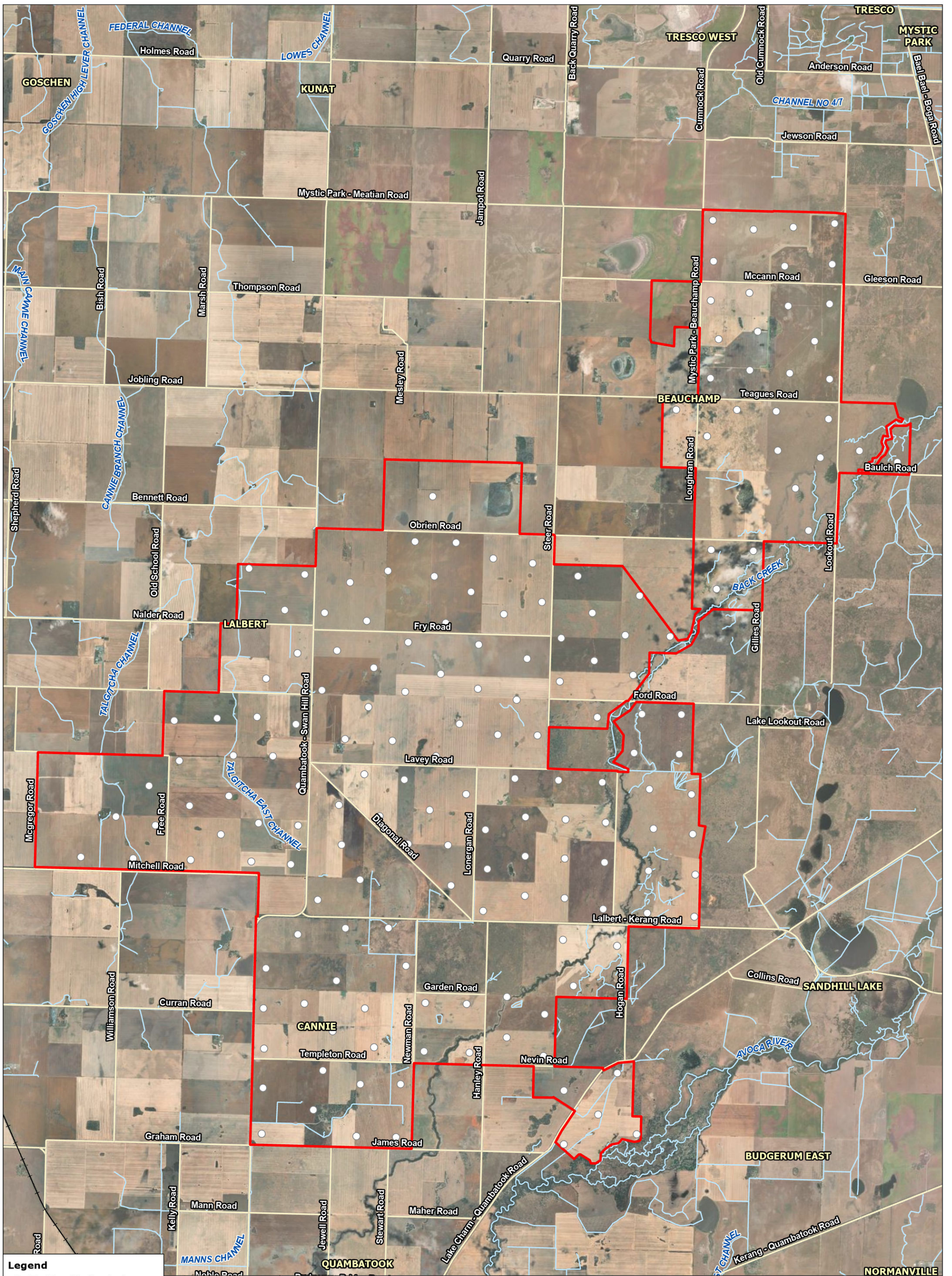
0 2 4 6KM

1:300,000

**F1-1 Project Locality**

**Cannie Wind Farm**  
RES Australia Pty Limited





**Legend**

- Turbine (Indicative)
- Railway
- Highway
- Road
- Major Watercourse
- ▭ Project Area



Coordinate System:  
GDA2020 MGA Zone 54

Date: 04/03/2024

Created By: CS

Drawing Size: A3

0 0.8 1.6 2.4KM

1:80,000

**F1-2 Project Layout**

**Cannie Wind Farm**  
RES Australia Pty Limited



## 1.2 AIMS AND SCOPE

This PHHA aims to identify potential Project risks and constraints relating to identified historic heritage values of the Cannie Wind Farm site only and excludes the Transmission Corridor Study Area. The scope of this assessment comprises the following:

- address any gaps identified in previous heritage reporting for the Project;
- identify the heritage and potential historical archaeology values of the Project Area and other listed heritage items in the vicinity of the Project Area;
- assess the potential impacts on the identified and potential historical heritage values;
- provide recommendations and mitigation measures to assist RES in developing the Project design to avoid or minimise potential impacts and mitigate significant risks to heritage values; and
- identify the statutory requirements and provide 'next steps' for approvals pathways (as required).

## 1.3 METHODOLOGY

This PHHA has been prepared using the following methodology:

- Undertaking of a gaps analysis of previous heritage assessment and reporting for the Project Area, specially:
  - Umwelt (Australia) Pty Limited (2022) Kerang Wind and Solar Farm: Cultural Heritage Phase 1 Assessment – Preliminary Constraints*
- Review of relevant statutory (Commonwealth, State and Local government) and non-statutory heritage database and mapping systems to identify the existing registered historic heritage values within the Project Area with a 10 km buffer applied to the boundaries of the Project Area, including:
  - Australian Heritage Database ([Commonwealth Heritage List (**CHL**), National Heritage List (**NHL**), World Heritage List (**WHL**), and Register of the National Estate (**RNE**)];
  - Victorian Heritage Database [Victorian Heritage Register (VHR) and Victorian Heritage Inventory (**VHI**)];
  - VicPlan information service and online map viewer (Local Planning Schemes Heritage Overlays); and
  - Colonial Frontier Massacres Database (University of Newcastle).
- Preparation of a site and land use history undertaken via a review of the following sources:
  - digitised historical parish maps available from the State Library of Victoria collection;
  - historic aerial photographs available from Landata and MapShare;
  - publicly available heritage studies and reports, particularly the *Gannawarra Shire Thematic Environmental History*; and
  - archival information held by the National Library of Australia (Trove).
- A targeted site inspection of the Project Area was undertaken on 6 September 2023 by ERM Principal Archaeologist Mark Dowdell.

Identification of potential impacts to existing heritage values within the Project Area. This report has been prepared in accordance with current statutory and leading practice guidance, including:

- Guidelines for Conducting Historical Archaeological Surveys (Heritage Victoria, 2020);
- Guidelines for investigating historical archaeological artefacts and sites (Heritage Victoria, 2015); and
- Burra Charter: The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance 2013 (Burra Charter).

## 1.4 TERMINOLOGY

Unless it is a direct reference to a piece of legislation, guidance document or other, where the use of the term 'Aboriginal' is appropriate, the report will use 'First Nations' or 'First Peoples'. The Wamba Wamba People will be explicitly referenced with regard to their Country.

## 1.5 LIMITATIONS

ERM acknowledges that this report has the following limitations within which the findings need to be interpreted carefully:

- No consultation with First Nations Peoples/Registered Aboriginal Parties (**RAP**) has been undertaken by ERM to inform this report;
- This study is limited to the historic heritage values of the Project Area; and
- Private properties with built structures where no development would occur within the Project Area were not accessed as part of this assessment. If the project footprint changes, further assessment of these locations may be required.

## 1.6 AUTHORSHIP

ERM Heritage Consultant Sophia Hanger and Principal Archaeologist Mark Dowdell prepared this report. ERM Technical Consulting Director Erin Finnegan, completed technical review. ERM Partner, Jenny Luk, completed a quality control review.

# 2. LEGISLATIVE CONTEXT

## 2.1 STATUTORY CONTROLS

The Project Area is affected by a number of statutory controls for the planning and management of cultural heritage and archaeological resources. *Table 2-1* summarises the key Commonwealth and Victorian legislation relevant to the assessment, and the requirements under each as they apply to the Project.

**TABLE 2-1 RELEVANT LEGISLATION**

Legislation	Description
<b>Commonwealth Legislation</b>	
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, Commonwealth marine environments, and heritage places, which are defined in the EPBC Act and referred to as matters of

Legislation	Description
	<p>national environmental significance (<b>MNES</b>). The MNES of direct relevance to heritage considerations of the Project are World Heritage Properties and National Heritage Places.</p> <p>A number of heritage listings were established under the EPBC Act including the Commonwealth Heritage List (<b>CHL</b>), National Heritage List (<b>NHL</b>), and Register of National Estate (<b>RNE</b>) (now repealed).</p> <p>The EPBC Act is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (<b>DCCEEW</b>).</p>
<b>Victorian Legislation</b>	
<p><i>Heritage Act 2017 and Heritage Regulations 2017</i></p>	<p>The <i>Heritage Act 2017</i> provides protection and conservation for all Victorian historic heritage sites and items that are at least 75 years old, including underwater heritage. The Act sets out procedures to identify items of state heritage significance, and of historical archaeological value. It also establishes the processes for obtaining approvals for changes to those places, enforcing compliance, and other administrative procedures. It also creates offences and other enforcement measures to protect and conserve heritage.</p> <p>If an item has statutory heritage protection at a state level in Victoria, it will be recorded in the Victorian Heritage Register (<b>VHR</b>) or the Victorian Heritage Inventory (<b>VHI</b>). All historical archaeological sites in Victoria are protected by the provisions of the Act.</p> <p>The <i>Heritage Act 2017</i> is administered by Heritage Victoria (Department of Transport and Planning).</p>
<p><i>Planning and Environment 1987</i></p>	<p>The <i>Planning and Environment Act 1987</i> provides a framework for planning the use, development and protection of land in Victoria. The Act sets out procedures for preparing and amending the Victorian Planning Provisions and planning schemes. It also sets out the process for obtaining permits under schemes, settling disputes, enforcing compliance with planning schemes and permits, and other administrative procedures.</p>
<b>Non-Statutory Heritage Registers and Listings</b>	
<p><i>Register of the National Estate (RNE)</i></p>	<p>The RNE is an archive of information of more than 13,000 natural and cultural heritage places throughout Australia. The RNE was closed in 2007 and is no longer a statutory list. The Applicant understands that the closure of the RNE does not diminish protection of Commonwealth Heritage places. The RNE is maintained on a non-statutory basis as a publicly available archive and educational resource.</p> <p>RNE places can be protected under the EPBC Act if they are also included in another Commonwealth statutory heritage list or are owned or leased by the Commonwealth. In addition, places in the RNE may be protected under appropriate state, territory or local government heritage legislation.</p>
<p><i>National Trust of Australia (Victoria)</i></p>	<p>The National Trust of Australia (Victoria) has been gathering information about heritage places in Australia for more than three decades and has a list of heritage places including individual buildings, precincts, natural environment places and culturally significant artefacts. These listings do not attract any legal protection for a place, nor do they put the owner of a listed place under any legal obligation.</p>
<p><i>Victorian War Heritage Inventory (VWHI)</i></p>	<p>The VWHI contains information and images related to Victoria's war history including memorials, avenues of honour, memorial buildings, former defence sites and places of commemoration.</p>



## 2.2 HERITAGE CONTEXT REVIEW

### 2.2.1 WORLD AND NATIONAL HERITAGE ENVIRONMENT

Part 3, Division 1 of the EPBC Act requires that actions that have, will have or are likely to have a significant impact on MNES require approval from the Australian Government Minister for the Environment. The MNES that relate to heritage matters are World Heritage Properties, and National Heritage Places.

Section 341ZC of the EPBC Act addresses Commonwealth Heritage Places. This section requires the minimisation of adverse impacts to the heritage values of a National or Commonwealth Heritage Place. This could 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. It is noted that 341ZC only applies to places legally gazetted as having Commonwealth/National heritage values by the Minister for the Environment.

The Australian Heritage Database was reviewed to identify World National and Commonwealth Heritage Places.

There are no World Heritage Properties in close proximity to the Project Area. The nearest World Heritage is the Royal Exhibition Building and Carlton Gardens, Carlton, Melbourne, located approximately 300 km from the Project Area.

There are no National Heritage Places in the vicinity of the Project Area. The nearest National Heritage Place is the Echuca Wharf, located approximately 91 km from the Project Area.

### 2.2.2 STATE AND LOCAL HERITAGE ENVIRONMENT

#### 2.2.2.1 THE VICTORIAN HERITAGE REGISTER

The Victorian Heritage Register (**VHR**) list is used to provide legal protection for objects and places which are significant to the history of the state of Victoria.

There are no VHR listed sites in the Project Area.

There is one site in moderate proximity to the site that is included on the VHR:

- Bael Bael Homestead (H2196) is approximately 10 km east of the Project Area.

#### 2.2.2.2 THE VICTORIAN HERITAGE INVENTORY

The Victorian Heritage Inventory (**VHI**) list is used to provide legal protection for known historical (non-Indigenous) archaeological sites in the state of Victoria.

There are no VHI listed sites within the Project Area. There are five sites within 10 km of the Project Area:

- The Budgerum Stock Yards (H7626-0002) is approximately 3.1km south of the Project Area;
- The Budgerum Cemetery (H7626-0001) is approximately 4.3km south of the Project Area;
- The Beuchamp State School (H7626-0004) is approximately 2 km north of the Project Area;

- The Mud-Brick House Ruins (H7526-0002) is approximately 3.6 km west of the Project Area; and
- Bael Bael Homestead (H7626-0003) is approximately 10 km east of the Project Area.

### 2.2.2.3 HERITAGE OVERLAYS

There are no Heritage Overlays within the project area. There are two HOs within moderate proximity to the site:

- Buggar Castle, Bael Bael – Boga Road (HO17) is approximately 5.6 km east of project area; and
- Bael Bael Homestead (HO16) is approximately 10 km east of the project area.

## 2.2.3 NON-STATUTORY HERITAGE ENVIRONMENT

### 2.2.3.1 NATIONAL TRUST OF AUSTRALIA (VIC)

The National Trust has been gathering information about heritage places in Australia for more than three decades and has a list of heritage places including individual buildings, precincts, natural environment places or culturally significant artefacts. These listings do not attract any legal protection for a place, nor do they put the owner of a listed place under any legal obligation.

There are no sites within the project area that are included in the National Trust of Australia (VIC) Heritage Register.

### 2.2.3.2 THE ARCHIVE OF THE REGISTER OF THE NATIONAL ESTATE

The Register of the National Estate (**RNE**) is now an archive of information about more than 13,000 places throughout Australia including many places of local or state significance. The RNE was closed in 2007 and is no longer a statutory list. The closure of the RNE does not diminish the protection of the Commonwealth heritage places.

The RNE is maintained on a non-statutory basis as a publicly available archive and educational resource. RNE places can be protected under the EPBC Act if they are also included in another Commonwealth statutory heritage list or are owned or leased by the Commonwealth. In addition, places in the RNE may be protected under appropriate state, territory or local government heritage legislation.

There are no sites within the project area that are listed on the former Register of the National Estate.

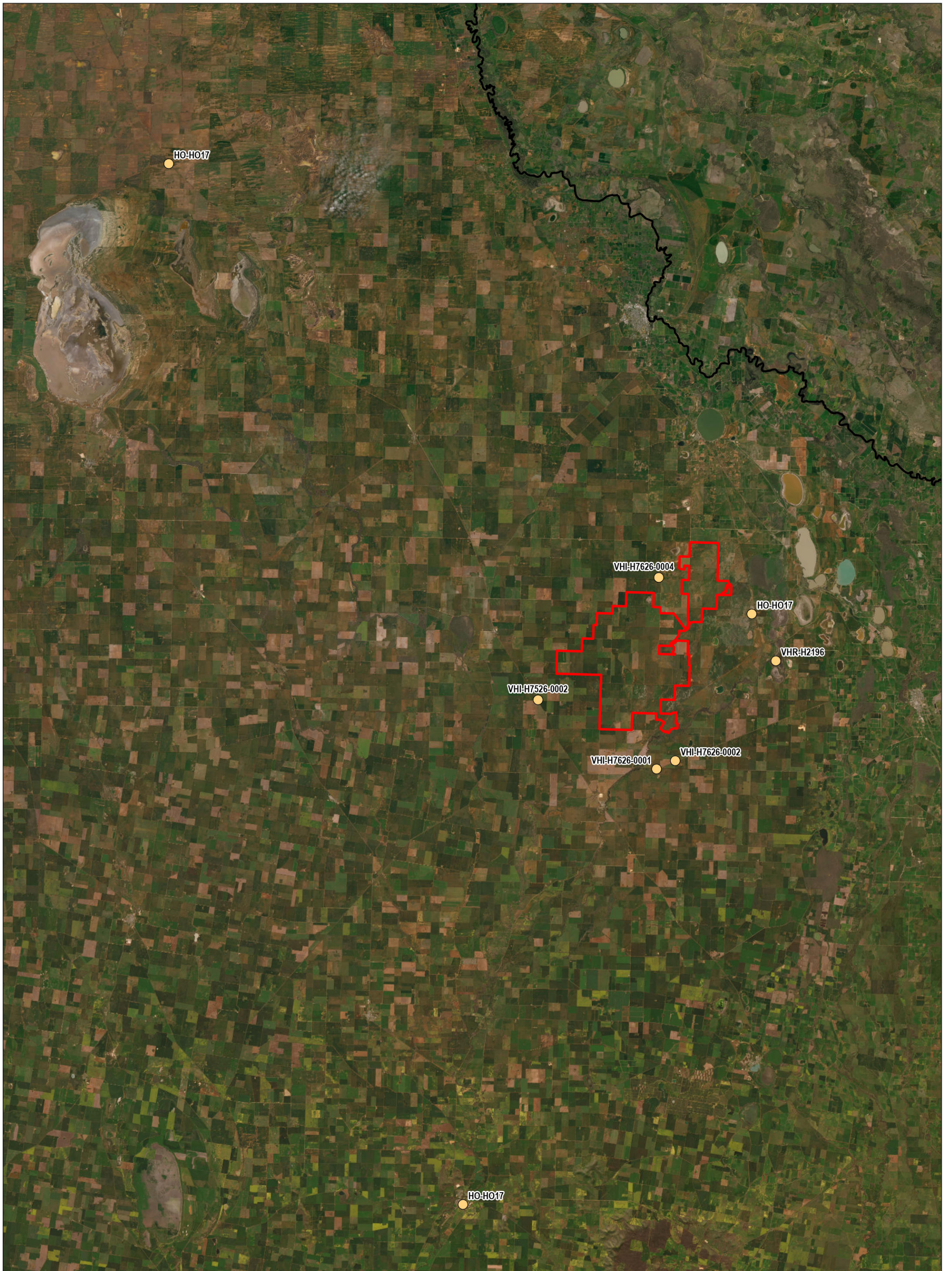
## 2.3 SUMMARY

The results of VHI search are outlined below in *Table 2-2* and the locations of each site are shown in *Figure 2-1*.

TABLE 2-2 HERITAGE SITES WITHIN VICINITY OF PROJECT AREA

Site Name	Register / Item No	Location / Address	Distance from Project Area
Budgerum Stock Yards	VHI - H7626-0002	2744 Kerang-Quambatook Road Quambatook, Gannawarra Shire	3.1km south
Budgerum Cemetery	VHI - H7626-0001	Kerang-Quambatook Road Quambatook, Gannawarra Shire	4.3km south
Beauchamp State School	VHI - H7626-0004	Mystic Park-Beauchamp Road Beauchamp, Gannawarra Shire	2 km north
Mud-Brick House Ruins	VHI - H7526-0002	Curran Road Cannie, Gannawarra Shire	3.6 km west
Bael Bael Homestead	VHR - H2196 VHI - H7626-0003 HO - HO16	Lake Charm-Quambatook Road Bael Bael, Gannawarra Shire	10 km east
Buggar Castle, Bael Bael – Boga Road	HO - HO17	387 Bael Bael-Boga Road Beauchamp, Gannawarra Shire	5.6 km east





- Legend**
- Historic Heritage Place
  - State Boundary
  - Project Area



Coordinate System:  
GDA2020 MGA Zone 54  
Date: 04/03/2024  
Created By: CS  
Drawing Size: A3  
0.824KM



1:400,000

**F2-1 Registered Historic Heritage Places in the Vicinity of the Project Area**

**Cannie Wind Farm**  
RES Australia Pty Limited





### 3. CONTEXTUAL HISTORY

The following historical overview is based on the 'Kerang Wind and Solar Farm, Phase 1 Studies FINAL report' (Umwelt. 2022) and has been supplemented with additional sources including historical maps and aerial imagery of the Project Area, to further investigate and assess the potential for the presence of historic heritage resources.

#### 3.1 VICTORIA'S FRAMEWORK OF HISTORICAL THEMES

Victoria's Framework of Historical Themes (State of Victoria, Heritage Council of Victoria, 2010) was developed as a tool to understand what is distinctive about Victoria's history and heritage. It has been applied to assist in the identification and assessment of heritage values within the Project Area.

Table 3-1 presents the historical themes and sub-themes relevant to the Project Area.

**TABLE 3-1 VICTORIAN HISTORIC THEMES APPLICABLE TO PROJECT AREA**

VIC Historic Theme	Sub-Theme
Peopling Victoria's places and landscapes	<ul style="list-style-type: none"> <li>2.2 Exploring, surveying and mapping</li> <li>2.7 Promoting Settlement</li> </ul>
Transforming and managing the land	<ul style="list-style-type: none"> <li>4.3 Grazing and raising livestock</li> <li>4.4 Farming</li> </ul>

##### 3.1.1 EXPLORATION AND SURVEYING OF THE GANNAWARRA SHIRE

*VIC Historic Theme 2 – Peopling Victoria's places and landscapes – 2.2 Exploring, surveying and mapping*

The Project Area is located in the Loddon Mallee region of north-west Victoria, within Gannawarra Shire, approximately 33 kilometres west of Kerang and 25 kilometres south of the Murray River which runs along the Victorian-New South Wales border.

The Shire's economy is dependent on its vast agricultural industry. Its agricultural diversity, including cropping, dairying, grazing, horticulture and viticulture, is promoted by the access of various water sources from the Murray River, Loddon River, Gunbower Creek, and the Kerang Lakes (Ballinger, 2008:6).

The Gannawarra Shire was first surveyed in 1836 by Surveyor-General, Major Thomas Mitchell. Instructed by his senior, Governor Sir Richard Bourke, he was tasked with mapping the course of the Darling River to the Murray River (Ballinger, 2008:8). Mitchell first came across what has become the Gannawarra Shire in June 1886 which the expedition proceeded to pass through, siting today's Lake Boga, Lake Tutchewop, Lake Kelly, Lake Charm, Third Lake, Middle Lake and Reedy Lake (Ballinger, 2008: 8).

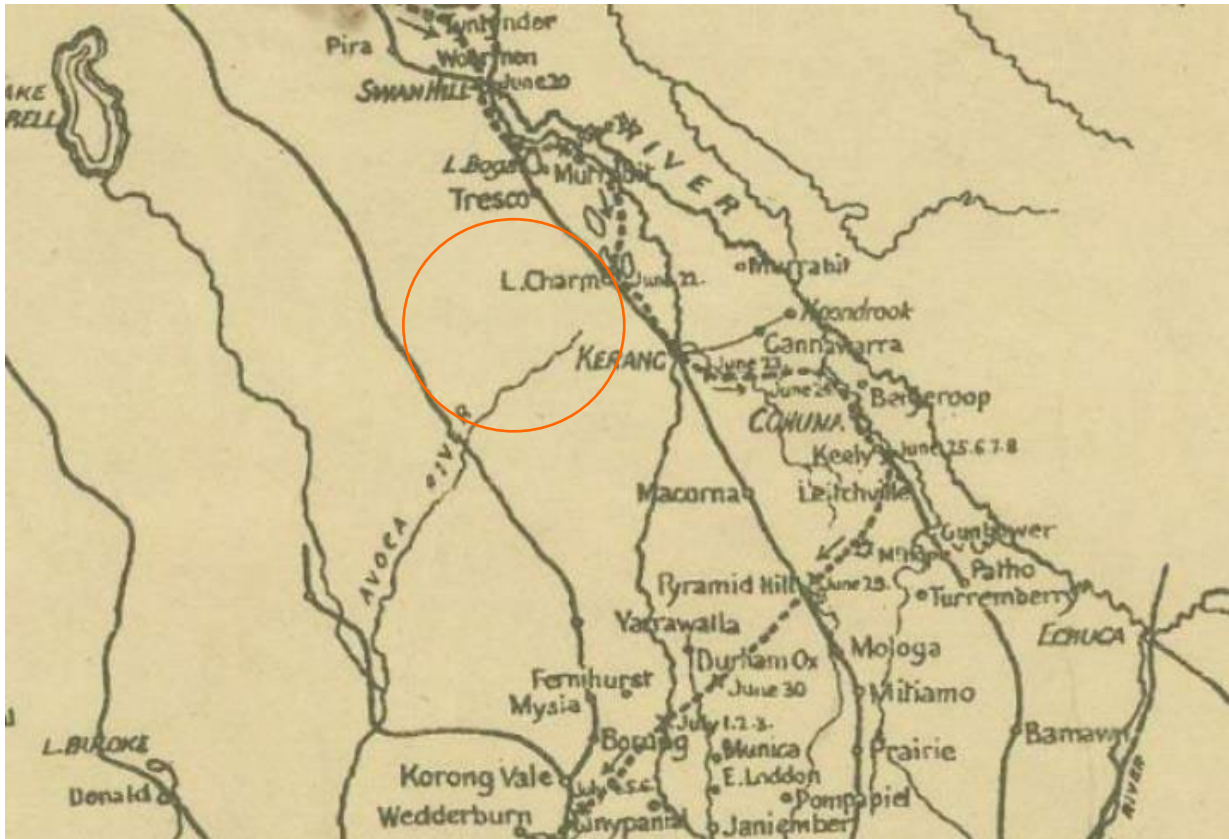


FIGURE 3-1 MAJOR MITCHELL'S TRACKS 1836 (SOURCE: PUBLIC RECORDS OFFICE VICTORIA: VPRS 8168/P0002)

In 1838, Charles Sturt set out to overland cattle to South Australia. He drove them along the Murray, then the left bank at Barmah Forest. His exploration revealed more information about the land within the region of what would later become Gannawarra Shire. Sturt called the Murray River route the "great high road of the interior." His praises encouraged the use of this track which became intensive. This led, however, "to hostile clashes between Aborigines and overlanders" (Ballinger, 2008:10). Over the next decade, high rainfall years produced "large expanses of native grasses", and the area came to be viewed "as some of the best winter lamb fattening land in the colony." (Ballinger, 2008:10) Letters written by Charles Browning Hall (6 September 1853), diarist, squatter and draughtsman, under the title, 'Progress and Cause of Settlement of the Inferior Northern Country', reveal the shift in negative views of the northern plains to a more optimistic outlook:

*At this time [1840-1] the richer portions only of the colony found favour in the eyes of the intending settlers as only being calculated to afford marketable stock. Afterwards, when melting down had been established into a system rendering settlers independent of the limited market of Melbourne, and giving a value to lean stock in consequence of their being in demand to replace stock boiled down from the richer runs, country till then despised was greedily taken up. The northern plains and the parts more readily watered by the Wimmera and its tributaries were occupied under these circumstances. Then it was discovered that tracts which had been passed over as barren in summer had a peculiar value in winter, and in fact it gradually became apparent that they were*



*second to no district in their capacity for producing fat stock, the fattening seasons, however, being different.*

### 3.1.2 SETTLEMENT OF PROJECT AREA AND SURROUNDING TOWNSHIPS

*VIC Historic Theme 2 – Peopling Victoria’s places and landscapes – 2.7 Promoting Victoria’s Settlement*

*VIC Historic Theme 6 – Building towns, cities and the garden state – 6.4 Making regional centres – 6.6 Marking significant phases in development of Victoria’s settlements, towns and cities*

Charles Sturt's praises of land in the north combined with high rainfall in the 1840s marked a shift from negative to positive perceptions of the northern plains.

This is evidenced by the Loddon (also known as Pine Hills) pastoral run which was to become the township of Kerang, and the Bael Bael pastoral run (which spanned the Project Area) which were both taken in up in 1845. In 1855, it was acquired by Archibald Campbell. It is believed that he named Mount Kerang based on the Wamba Wemba word for an edible root, or the moon (Umwelt, 2022:10).

Loddon Inn, built in 1848, was the first structure built in Kerang and marked the beginning of settlement in the township (Ballinger, 2008:43). Kerang served as a central location through which South Australians passed through on their journey to the Victorian Goldfields. By boat, they would take the River Murray to Swan Hill and then overland via Kerang (Ballinger, 2008:43). Kerang township was gazetted by 1861, the year before a road district was proclaimed, extending from the South Australian border to Cohuna (Ballinger, 2008:43). Kerang developed rapidly and by the mid-1870s a post office (1862), a police station and courthouse, a government lands office (1874), a shire hall (1873), Anglican and Methodist churches, a school (1873), hotels, and stores had been erected. Between 1900 and 1920 Kerang’s population nearly doubled to over 2000 people (Umwelt, 2022:10).

Bael Bael (also referred to as Reedy Lake) pastoral run was taken up in 1845 by merchants G.C Curlewis and Robert Tertius Campbell Jnr (VicPlaces Quambatook). The run spanned 37,000 acres and was the largest in the Shire (Ballinger, 2008:12). The run was subdivided in March 1848 into No. 14 Swan Hill and Lake Boga, No. 15 Bael Bael, Reedy Lake, Loddon and Marabout), and No. 16 Bael Bael, Combatook or Avoca (Ballinger, 2008:13). The Bael Bael run was then subdivided further into Combartook and Quambatook East and West as shown in the pastoral map from 1869 (*Figure 3-2*). The area comprising the current Project Area post-1848 spanned a significant portion the Bael Bael pastoral run and a small northern section of Quambatook West (*Figure 3-2*).

Built structures were erected in the Bael Bael run as early as 1846. An advertisement in the Sydney Mail 1870 described a homestead in the “Reedy Lake” (Bael Bael) pastoral run as:

*... permanently watered by the Burdekin River and Fletcher’s and Sandy Creeks, which run throughout the year. The pasturage is good and abundant, the runs only being half stocked... The improvements are very complete, there being 4 large paddocks, enclosed with 2-rail fence, a splendid house of 8 rooms, walls 16 feet high, and 12 feet verandah all round, kitchen stores and out-offices; 5-stall stable, 1 loose horse box and harness room (all new).*

The location of this homestead was not specified and there is no clear evidence if it is located within the Project Area.

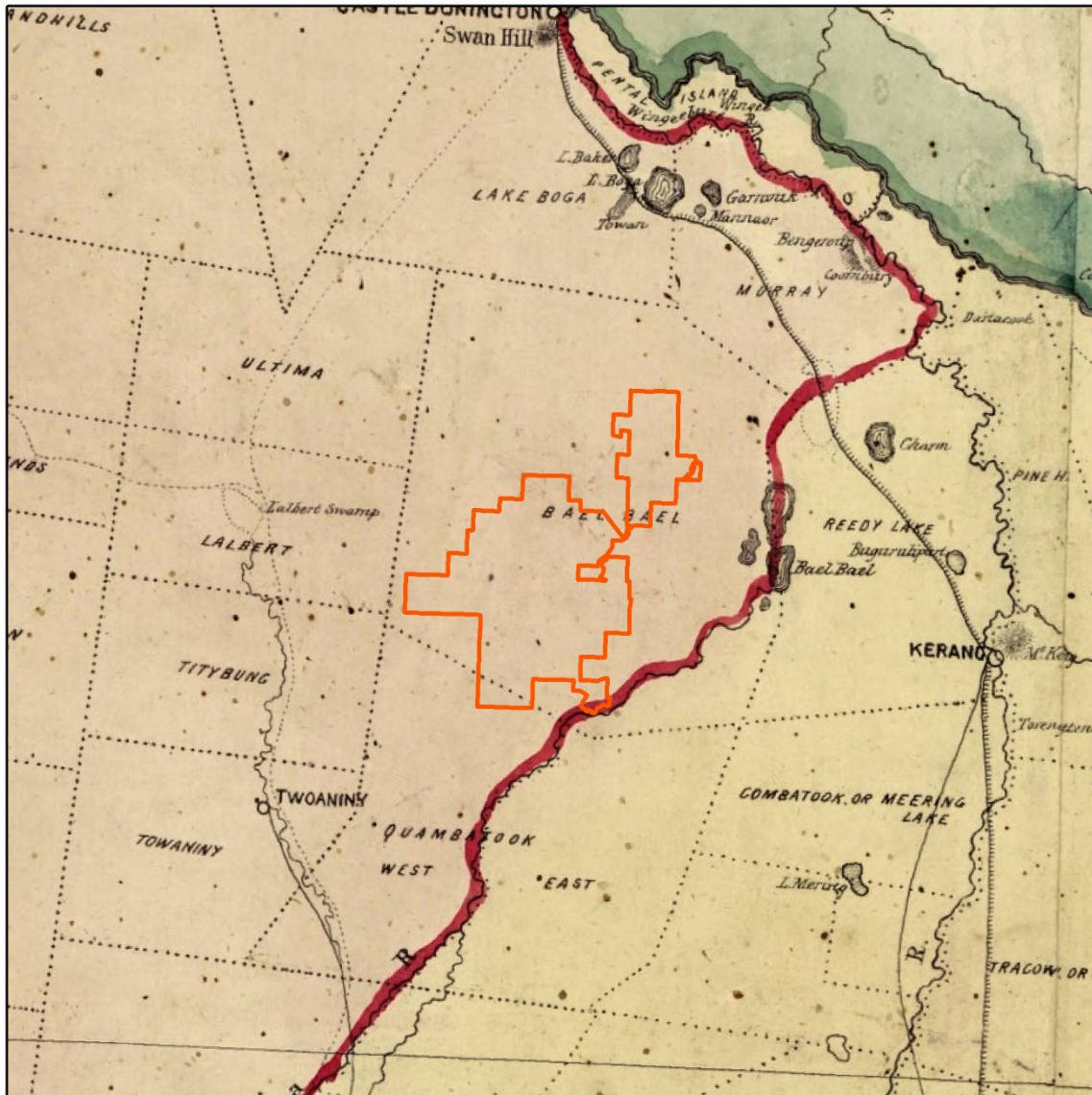


FIGURE 3-2 DETAIL OF MAP OF PASTORAL RUNS IN VICTORIA 1869-1870. NOTE THE MAJORITY OF THE PROJECT AREA IS WITHIN BAEI BAEI RUN, WITH THE SOUTH WESTERN EXTENT WITHIN QUAMBATOOK WEST (SOURCE: NATIONAL LIBRARY OF AUSTRALIA)

Budgerum township was established in the 1880s. Though originally a small centre within the wider district, the development of the railway line through Quambatook meant Budgerum was frequented less and its significance as a township diminished. A successful petition led by local residents led to the development of the cemetery at Budgerum which was in operation from 1883 until 1904 when the Quambatook Cemetery was then established (Umwelt, 2022:0). In 1940 'there were about forty graves in the cemetery, many of which contain the remains of some of the old pioneers of this district' (Umwelt, 2022:10). The Budgerum Stockyards and the Budgerum Cemetery are VHI listed sites which are approximately 3.1km and 4.3km (respectively) south of the Project Area. (shown in *Figure 2-1*).

The *Gannawarra Shire Thematic Environmental History* (Ballinger, 2008) states that this early settlement era of the Shire is well reflected by the extant Bael Bael Homestead (1846), which is currently on the VHR, VHI and local heritage overlay (HO16). Ballinger also notes the shearing shed which was part of Quambatook run, the remains of the Gannawarra Station, and a shearing shed associated with the Reedy Lake run as important representations of this era (Ballinger, 2008:13).

### 3.1.2.1 IRRIGATION

By 1883, a dim picture was painted by Anglican Bishop James North who commented on the increasing concern of drought in the 'dry north.' He observed;

*As I drove in the heat and glare and dust,' Moorhouse wrote, 'I have seen plains almost as bare of green grass as the high road; houses deserted and the windows nailed up; vast stretches of country without traces on them of man or beast (Ballinger, 2008:28).*

Up until this point, irrigation in Victoria and Australia at large was a private matter which individual's managed to increase their own agricultural production. However, as settlement reached the north, the land was much drier and drought prone, leaving landowners to rely on wells, bores and tanks (Context, 2007:6). The particular dryness of the north called for public discussion, irrigation becoming an important political topic. At a conference of six shire councils from the northwest of the state in 1883, the North-Western Water Conservation and Irrigation League was formed, with members at Swan Hill, Kerang, and in the Loddon region (Ballinger, 2008: 27). Later in the year, irrigation league delegates from Echuca, the Terricks, Korong, Rochester and Kerang resolved at a conference in Sandhurst to form a central league. The Central Irrigation League of Victoria was thereby established with McColl installed as League president and De Garis as vice-president. Later that year, the 1881 Water Conservation Act was amended to develop Irrigation Trusts. By 1887, several Irrigation Trusts had been established, thirteen of which were requested in Northern Victoria including: Benjeroop West, Boort East, Boort North, Echuca Shire, Kerang East, Lake Charm, Lower Loddon, Marquis Hill, Myall, Pine Hills, Pyramid Hill, Swan Hill, and Wandella (Ballinger, 2008: 29). These schemes relied on pumps or gravity to deliver water to farms.

In December 1886, the Waterworks Construction Encouragement Act was passed, paving the way for the establishment of private companies to purchase, subdivide, and sell irrigated land to others. Consequently, the Marshes Irrigation Company formed c1900 to pump water from Kangaroo Lake for stock, domestic and irrigation purposes to land to the north and west. The Mystic Park Irrigation Supply Company was incorporated in 1910 to irrigate by gravity 15,000 acres of land by raising the level of Kangaroo Lake three feet (Ballinger, 2008: 27).

The passing of the Water Act in 1905 led to the formation in 1906 of the State Rivers and Water Supply Commission (SRWSC) which would develop and oversee waterworks and irrigation. The first offices of the new organisation opened at Tatura and Kerang. The SRWSC 'took over nearly all the irrigation works in the country towns and virtually nationalized the rivers and riverbanks, brought far more skill to the providing of irrigation. Later, the first Eildon Weir on the Upper Goulburn, and the great Hume Weir upstream from Wodonga, multiplied by ten the storage of Victoria's irrigation water in the years 1902-1934'.<sup>134</sup> In 1905 the SRWSC completed the Waranga Basin in northern Victoria.<sup>135</sup> (Context, 2007: 36)



Discussions for irrigation specifically in the parishes of Korrak Korrak, Bael Bael, Budgerum and Boga began as early as 1885 (Kerang Times and Swan Hill Gazette, 11 August 1885: 3). The 1932 map (Figure 3-3) reveals several water reserves in close proximity to the project area (circled in red). These water reserves evidence the strong irrigation history of the wider area and the management of water supply within the district and, almost certainly, the Project Area. It also highlights the larger need for irrigation in the area and perhaps, why very little development occurred in this area.

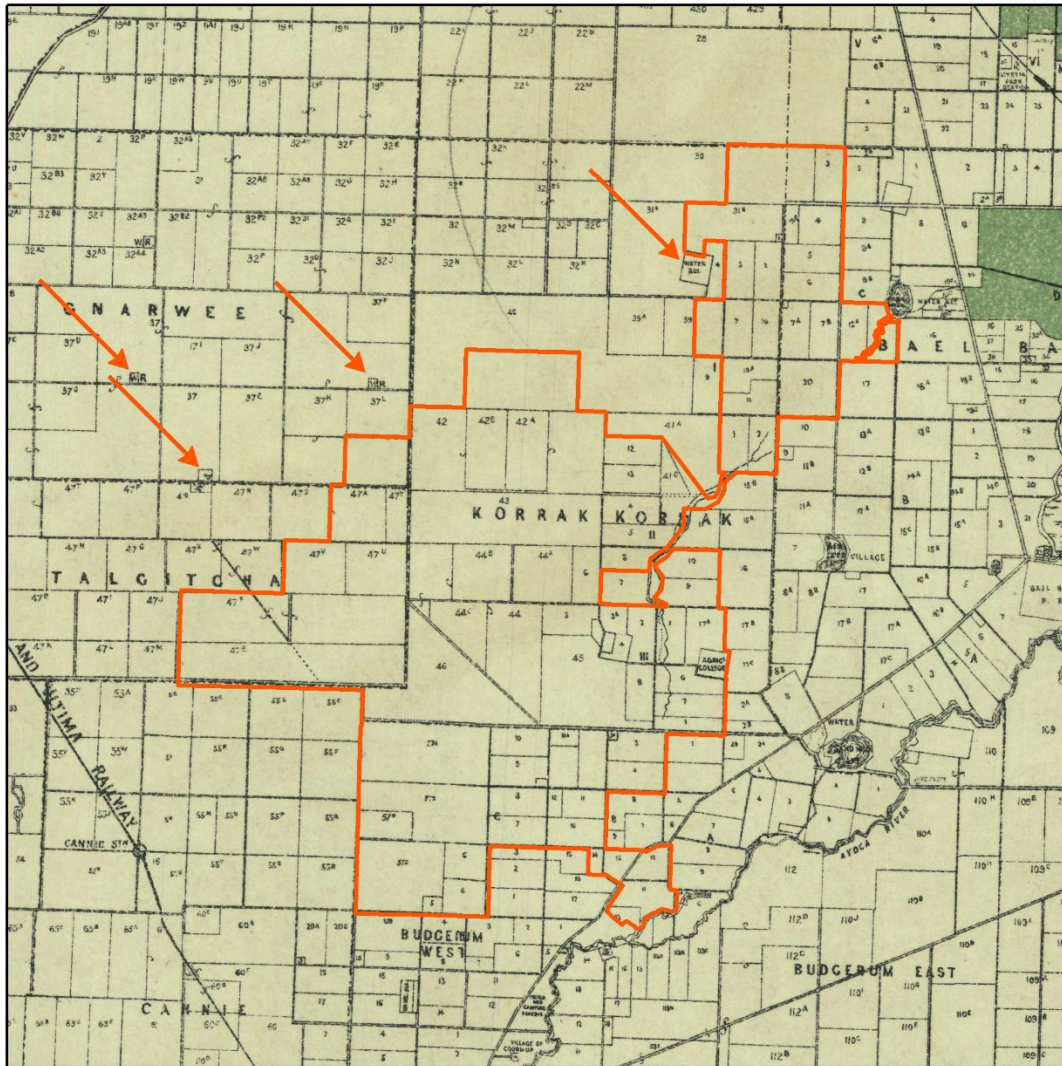


FIGURE 3-3 RESERVES MAP, COUNTY OF TATCHERA 1937 WITH ARROWS POINTING TO WATER RESERVES WITHIN CLOSE PROXIMITY TO PROJECT AREA (SOURCE: PUBLIC RECORDS OFFICE VICTORIA: VPRS8168/P0002)

### 3.1.3 PROJECT AREA: HISTORY OF LAND USE

*VIC Historic Theme 4 – Transforming and managing the land – 4.3 Grazing and raising livestock – 4.4 Farming*

Agricultural development in the area rapidly transformed the land with the introduction of livestock and land alteration. Some sections of Bael Bael were reserved for timber purposes. 2,200 acres was taken up for this purpose in 1884 (Kerang Times and Swan Hill Gazette, 2

Sept 1884, p.2). The Bael Bael run was subdivided further in 1893 and taken up for wheat growing (Ballinger, 2008:16).

The Project Area had been classified as within Parishes of Bael Bael and Korrak Korrak and the very northern part of Budgerum West as early as 1882 (Figure 3-4).

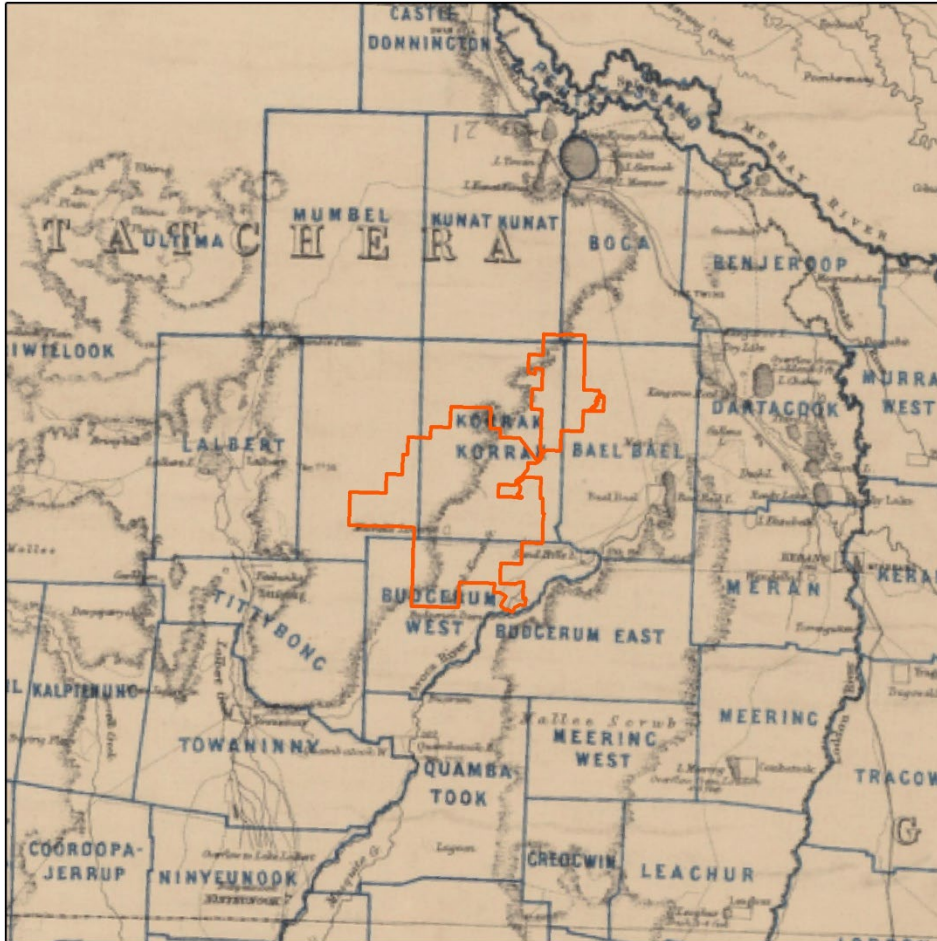


FIGURE 3-4 PARISH DIVISIONS OF VICTORIA 1882 (SOURCE: NATIONAL LIBRARY OF AUSTRALIA, DEPARTMENT OF CROWN AND LANDS AND SURVEY)

A map produced in 1883 (see Figure 3-5) does not identify any built development in the southern portion of the Project Area, and a pastoral run map (see Figure 3-6) from late 19th century to early 20th century described the Project Area as “open plains” with no built development specified. Figure 3-6 reveals that a significant portion of the Project Area had already been granted grazing licenses at this time (shaded orange) however it is not stated who these licenses were issued to.



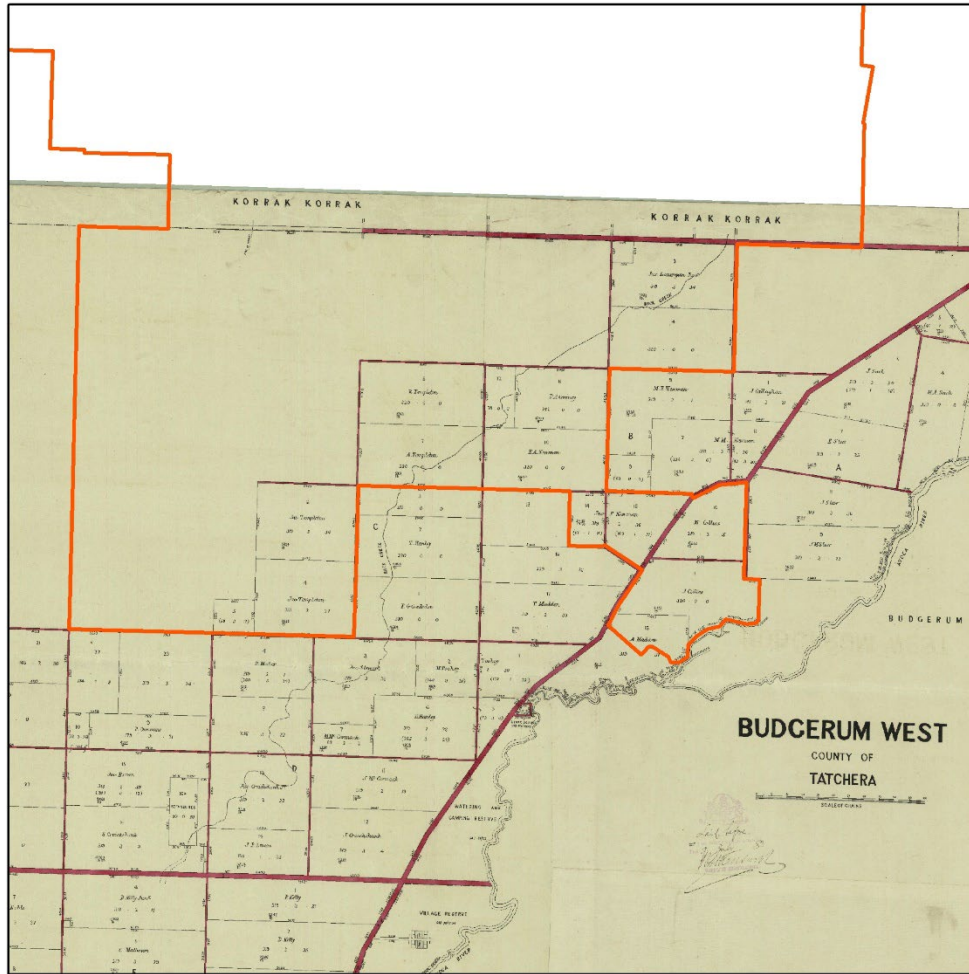
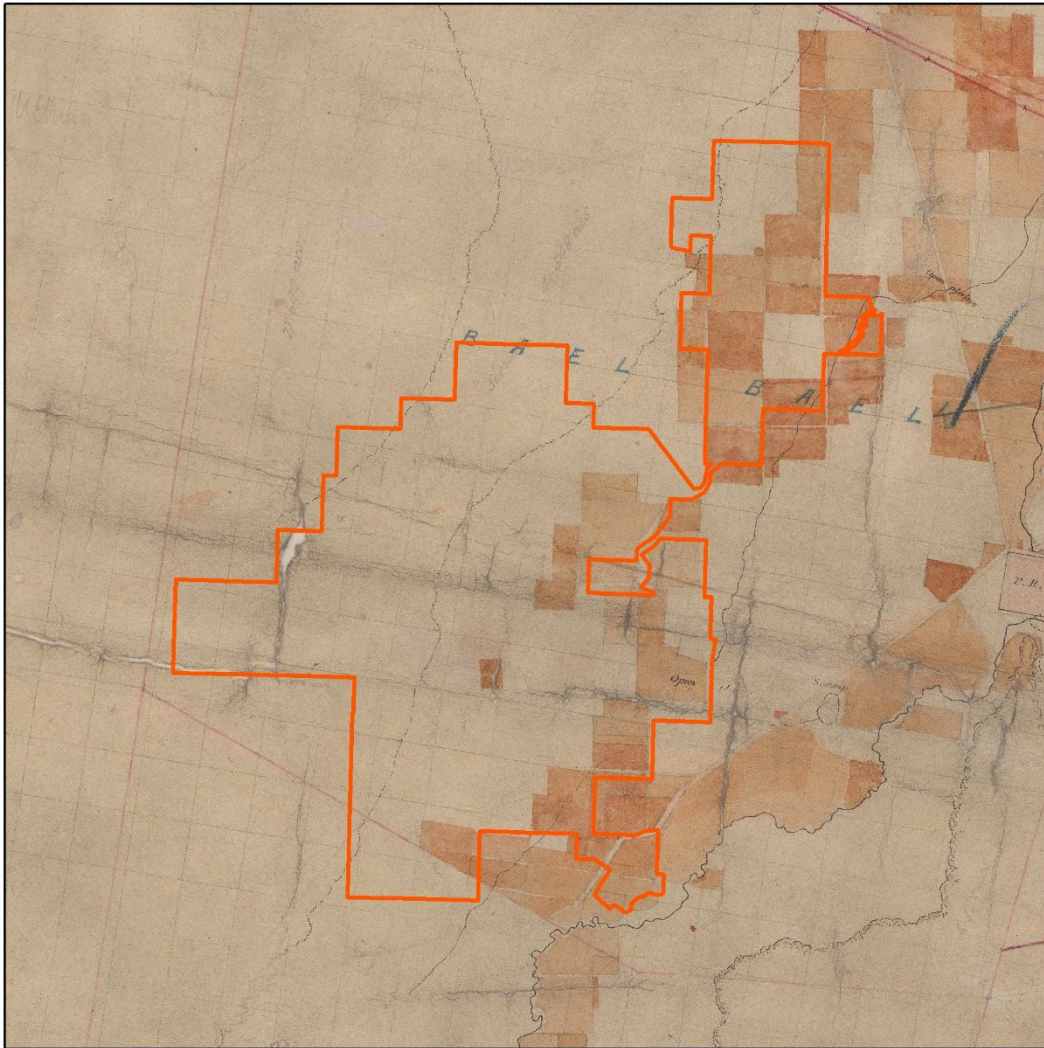


FIGURE 3-5 BUDGERUM WEST, COUNTY OF TATCHERA, 1883 (SOURCE: PUBLIC RECORDS OFFICE VICTORIA VPRS 8168/P0002)





**FIGURE 3-6 MAP OF BAEL BAEL RUN (U.D.) SHOWING GRAZING LICENSES SHADED ORANGE RUN (SOURCE: PUBLIC RECORDS OFFICE VICTORIA VPRS8168/ P0002)**

Similarly, the parish plans dated 1923 also do not indicate any built development in the Project Area (*Appendix A*). The Parish Plans when compared with the 1937 Tatchera Map reveal that plots were subdivided further during 1923-1937. The Parish Plans also reveal that by 1923, there weren't key land holders and instead, land was divided amongst multiple owners.

Aerials from 1945 reveal approximately eight vastly spread built structures, most likely homesteads associated with agricultural land surrounding them (outlined in *Figure 3-7*). These structures are still extant except for the two which are circled in yellow in *Figure 3-7*. These are scattered across the Project Area however are not in close proximity to proposed turbine or infrastructure placement. The structures are a combination of homesteads, outbuildings and agricultural infrastructure. The two demolished structures are located on private land.

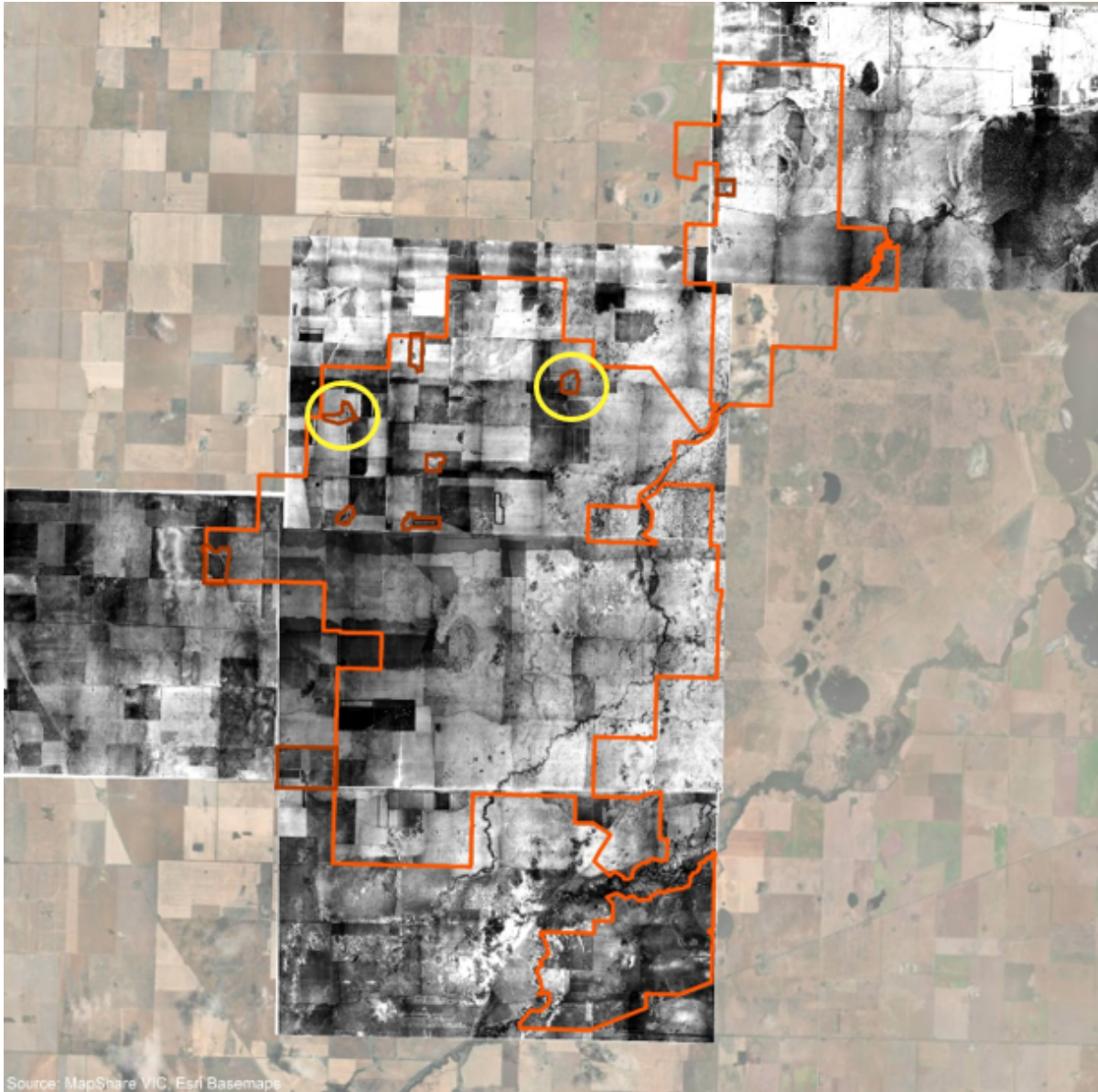


FIGURE 3-7 HISTORIC AERIAL PHOTOGRAPH SHOWING BUILT STRUCTURES WITHIN THE PROJECT AREA, 1945. THE FEATURES CIRCLES IN YELLOW ARE NO LONGER EXTANT (SOURCE: LANDATA VIC)



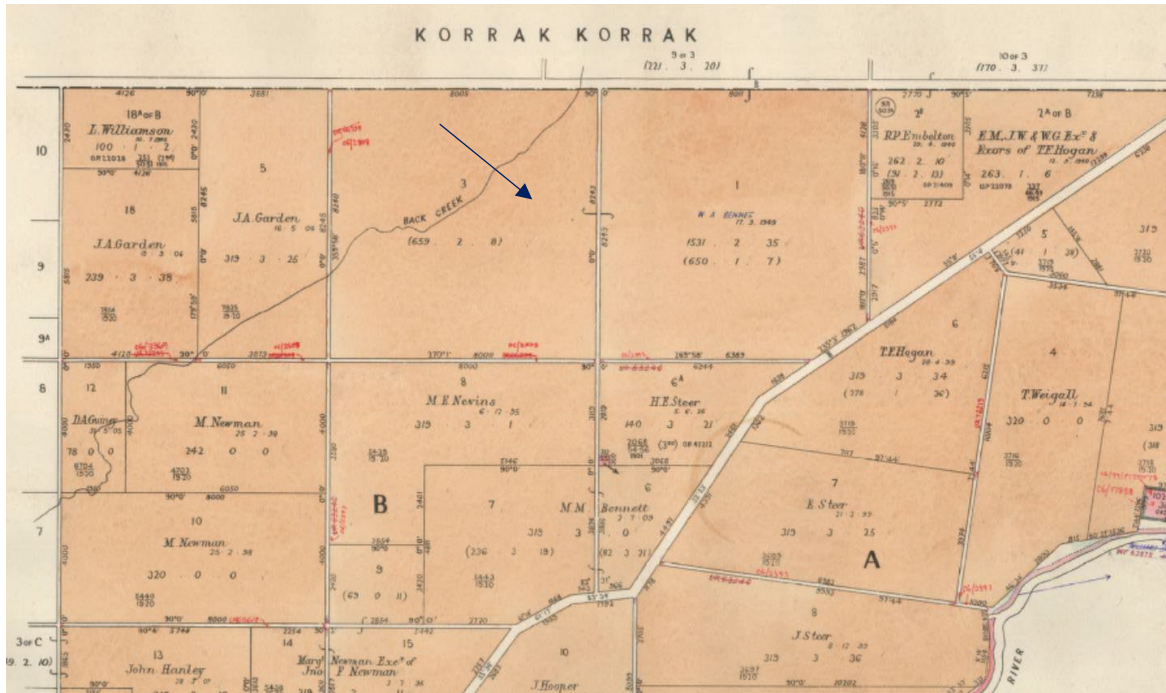


FIGURE 3-8 PARISH PLAN OF BUDGERUM WEST 1923 WITH ARROW POINTING TO APPROXIMATE LOCATION OF HOGAN ROAD HISTORIC PLACE (SOURCE: PUBLIC RECORDS OFFICE)

The Hogan’s Road Historic site is located within the Parish of Budgerum West on the land of W A Bennet, as shown on the 1923 Parish Plan (see Figure 3-8). This was part of the original Bael Bael run taken up in 1845. The Reserves Map, County of Tatchera 1937 (Figure 3-3) suggest that between 1923 and 1937 Bennet’s property was subdivided further into smaller allotments. The Project Area appears predominantly agricultural from settlement to the present.

### 3.2 PREVIOUS STUDIES

Umwelt prepared a Cultural Heritage Phase 1 Assessment – Preliminary Constraints report in July 2022 for the Project. The report investigated the potential for unknown historic or Aboriginal cultural heritage sites that may be present within the Project Area. This Project Area investigated by Umwelt has been subject to alteration with the Project Area shown in Figure 1-1 the latest version available.

Umwelt’s investigations involved First Nations and historic heritage consideration, however for the purposes of this report, the results below focus on conclusion relating only to historic heritage.

The report concluded:

- The Study Area overlapped with two VHI-listed places: Budgerum Cemetery (H7626-0001) and Budgerum Stock Yards (H7626-0002). *\*These are sites no longer fall within the Project Area. They are approximately 4.3km and 3.1km (respectively) south of the Project Area;*
- One new historic site was located 400 metres to west of Hogans Road, Cannie. This place comprised of an artefact scatter and a small hut structure. The artefact scatter comprised

of small finds such as ceramics, glass and metal fragments as well larger finds such as full bottles, metal drums and a wagon wheel. Based on the finds located it was estimated that the site dates to between 1880 and 1930. (Umwelt, 2022:15); and

- Based on the brief review of the historical background and results of the site inspection, high potential for historic heritage near Hogans Road, while a low potential for the remainder of the Project Area.

The report presented the following recommendations and mitigation measures:

- The two VHI sites should be avoided entirely. If these cannot be avoided, a heritage impact statement (**HIS**) will be required together with an application for a Consent to Disturb from Heritage Victoria. It is highly unlikely a consent to disturb a cemetery will be granted;
- The newly identified historical archaeological site should be avoided.
- Once the infrastructure footprint has been confirmed a historical heritage survey should be undertaken of the areas to be impacted to confirm presence/absence of any further unrecorded historical archaeological material; and
- A site card should be prepared for the newly identified historical archaeological site in accordance with Section 31 of the *Heritage Regulations 2017*. The site card needs to be submitted to HV together with the relevant spatial information as soon as practicable.

**Note:** Following the completion of the Umwelt 2022 report, the Project Area was amended to remove the two VHI places, Budgerum Cemetery (H7626-0001) and Budgerum Stock Yards (H7626-0002), thus removing them from potential harm.

### 3.3 PREDICTIVE MODELLING

Based on desktop review of the contextual history, previous studies and the historical archaeological potential of the Project Area as well as a survey carried out by ERM, there is a low likelihood for Historic Heritage to occur within Project Area with the exclusion of one identified historic heritage place near Hogans Road, Cannie.

The location identified by Umwelt in 2022 and validated by ERM in 2023 near Hogans Road, has further archaeological potential and potential local significance.

### 3.4 PREDICTIVE MODEL: HISTORICAL ARCHAEOLOGICAL POTENTIAL OF THE PROJECT AREA

The historical context of the Project Area indicates that it has been settled as early as 1845. The post-contact history of the Project Area has been purely agricultural/pastoral with little evidence of built development from settlement to current day. Maps and parish plans did not indicate any built development from 1882 to 1945. Aerial mapping from 1945 indicate eight historic features, possibly residences / homestead complexes spanning the subject site.

A review of prior reports for the Project Area, indicate there is one location within the Project that may yield historical archaeological potential. The remainder of the Project Area is largely considered to have a low potential for built historical heritage and associated historical archaeology to be discovered as it was predominantly agricultural from settlement to present.

If identified, historic heritage would be most likely be associated with pastoral or agricultural sites such as work sheds, dairies, shearing sheds and labourers' quarters. Associated archaeological resources would most likely include:

- domestic assemblages or yard scatters associated with former living quarters;
- wells and privy deposits, rubbish pits;
- evidence of landscaping;
- evidence of land clearance such as tree boles and areas of burning;
- post holes associated with paddocks and stockyard/boundary fencing or for lightweight structures for agricultural purposes, such as timber shelters for storage;
- soil deposits containing plough marks and agricultural furrows;
- small finds such glass, ceramic, metal fragments;
- tracks and former creek crossings (corduroy road or simple bridge); and
- weirs or bunds or other earthen arrangements.

Budgerum Cemetery and Budgerum Stock Yards, identified on the VHI, and the small village they were associated with, is within 5km south of the Project Area.

A summary of the archaeological potential of the Project Area is presented below in *Table 3-2*.

**TABLE 3-2 SUMMARY OF ARCHAEOLOGICAL POTENTIAL**

<b>Potential Archaeological Resource and Likely Location</b>	<b>Integrity of Archaeological Resource</b>	<b>Archaeological Potential within the Project Area</b>	<b>Potential significance level (Research Value)</b>
Evidence of historic irrigation systems	The integrity of the potential archaeological resource within the Project Area is likely to be low.	Low	Low research potential
Evidence of built development	The integrity of the potential archaeological resource within the Project Area is likely to be low.	Low	Resource unlikely to be present– as such, low research value.
Historical surface artefact scatters	The integrity of the potential archaeological resource within the Project Area is likely to be low.	Low	Low research value.
Historic heritage scatter near Hogans Road	The integrity of the potential archaeological resource within the Project Area is likely to be low to moderate.	High	Local significance – if present with good integrity

### 3.4.1 RESEARCH POTENTIAL

Prior investigation of the Project Area indicates that archaeological potential is present at a location identified near Hogans Road, Cannie by Umwelt in 2022. This location contains material evidence dating to the late 19<sup>th</sup>/early 20<sup>th</sup> century and has potential further undiscovered archaeological deposits and has some research potential at a local level.

There is some potential for evidence of historic irrigation systems to be present within the Project Area, however, these are common within the region and state and hold low scientific research potential due to their simple construction and lack of dateable associated evidence.

Based on desktop review of the contextual history, previous studies and the historical archaeological potential of the Project Area, there is a low likelihood for historic heritage to occur within Project Area with the exclusion of one identified historic heritage place near Hogans Road, Cannie.

The results of the survey are outlined below in *Section 4*.

## 4. SURVEY DESIGN AND RESULTS

The field survey was carried on 6 September 2023 by ERM Principal Archaeologist Mark Dowdell. As part of the preparation of this PHHA, a pedestrian archaeological field survey was carried out. The aims, method, coverage, and results of the field survey are presented in this section. All photographs in this report were taken at this time by M. Dowdell.

### 4.1 SURVEY AIMS

The aims of the field assessment were to determine the presence, nature, distribution, and significance of historic heritage identified during the desktop investigation of the Project Area. The survey targeted the historic site located by Umwelt in 2022 near Hogans Road, Cannie with aim of expanding on their preliminary investigation and providing further detail of the site.

### 4.2 METHODOLOGY

#### 4.2.1 FIELD SURVEY

The field survey involved a survey of the area in and around the location of a historic site identified near Hogans Road (Umwelt 2022). For this survey, a targeted survey was employed based on the findings of desktop studies (Section 3), which provided guidance as to the types and location of heritage items and potential heritage values like to be encountered across the Project Area.

The survey method comprised the following:

- A targeted pedestrian survey of the wider locations identified by Umwelt as having historical archaeological potential and research potential;
- Examination and recording of all historic heritage resources at its identified location (no material was to be removed from the original find location);
- Photographic recording of identified historic heritage resources using photo scales and measuring tools; and
- Detailed mapping of site extent using ArcGIS collection equipment.

## 4.3 SURVEY RESULTS

### 4.3.1 GENERAL SETTING AND LANDSCAPE

The survey area is located approximately 400 m to the west of Hogans Road, Cannie. It comprises of flat grassed agricultural land used for cropping and grazing with a stand of eucalyptus trees (*Photograph 4.1*, *Photograph 4.2* and *Photograph 4.3*). The stand of trees is located in and around a low-lying ephemeral watercourse/ponds that are currently dry, in the north of and east of the survey area (*Photograph 4.4*). Artificial water retention basins are located to the immediate west of the survey area. Cropping at present comprises of a young canola crop (less than 50 cm in height) (*Photograph 4.2*).

The ground surface visibility (**GSV**) ranged from poor to high. Poor visibility areas were located predominantly in the southern and central portions of the survey area (*Photograph 4.2*, *Photograph 4.3*), while higher visibility area were located around the stand of eucalypts and in the edge of the plough zone for the canola crop (*Photograph 4.2*).

Ground disturbance is noted throughout the site from rabbit warrens, ploughing / cropping and stock damage. Higher levels of ground disturbance are noted as being more significant in active cropping and grazing areas, while in areas more protected by fencing are less visibly disturbed.



**Photograph 4.1** View of southern portion of the survey area facing southwest.



**Photograph 4.2** View of survey area facing northeast.





**Photograph 4.3 view of the southwestern portion of the survey area facing east. Poor GSV.**



**Photograph 4.4 View of stand of trees facing north-east. Depression indicates ephemeral water way/ ponds. Good GSV.**



**Photograph 4.5 View of survey area facing south east. Good GSV in plough zone.**

#### 4.3.1.1 LIMITATIONS

The survey was limited to the immediate area around the location of previously identified heritage and the stand of trees due to the high ground surface visibility. Due to the current crop and thick grass across the survey area, ground surface visibility was limited and a more extensive survey of the extended area was not possible.

## 4.4 SURVEY RESULTS

A total of 29,359m<sup>2</sup> were surveyed on foot as part of this assessment (*Figure 4-1*). Historic heritage located during the Umwelt site survey in 2022 was successfully re-located in the form of several features and artefacts. An approximate site extent of 7079m<sup>2</sup> was determined (*Figure 4-1*) by the extent of the dispersion of artefacts and visible attributes such as the fencing or clear vegetation changes in the area. Due to the vegetation cover from cropping and pastoral grasses in and around the southern portion of the survey area, a firm site extent is uncertain with the site possible extending further than shown in *Figure 4-1*.

The site extent and its contents have been named by ERM as 'Hogans Road Historic Place' (**HRHP**) for the purposes of this report.

### 4.4.1 HISTORIC ARTEFACTS

The majority of artefacts identified as comprising HRHP extent were located within the plough zone on the western side of the site. These artefacts comprised of ceramic shards (>50), glass fragments (>50), several brick fragments (<20), several whole bottles (<10) and at least two small pots. Some metal agricultural fragments (perhaps horse bridles fragments or plough fragments) were identified and larger metal remnants of a boiler, four metal drums and one wagon wheel were also identified. The boiler, drums, wagon wheel and a small portion of artefacts were located by Umwelt in 2022.

The dimensions of the place, based on the dispersion of small artefacts, appears quite extensive, with artefacts clearly dispersed widely by frequent ploughing. Limited ceramic and bottle diagnostics (less than 10% of overall scatter visible) were encountered, however, the complete bottles and vessels have makers' marks that date to late 19<sup>th</sup> century/ early 20<sup>th</sup>



century (*Photograph 4.6, Photograph 4.8*). Diagnostics of ceramics are willow pattern or similar. Willow pattern ceramics were popular during the 18<sup>th</sup> century and into the 19<sup>th</sup> and early 20<sup>th</sup> century. Ceramic and glass fragment appear to be of plates, cups, glasses, bottles, and other common domestic items. The clear bottles are medicinal bottles used for the treatment of constipation (*Photograph 4.9*) and an antiseptic eucalyptus oil (*Photograph 4.10*). the brown bottle is likely to be a beer or wine bottle while the white ceramic pot may be food paste/spread vessel (*Photograph 4.8*).



**Photograph 4.1** Close up of Willow pattern ceramics within the western side of the site extent.



**Photograph 4.7** western portion of the site extents. Disturbance noted from ploughing and cropping. Good ground surface visibility.





**Photograph 4.8. Several bottles and a ceramic pot located in the plough zone on western side of the site extent.**



**Photograph 4.9 Close up a full bottle – 'This Bottle is the Property of Faulding & Co Ltd Australia'.**



**Photograph 4.10 Close up a full bottle – 'California Fig Syrup Co Sterling Product Proprietary Agencies Australia LTD'.**





**Photograph 4.11 Close up example of ceramic and metal in western portion of site extent (plough zone).**



**Photograph 4.12 Two iron drums and a wagon wheel in centre of site extent facing west.**





**Photograph 4.13 Iron boiler facing west.**

#### 4.4.2 HISTORIC STRUCTURES

Only one visible clear structure was identified during the survey that comprised of a small collapsed hut (*Photograph 4.14, Photograph 4.15*). The hut is severely degraded to the point it is hard to ascertain its true size and features. The ruined structure has wooden beams held together with iron bolts (*Photograph 4.16*) and displaced corrugated iron sheets. Vegetation within the site extent comprised of different coloured grasses that may indicate a change in the underlying soil composition. This may or may not show signs of an artificially modified area. A rural fence surrounds most of the site (approximately 2000 m<sup>2</sup>) which indicates at some point the farmer has attempted to keep stock out rather than provide avoidance for ploughing.

A line of bricks was identified in the north of the site that may be associated with irrigation or Drainage works, or a footing of a building or structure, but no other structural features were identified in this area other than these bricks. The bricks themselves were mostly laid on their sides and a maker's mark could not be determined without disturbing the layout. No visible mortar could be seen between the bricks (*Photograph 4.18*). Other brick fragments onsite bear the partial maker mark for 'Hoffman' bricks (*Photograph 4.17*), a Melbourne brickmaker in operation during the late 19<sup>th</sup> and early 20<sup>th</sup> century.



**Photograph 4.14 Small hut ruins facing north**



**Photograph 4.15 Small hut ruins facing southeast.**





**Photograph 4.16 Iron bolt from hut ruin.**



**Photograph 4.17 Close up of brick fragment with 'Hoffm' (for Hoffman) in frog.**








**Photograph 4.18 line of bricks in northern portion of site oriented east west.**

### 4.4.3 INTERPRETATION

The features of the site included artefacts such as bottles, ceramics and metal common to the late 19<sup>th</sup> century/early 20<sup>th</sup> century. It is uncertain if any underlying larger structure exists within the site extent. However, the small hut and brickwork in the north of site, as well as the presence of fragments of everyday items indicate the remnants of a small late 19<sup>th</sup> century/early 20<sup>th</sup> century occupation site. *Table 4-1* presents the results of research on artefacts located on site with diagnostic features.

**TABLE 4-1 DIAGNOSTIC CHARACTERISTICS OF HRHP ARTEFACT SCATTER**

Artefact Image	Material Type	Diagnostic Feature	Date Approximation
	Glass bottle	'This Bottle is the Property of Faulding & Co Ltd Australia' Most likely originally containing eucalyptus oil used as an antiseptic. Manufactured in Adelaide by Faulding and Co Ltd. Australia (Wikipedia 2023)	1880-1930s

Artefact Image	Material Type	Diagnostic Feature	Date Approximation
	Glass bottle	'California Fig Syrup Co Sterling Product Proprietary Agencies Australia LTD'. California Fig syrup was a remedy for the treatment of constipation (Lockhart, B. & B. Schriever, 2018)	1880-1930s
	Ceramic	Blue willow pattern Common household patterned ceramics made popular in 18 <sup>th</sup> century Britain. Popular in Australia throughout the late 18 <sup>th</sup> century until the early 20 <sup>th</sup> century. (Web Manager, 2020)	1840-1930s
	Brick	Hoffman brick, from Hoffman Brickworks in Brunswick, Melbourne (Stuart, 1987)	1870-1940s

The presence of a boiler remnant, drums, bricks and a wagon wheel and fencing may indicate the site of an outbuilding or workshop and lends further credence to the occupation of the area. The presence of the small hut and artefacts may indicate a small shepherds or stockriders quarters on the larger Bael Bael estate that includes the Project Area

The site does not contain any artefacts or remnants of later occupation (early 20<sup>th</sup> century onwards) that suggests ongoing occupation of the site after this period. There is potential within the less disturbed area of the site extent, such as within the fenced-off area, for intact archaeological deposits. Clearance of vegetation and a subsurface investigation would be required to delineate the actual size and extent of the archaeological resource.

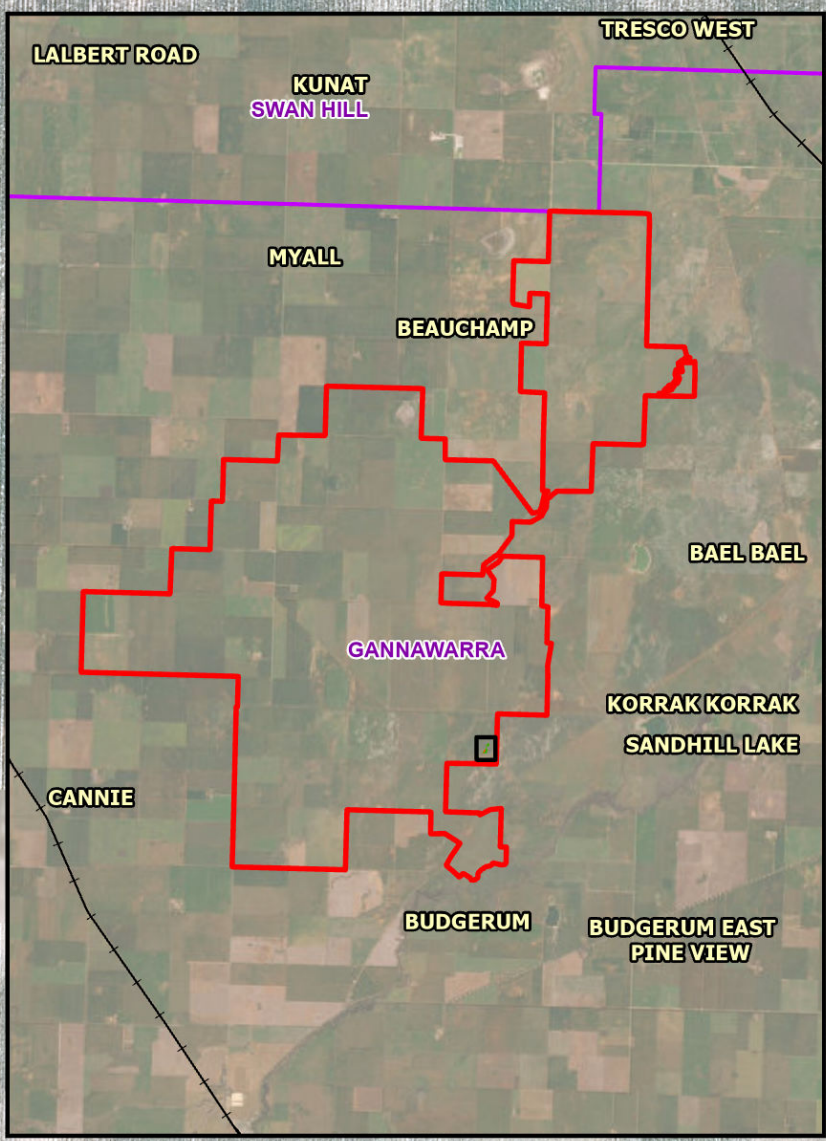
#### 4.4.4 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

The southern and northern portions of HRHP that have been fenced off from ploughing and grazing have higher likelihood for in-situ subsurface archaeological deposits. These deposits

are likely to include further artefactual material such as ceramics, glass, metal, and other small finds associated with the late 19<sup>th</sup>/ early 20<sup>th</sup> century period. Archaeological deposits with the site extent may also yield remnants of foundation of structures in addition to the small hut ruin.

The outer western portions of the HRHP have a lower likelihood for in-situ subsurface archaeological deposits due to the seasonal ploughing and cropping that has likely occurred for the last 100 years. If in-situ deposits do occur in this area, then they will be at depth greater than 300 mm and will likely contain small finds such as ceramics and glass fragments. Clearance of vegetation and a subsurface investigation would be required to determine the actual extent of this historic place.





- Legend**
- Heritage Feature (Point)
  - Heritage Feature (Area)
  - ▭ Site Extent
  - Survey Area



Coordinate System:  
GDA2020 MGA Zone 54  
Date: 06/03/2024  
Created By: CS  
Drawing Size: A3

0 10 20 30Meters



**F4-1 Heritage Survey Results**

**Cannie Wind Farm**  
RES Australia Pty Limited





## 4.5 ARCHAEOLOGICAL SIGNIFICANCE

### 4.5.1 VICTORIA HERITAGE INVENTORY

Under the *Heritage Act 2017*, the archaeological significance of the archaeological sites within Victoria must be considered to ascertain if the site meets the threshold for inclusion on the Victorian Heritage Inventory (**VHI**).

Under Section 123 of the Heritage Act it is an offence to *knowingly or negligently deface, damage, or otherwise interfere with an archaeological site*, whether it is included in the VHI or not, without a Consent.

A Consent under Section 124 is required from the Executive Director for works or activities, including excavation, in relation to an archaeological site. Fees for consents are detailed in Section 23 of the *Heritage Regulations 2017*.

The thresholds for inclusion on the VHI are as follows:

#### **Threshold A (archaeology):**

- the place meets the definition of archaeological site under the Act-
  - Under the *Heritage Act 2017*, an archaeological site means the following:
    - a) contains an artefact, deposit or feature which is 75 or more years old; and
    - b) provides information of past activity in the State; and
    - c) requires archaeological methods to reveal information about the settlement, development or use of the place; and
    - d) is not associated only with Aboriginal occupation of the place.
- it can be demonstrated that the site contains archaeological features, associated artefacts and/or deposits; and/or
- documentary evidence and/or oral history, landscape features, visible site fabric or other information
- indicates a likelihood that the site contains archaeological remains; and
- the archaeological remains are, or are likely to be, in a condition that will allow information to be obtained; and
- that will contribute to an understanding of the site.

#### **Threshold B (place history):**

- the site evidences (or is likely to evidence) an association with a historical event, phase, period, process,
- function, tradition, movement, custom or way of life; and
- the site history is of significance within a state, regional, local, thematic or other relevant framework.

### 4.5.2 HOGANS ROAD HISTORIC PLACE SIGNIFICANCE ASSESSMENT

An analysis of the identified HRHP has been carried to ascertain if the place fulfils the threshold required to include the place on the VHI.



TABLE 4-2 VHI THRESHOLD CRITERIA

Threshold A (Archaeology)	
Criterion	Analysis
<b><i>The place meets the definition of archaeological site under the Act.</i></b>	HRHP comprises an artefact assemblage dating to the late 19 <sup>th</sup> / early 20 <sup>th</sup> century. This indicates a date range for the site of over 75 years in age and provides information from that era. HRHP meets the definition of being an 'Archaeological site' under the Act.
<b><i>It can be demonstrated that the site contains archaeological features, associated artefacts and/or deposits.</i></b>	Archaeological features such as small hut and artefactual material dating to the late 19 <sup>th</sup> century/ early 20 <sup>th</sup> century ceramics, glass, bricks, and metal (surface scatter) were identified during the site survey.  HRHP fulfils the criterion for containing archaeological features, associated artefacts and/or deposits.
<b><i>Documentary evidence and/or oral history, landscape features, visible site fabric or other information</i></b>	No documentary evidence was located during the desktop assessment to indicate that structures would be present in the HRHP site extent. Visible site fabric such the ruined small wooden hut is present on the site and indicates there is archaeological potential for further features such as structure foundations or other remnants of occupation of the site.  HRHP partially fulfils this threshold through presence of visible site features such as a ruined small hut, fencing, brick work and an artefact scatter.
<b><i>The archaeological remains are, or are likely to be, in a condition that will allow information to be obtained that will contribute to an understanding of the site;</i></b>	Portions of the HRHP extent appear to be relatively intact, with discrete areas having sustained minimal disturbance as a result of being fenced off from ploughing. There is a high likelihood for subsurface archaeological / occupation deposit to occur in these areas, which would contribute to the understanding of the site. The outer western extent of the site, however, has been significantly disturbed by ploughing, which is likely restricted to the upper 300 mm of topsoil. Underlying archaeological deposits may still occur below this disturbance.  HRHP fulfils this criterion as there is a potential of archaeological deposits to be located within the site extent that can contribute toward the understanding of the site.
Threshold B (place history)	
<b><i>The site evidences (or is likely to evidence) an association with a historical event, phase, period, process,</i></b>	The artefact assemblage located within the site extent for the HRHP indicate the site dates to the late 19 <sup>th</sup> / early 20 <sup>th</sup> century. This may indicate an association with the early settlement of the region and as such provide valuable information on early farming in the area. There is further potential for other artefacts to be located on site that may provide further evidence of a specific reference to a phase or period in Victoria history. HRHP partially fulfils this criterion as a period dating to the late 19 <sup>th</sup> / early 20 <sup>th</sup> century due to limited nature of the investigation of the site to date. Further detailed investigation is likely to provide a detailed insight into the into early settlement and agriculture in the western shires of Victoria

<p><b><i>function, tradition, movement, custom or way of life; and</i></b></p>	<p>Components of the HRHP artefact assemblage such as the glass and ceramic artefacts are evidence of 19<sup>th</sup> / early 20<sup>th</sup> century way of life and the movement of domestic items through the region. Bricks such as the Hoffman Brick indicate an importation of materials from as far away as Melbourne but may be a common building product in the region.</p> <p>HRHP partially fulfils this criterion as an example of the 19<sup>th</sup> / early 20<sup>th</sup> century way of life in the region</p>
<p><b><i>the site history is of significance within a state, regional, local, thematic or other relevant framework</i></b></p>	<p>The site history may be considered to be of local significance due to it being a snapshot of life work on a pastoral property in the western shire during the late 19<sup>th</sup>/ early 20<sup>th</sup> century. The level of this significance is uncertain above a local or thematic level. HRHP partially fulfils this criterion as the site history is likely to hold significance at a local or thematic level but the limited features recorded do not provide a definitive rating.</p>

**4.5.2.1 STATEMENT OF ASSESSMENT**

HRHP fulfils the criteria of Threshold A and has varying aspects that partially fulfil Threshold B for inclusion of an archaeological site on the VHI. As such it is recommended that a site card be prepared and submitted to Heritage Victoria for evaluation and potential registration on the VHI.

**5. IMPACT ASSESSMENT**

This section provides a summary of the potential impacts for historical archaeological or historic heritage value identified and includes a preliminary analysis of consequence. The sections below outline the metrics utilized to undertake the impact assessment.

**5.1 CONSEQUENCE RATINGS**

The following ‘consequence ratings’ are used to provide an assessment of level of impact to the heritage item. The consequence ratings have been devised to illustrate the level of impact and provide a framework against which mitigation and management recommendations can be made.

**TABLE 5-1 CONSEQUENCE RATINGS**

Rating	Consequence or Impact to heritage item
5 – Major	Permanent detrimental impact to the heritage item would occur, beyond salvage and where replacement is not possible. The impact would cause irreversible negative impact to the overall heritage significance of the heritage item or place.
4 – Major	Permanent detrimental impact on one or more of the following would occur but may be reduced through mitigation measures: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place’s availability for access.
3 – Significant	Some damage or change may occur that would require remedial action, and permanent impact would occur to one or more of the following: the significance, any



Rating	Consequence or Impact to heritage item
	of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.
2 – Minor	Minor damage or change could be relatively and easily remedied or repaired, with no permanent negative impact to the heritage item's significance or heritage values contributing to significance, the functionality of the item or place, or the item or place's availability for access.
1 – Insignificant	Damage or change, if it occurred at all, would be of an extremely slight or minor nature.

## 5.2 TYPE OF IMPACT

The following impact definitions have been utilized in the impact assessment to demonstrate the effect of the proposed works on identified heritage items. *Table 5-1* below provides details of proposed project impacts at all locations where known heritage items have been identified in proximity to proposed works (*Figure 5-1*). *Table 5-1* provides an overview of the proposed impact areas in relation to historic heritage in the Project Area.

TABLE 5-2 TYPES OF IMPACT

Types of Impact	Description
Direct	Direct impact is defined as physical impact on the heritage site or place or its listed curtilage. Direct impact may result from construction activities, proposed road upgrades, or transportation of materials.
Indirect/Potential	Indirect or temporary impact may include reduction of the listed curtilage of a heritage site or place or temporary visual impact, or temporary modification of the heritage site or place. Potential impact is identified where an item has been identified in proximity to works and has been flagged for further review.
No impact	The heritage site will not be impacted by the proposed works

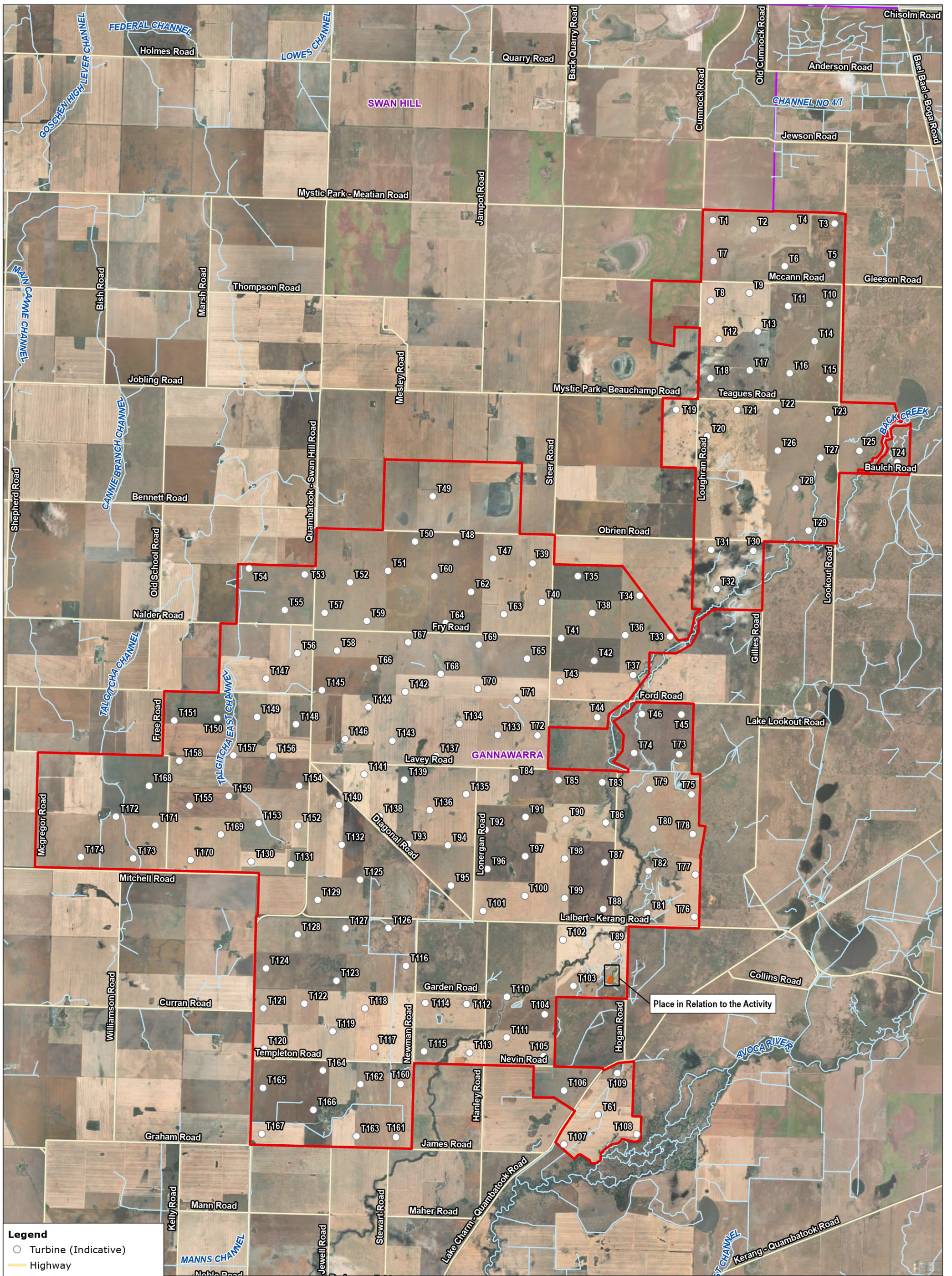
### 5.3 INDENTIFICATION OF POTENTIAL IMPACTS TO HERITAGE VALUES

A high-level summary of potential impacts to historic heritage values that may occur as a result of Project construction, operation, and decommissioning activities is presented in *Table 5-3*. This summary includes preliminary mitigation measures that may be adopted or considered, noting that a comprehensive suite of additional measures will be informed by the impact assessment process.

**TABLE 5-3 IDENTIFICATION OF POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES**

Project Aspect	Heritage Site or Type	Potential Impacts by Project activities	Type of Impact	Consequence Rating	Mitigation Measures
Installation of Wind Farm infrastructure including WTGs, access tracks, conduit lines, etc	HRHP site Unrecorded historical archaeological resources	Clearing – impacts to historic heritage values Localised ground disturbance associated with construction may result in direct or indirect disturbance to cultural heritage or archaeological resources	No Impact	– Insignificant	Avoid identified HRHP site.  Site card and VHI registration of HRHP Preparation of Unexpected Finds Protocol and Historic Heritage Induction material





- Legend**
- Turbine (Indicative)
  - Highway
  - Road
  - Major Watercourse
  - ▭ Site Extent
  - ▭ Survey Area
  - ▭ Cannie Wind Farm
  - ▭ Local Government Area



Coordinate System:  
GDA2020 MGA Zone 54  
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0 0.8 1.6 2.4KM  
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**F5-1 Place in Relation to the Activity**

**Cannie Wind Farm**  
RES Australia Pty Limited



## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 CONCLUSIONS

A desktop assessment and field survey were carried out as part of this PHHA to determine the extent of historic heritage within the Project Area, and to provide an analysis of potential impacts of the Project on heritage values. The assessment found that there was a high potential for historic heritage within a small area on the western side of the Project Area near Hogans road, Cannie. This area was initially identified by Umwelt in 2022 as being the location of small scatter of historic artefacts and one small structure. Umwelt recommended this place be included on the VHI and a site card be lodged with Heritage Victoria.

The remainder of the Project Area was found to have low potential for historic heritage and as such there was not a requirement to reassess the entire Project Area for historic heritage. Private properties with built structures within the Project Area where no development would occur were not accessed as part of this assessment.

ERM carried out a new survey to expand on the Umwelt investigations and to ascertain the extent of this historic site and to provide a detailed analysis on potential impacts to the heritage based on the development footprint. The survey determined a site extent and confirmed a significance assessment of the site with a view to inclusion on the VHI. The site was recorded as Hogans Road Historic Place and found to date to the late 19<sup>th</sup> / early 20<sup>th</sup> century and has local archaeological significance under Threshold A and Threshold B of VHI registration criteria. As such, HRHP fulfils the thresholds required to be included in the VHI.

Consideration was given to the archaeological potential of the HRHP site and the remainder of the Project Area. The HRPH site was found to have moderate to high archaeological potential for further archaeological deposits, while the remainder of the Project Area has low potential for intact and significant historical archaeological deposits to occur. The current proposed Project footprint will not impact any known historic heritage places and has a low likelihood to impact unknown historic heritage.

There is no planned impact based on the current layout in relation to the six extant structures within the Project Area. If the current layout or Project Area changes, it is recommended that further assessment be conducted.

Recommendations for the management of existing and unknown heritage is outlined in *Section 6.2*.

### 6.2 RECOMMENDATIONS

- A site card must be prepared for HRHP in accordance with Section 127 of the *Heritage Act 2017*:

*Reporting of investigations and surveys of land*

*(1) If an archaeological site is discovered during an investigation or survey of land for a relevant survey purpose, the person undertaking the investigation or survey must provide a site card to the Executive Director within 30 days after the discovery.*



- The site card needs to be submitted to Heritage Victoria together with the relevant spatial information as soon as practicable. The site card would be evaluated by Heritage Victoria and, on approval, the site would be listed on the Victorian Heritage Inventory register.
- *Hogans Road Historic Place Area Avoidance*
  - The area containing and around HRHP should be avoided by Project-related activities. If harm cannot be avoided, then a consent may be required from Heritage Victoria to impact the site, if it becomes listed on the Victorian Heritage Inventory register. This consent may require a detailed archaeological investigation of HRHP and the surrounding area.
  - If Hogans Road Historic Place is not included on the VHI register, then no avoidance measures or consents would be required to carry out the works at this location.
  - Preparation of an Unexpected Finds Procedure and Historical Heritage Induction, and inclusion of these in the Project's Construction Environmental Management Plan for the Project Area.

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APPENDIX A

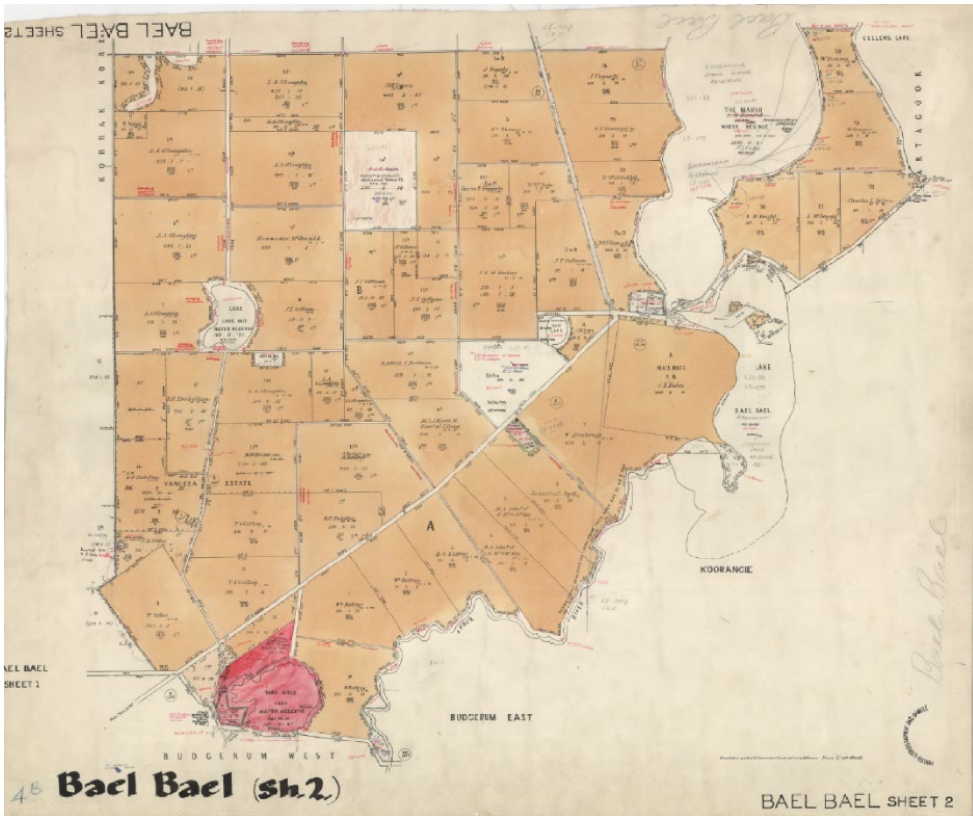
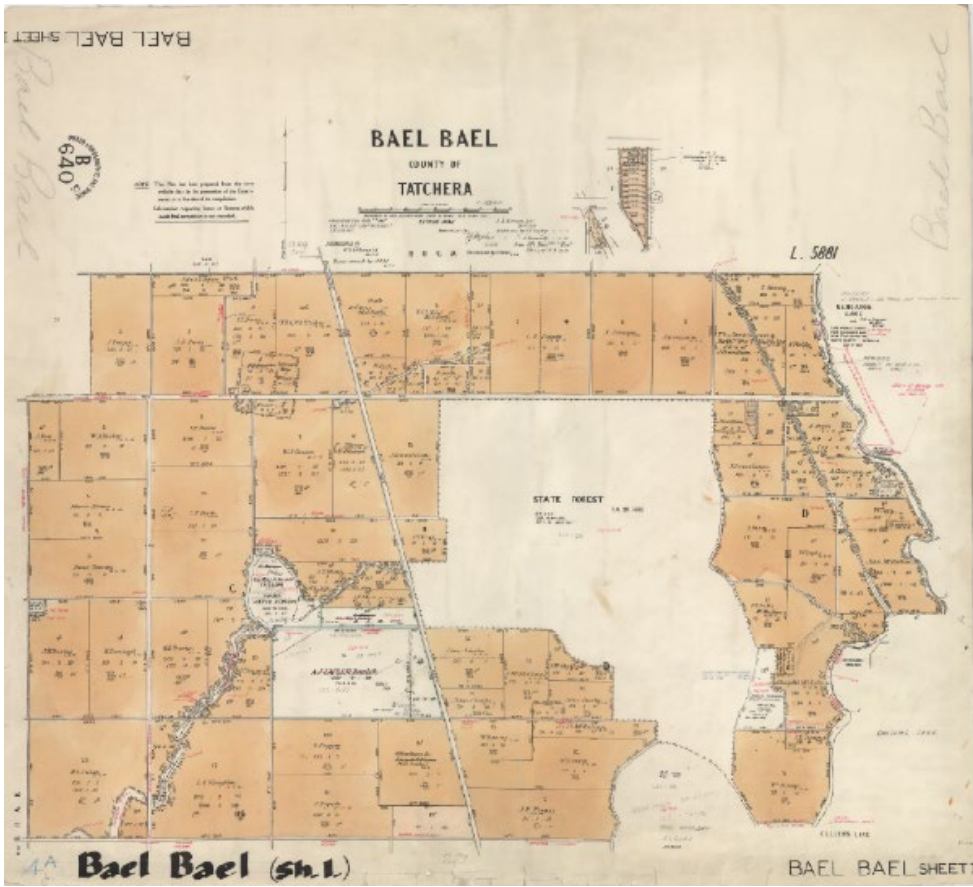
PARISH PLANS OF THE PROJECT AREA  
1923





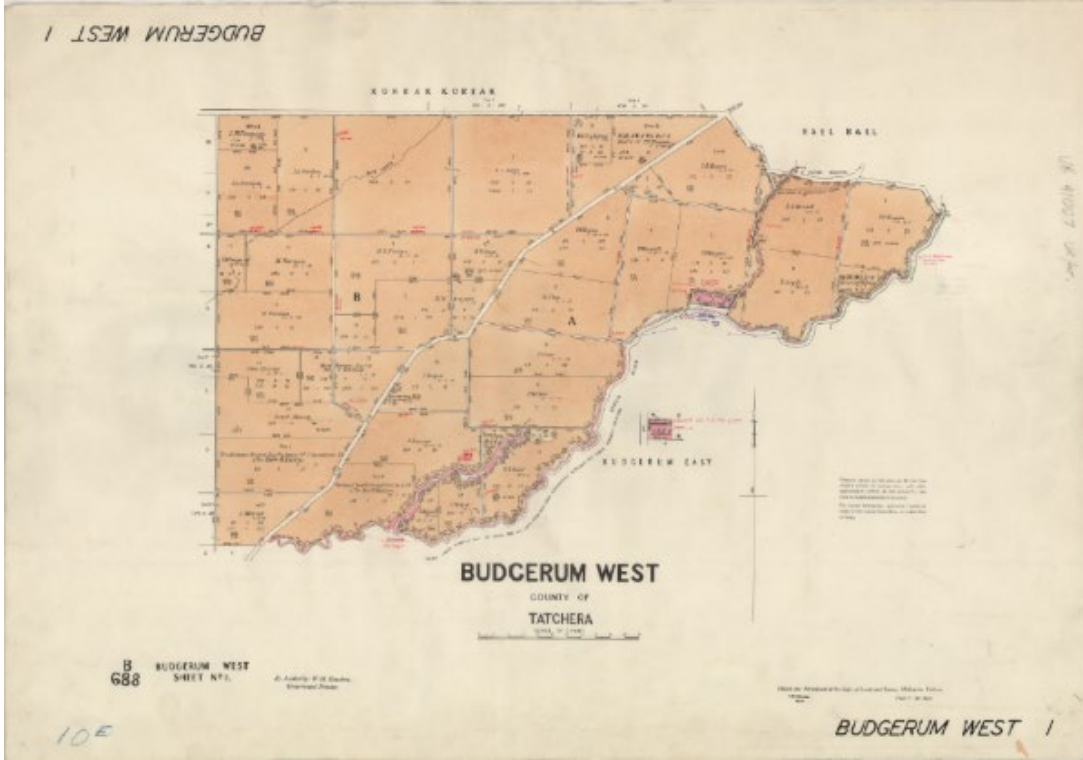


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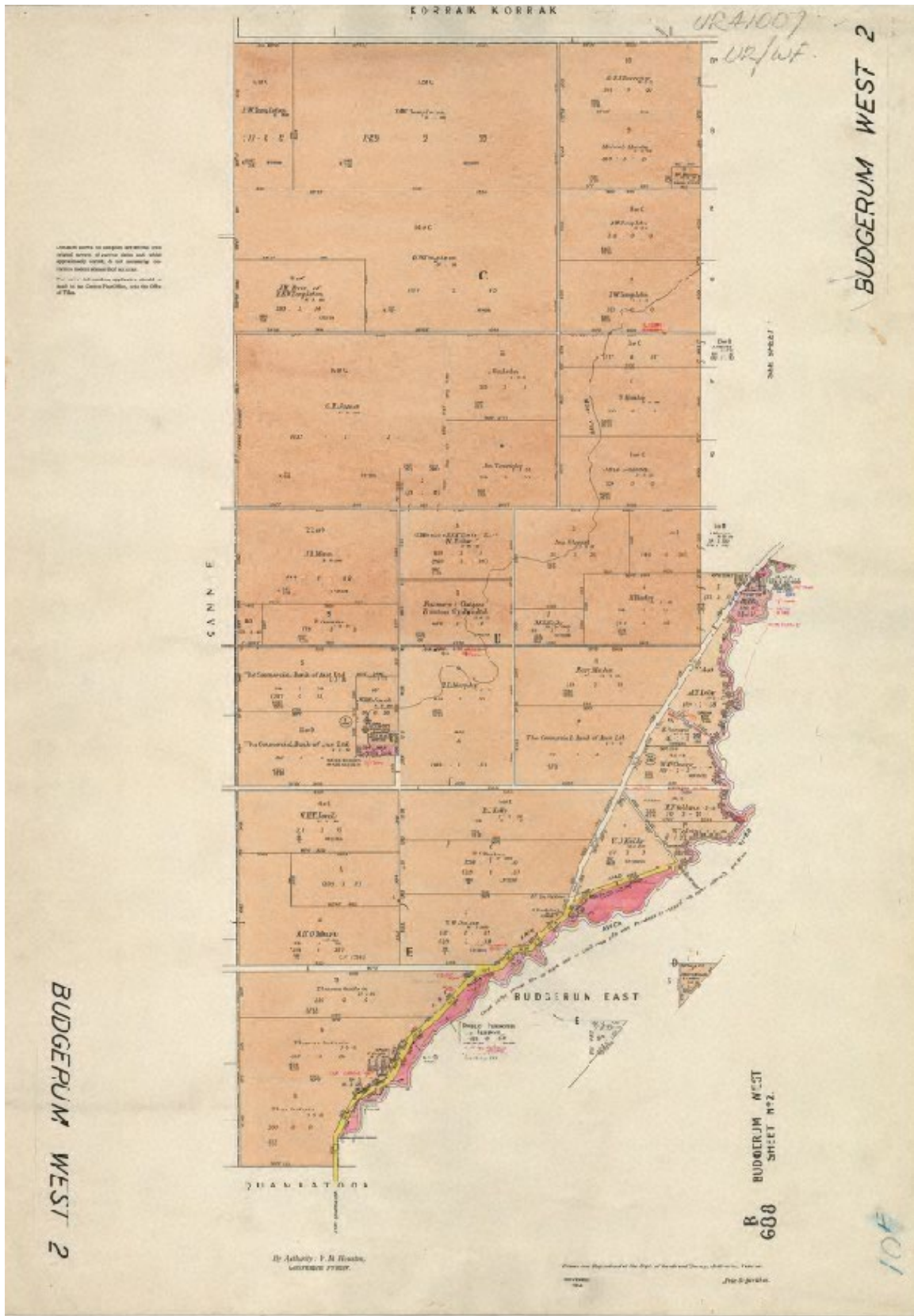
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