



Appendix 13

Historic Heritage Assessment Report

prepared by

OzArk Environment & Heritage

(Total No. of pages including blank pages = 52)



Aerial image across the central portion of the Heritage Assessment Area.

HISTORIC HERITAGE ASSESSMENT REPORT

COPI MINERAL SANDS PROJECT

WENTWORTH LOCAL GOVERNMENT AREA

MARCH 2024

Report prepared by
OzArk Environment & Heritage
for RZ Resources Limited



OzArk Environment & Heritage

145 Wingewarra St
(PO Box 2069)
Dubbo NSW 2830

Phone: (02) 6882 0118

Fax: (02) 6882 0630

enquiry@ozarkehm.com.au

www.ozarkehm.com.au

This page has intentionally been left blank

DOCUMENT CONTROLS

Applicant	RZ Resources Limited	
Client	RW Corkery & Co	
Document Description	<i>Historic Heritage Assessment Report: Copi Mineral Sands Project, Wentworth Local Government Area.</i>	
File Location	OzArk Job No.	
S:\OzArk EHM Data\Clients\ RW Corkery & Co	3275	
Document Status: V3.1 FINAL	Date: 13 March 2024	
Author to Editor	V1.0 HR author 24/1/24 V1.1 SR review 24/1/24	
Report draft for release to client	V2.0 OzArk to Client 25/1/24	
Final report	V3.0 OzArk finalises 12/3/24 V3.1 OzArk amends project description 13/3/24	
Prepared For	Prepared By	
RZ Resources Limited GPO Box 2367 Brisbane QLD 4000	Stephanie Rusden Senior Archaeologist OzArk Environment & Heritage 145 Wingewarra Street (PO Box 2069) Dubbo NSW 2830 P: 02 6882 0118 stephanie@ozarkehm.com.au	
<p>COPYRIGHT</p> <p>© OzArk Environment & Heritage 2024 and © RZ Resources Limited 2024</p> <p>All intellectual property and copyright reserved.</p> <p>Apart from any fair dealing for private study, research, criticism, or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission.</p> <p>Enquiries should be addressed to OzArk Environment & Heritage.</p>		

ABBREVIATIONS AND GLOSSARY

DCCEEW (Commonwealth)	Commonwealth Department of Climate Change, Energy, the Environment and Water. Department responsible for administering the EPBC Act
DCCEEW (state)	State - Department of Climate Change, Energy, the Environment and Water. DECCW contains the Environment and Heritage Group which, in turn, contains Heritage NSW and AHIMS.
DPHI	NSW Department of Planning, Housing and Infrastructure. DPHI contains the Planning agency.
EIS	Environmental Impact Statement. A required document for major projects documenting all potential impacts to the environment, including heritage, that may arise due to the development.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
Heritage Act	<i>Heritage Act 1977</i> . Provides for the protection and conservation of historical places and objects of cultural heritage significance and the registration of such places and objects.
Heritage Council	The Heritage Council makes decisions about the care and protection of heritage places and items that have been identified as being significant to the people of NSW.
Heritage NSW	Government department tasked with ensuring compliance with the Heritage Act.
LEP	Local Environmental Plan
Limit of Disturbance	Areas within the Heritage Assessment Area subject to physical disturbance as a result of the proposed mining operations and ancillary activities
Heritage Assessment Area	Area subject to the historic heritage assessment
SEARs	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory. A register of places in NSW that are protected by LEPs or state government entities' Section 170 Heritage and Conservation registers.
SHR	State Heritage Register. A register of places in NSW that are protected by the Heritage Act.

EXECUTIVE SUMMARY

RZ Resources Limited is seeking approval for the proposed Copi Mineral Sands Project (the Project).

The Project is located 75 kilometres (km) northwest of Wentworth and 180 km south of Broken Hill in the Murray Basin region of southwestern NSW within the Wentworth Local Government Area.

RZ Resources Limited seeks State Significant Development (SSD) Consent approval under Division 4.7 of Part 4 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) for the Project (SSD-41294067).

OzArk Environment & Heritage (OzArk) has been engaged by RW Corkery & Co who are preparing the Environmental Impact Statement, to provide specialist historic heritage assessment for the Project.

Desktop database searches completed prior to the survey show there are three items listed on the Wentworth Shire Local Environmental Plan (LEP) of 2011 whose curtilage overlaps with the Heritage Assessment Area. These three items include I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' and I81 'Nulla Nulla Woolshed'. The Heritage Assessment Area is also adjacent to the curtilage for I82 'Nulla Nulla Homestead and Associated Dwellings' and near I4 'Bunnerungie Cemetery'.

The historic heritage assessment took place at the same time as the Aboriginal heritage assessment. The fieldwork component of this assessment was undertaken on:

- Phase 1:
 - Survey: 25 to 29 February 2020 (5 days) and 2 March to 4 March 2020 (3 days).
- Phase 2:
 - Survey: 1 to 4 February 2022 (4 days) and 1 to 5 March 2022 (5 days).
- Phase 3:
 - Survey: 20 to 23 November 2023 (4 days).

During the survey, three historic heritage items were recorded: Huntingfield-HS01, Huntingfield-HS02 and Warwick-HS01. Huntingfield-HS01 and Huntingfield-HS02 share a clear association between each other, and local knowledge was offered by the current landowner concerning their provenance.

Huntingfield-HS01, Huntingfield-HS02 and Warwick-HS01 have been assessed as having no significant historic value under the current Heritage NSW guidelines and the Burra Charter. It is

noted, however, that Huntingfield-HS01 and Huntingfield-HS02 have personal significance for previous owners of the property and the items should be respected as such.

Huntingfield-HS01 and Huntingfield-HS02 are both located outside the Limit of Disturbance and no management is required for these items. Warwick-HS01 is located along the proposed site access and powerline route and has potential to be impacted by the Project.

While the Project will impact land within the curtilage of LEP listed items I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' and I81 'Nulla Nulla Woolshed' there is no direct or indirect impact to the physical structures associated with these listings. There will also be no indirect impact to I4 'Bunnerungie Cemetery' and I82 'Nulla Nulla Homestead and Associated Dwellings'.

Recommendations concerning the historic values within the Heritage Assessment Area are as follows.

1. All land-disturbing activities must be confined within the assessed Limit of Disturbance. Should Project impacts change such that the area to be impacted is outside of the assessed Limit of Disturbance, then additional assessment may be required.
2. No management measures are required for Huntingfield-HS01, Warwick-HS01, I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge', I4 'Bunnerungie Cemetery', I81 'Nulla Nulla Woolshed' and I82 'Nulla Nulla Homestead and Associated Dwellings'.
3. If subsequent revision to the impacts of the Project will result in harm to Huntingfield-HS02, the Applicant should attempt to contact the family of the previous landholder whose ashes are interred at the site to discuss management options.
4. Following Section 5.10 (3alii) of the Wentworth Shire LEP, Wentworth Shire Council must be informed prior to any impact that the Project will not adversely affect the heritage significance of I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' or I81 'Nulla Nulla Woolshed'. Wentworth Shire Council must reply in writing prior to any works commencing that they are satisfied that the heritage item will not be harmed.
5. Procedures for the unexpected discovery of historic items and/or human skeletal material during the construction and/or use of the Project should be set out in an approved *Heritage Management Plan* (HMP) that would be developed following Project approval. The HMP will address both historic and Aboriginal heritage. No construction work associated with the Project can commence until the HMP has been approved by the Department of Planning, Housing and Infrastructure (DPHI).

CONTENTS

ABBREVIATIONS AND GLOSSARY	III
EXECUTIVE SUMMARY	IV
1 INTRODUCTION	1
1.1 Description of the Project.....	1
1.2 Project overview	1
1.3 Heritage Assessment Area	7
2 HISTORIC HERITAGE ASSESSMENT: INTRODUCTION	10
2.1 Relevant legislation.....	10
2.1.1 Commonwealth legislation	10
2.1.2 State legislation	10
2.1.3 Local legislation	12
2.2 Historic heritage assessment objectives	12
2.3 Date of historic heritage assessment	13
2.4 OzArk involvement.....	13
2.4.1 Field assessment.....	13
2.4.2 Reporting	14
3 ENVIRONMENTAL CONTEXT	15
3.1 Environmental overview	15
4 HISTORIC HERITAGE ASSESSMENT: BACKGROUND	17
4.1 Brief history of the Wentworth and Lake Victoria area.....	17
4.2 Local context.....	19
4.2.1 Desktop database searches conducted	19
4.2.2 LEP listed item details.....	20
5 RESULTS OF HISTORIC HERITAGE ASSESSMENT	25
5.1 Survey and field methods.....	25
5.2 Project constraints	26
5.3 Historic heritage items	27
Huntingfield-HS01	30
Huntingfield-HS02.....	31

Warwick-HS01	31
5.4 Assessment of historic heritage significance	32
5.4.1 Assessment of significance—general principles	32
5.4.2 Assessment of significance of historic items	33
Huntingfield-HS01	33
Huntingfield-HS02	34
Warwick-HS01	34
5.5 Discussion	34
5.6 Likely impacts to historic heritage from the Project	35
6 MANAGEMENT AND MITIGATION: HISTORIC HERITAGE	39
6.1 General principles for the management of historic sites	39
6.1.1 Management and mitigation of recorded historic sites	39
6.1.2 Unanticipated finds protocol	39
7 RECOMMENDATIONS	40
REFERENCES	41

FIGURES

Figure 1-1: Map showing the location of the Mine Site	5
Figure 1-2: Proposed Project components	6
Figure 1-3: Aerial showing cadastral details of the Heritage Assessment Area and Mine Site. ...	9
Figure 3-1: Location of the western and eastern salt pans within the Heritage Assessment Area.	16
Figure 3-2: Aerial image of the eastern salt pan	16
Figure 4-1: Detail of MacDonald’s 1879 <i>Map of the Riverina and the Northern and Northwestern Pastoral Lots</i> . Approximate location of Heritage Assessment Area is within the red circle.	19
Figure 4-2: LEP listings I2 ‘Bunnerungie Homestead’ and I3 ‘Bunnerungie Bridge’ in relation to the Heritage Assessment Area	23
Figure 4-3: LEP listings I81 ‘Nulla Nulla Woolshed’ and I82 ‘Nulla Nulla Homestead and Associated Dwellings’ in relation to the Heritage Assessment Area.	24
Figure 5-1: Survey coverage within the Heritage Assessment Area	25
Figure 5-2: Environmental context of the Heritage Assessment Area	26
Figure 5-3: Location of Warwick-HS01, Huntingfield-HS01 and HS02 in relation to the Heritage Assessment Area	28

Figure 5-4: Detail showing the location of Huntingfield-HS01 and HS02.	29
Figure 5-5: View of Huntingfield-HS01.	30
Figure 5-6: View of Huntingfield-HS02.	31
Figure 5-7: View of Warwick-HS01.....	32
Figure 5-8: Huntingfield-HS01 and Huntingfield-HS02 in relation to the Limit of Disturbance. ...	36
Figure 5-9: Warwick-HS01, I2 'Bunnerungie Homestead' and I3 'Bunnerungie Bridge' in relation to the Limit of Disturbance.....	37
Figure 5-10: I81 'Nulla Nulla Woolshed' and I82 'Nulla Nulla Homestead and Associated Dwellings' in relation to the Limit of Disturbance.	38

TABLES

Table 1-1: Project overview.....	1
Table 2-1: SEARs General Requirements.....	12
Table 4-1: Historic heritage: desktop-database search results.	20
Table 4-2: Assessment of heritage significance – I2 'Bunnerungie Homestead'	20
Table 4-3: Assessment of heritage significance – I3 'Bunnerungie Bridge'.....	21
Table 4-4: Assessment of heritage significance – I81 'Nulla Nulla Woolshed'.	22
Table 4-5: Assessment of heritage significance – I82 'Nulla Nulla Homestead and Associated Dwellings'.....	22
Table 5-1: Recorded historic heritage items.	27
Table 5-2: Historic heritage: assessment of significance.	33
Table 5-3: Assessment of heritage significance – Huntingfield-HS01.....	33
Table 5-4: Assessment of heritage significance – Huntingfield-HS02.....	34
Table 5-5: Assessment of heritage significance – Warwick-HS01	34
Table 5-6: Historic heritage: impact assessment.	35

1 INTRODUCTION

1.1 DESCRIPTION OF THE PROJECT

OzArk Environment & Heritage (OzArk) has been engaged by RW Corkery & Co on behalf of RZ Resources Limited (the Applicant) to complete a historic heritage assessment for the proposed Copi Mineral Sands Project (the Project).

The Project is located within the Mite Site, approximately 75 kilometres (km) northwest of Wentworth and approximately 180 km south of Broken Hill in the Murray Basin region of southwestern NSW within the Wentworth Local Government Area (LGA) (**Figure 1-1**).

The purpose of the assessment is to form part of an *Environmental Impact Statement (EIS)* being prepared by RW Corkery & Co to accompany an application for development consent under Division 4.7 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the Project.

1.2 PROJECT OVERVIEW

Table 1-1 presents an overview of the Project and **Figure 1-2** present the proposed layout of the Project.

Table 1-1: Project overview.

Project Element	Summary of the Project
Mining Method	<ul style="list-style-type: none"> Dredge mining from an Extraction Area approximately 17km long and up to approximately 3.3km wide. Mining would commence with a starter pond at the at the southwestern extent of the deposit. The starter pond would be extracted using conventional free dig, load and haul mining techniques. Extracted overburden, namely material located above the water table with no heavy mineral, would be used to construct infrastructure within the Mine Site or stockpiled for later use during rehabilitation operations. Following establishment of the starter pond, the dredges would be installed, followed by the floating Wet Concentration Plant. Interburden, namely material located below the water table with uneconomic heavy mineral, would be extracted using floating dredges. Interburden would initially be transferred to the Off Path Storage Facility. Once the dredge pond has achieved its full operational size, extracted interburden would be used to backfill completed sections of the Extraction Area. Ore, namely material with sufficient heavy mineral to justify processing, would be extracted using a floating dredge. The ore would be transferred to the floating Wet Concentration Plant for processing. Reject from the Wet Concentration Plant would initially be transferred to the Off Path Storage Facility. Once the dredge pond has achieved its full operational size, reject would be combined with the extracted interburden to backfill completed sections of the Extraction Area. The placed reject and interburden would be covered by overburden and soil before being rehabilitated.
Mineral Resource	<ul style="list-style-type: none"> Heavy mineral sand deposit approximately 23km long and up to 5km wide. Indicated and Inferred JORC-compliant resource (September 2023) – 2.54Mt at 1.2% heavy mineral comprising ilmenite, leucoxene, rutile, zircon, monazite and xenotime.
Annual Production	<ul style="list-style-type: none"> Ore: up to approximately 27.7 million tonnes per annum (Mtpa) Interburden: up to approximately 48 Mtpa Overburden: up to approximately 28.2 Mtpa
Mine Life	<ul style="list-style-type: none"> Project life: approximately 26 years, comprising <ul style="list-style-type: none"> Construction: approximately 2 years Mining: approximately 17 years Post-mining Rehabilitation: approximately 7 years post mining <p>Note: Construction and mining operations would be partially undertaken concurrently</p>
Total Resource Recovered	Ore mined: up to 406.4Mt

Project Element	Summary of the Project
Disturbance Area	<ul style="list-style-type: none"> • Mine Site: approximately 5,622 ha • Rail Facility: approximately 3.0 ha (existing), nil additional <p>Note: No additional disturbance proposed within the Rail Facility.</p>
Processing	<ul style="list-style-type: none"> • Processing operations would involve the following. <ul style="list-style-type: none"> - Wet screening and gravity separation of approximately 27.7 Mtpa of ore within the Wet Concentration Plant. - Dewatering and transfer of the Heavy Mineral Concentrate to the Concentrate Upgrade Plant to produce up to 511,000 tpa of the following. <ul style="list-style-type: none"> ▪ a primary and secondary ilmenite product. ▪ a monazite product. • a non-magnetic concentrate.
Management of Mining Waste	<ul style="list-style-type: none"> • Overburden <ul style="list-style-type: none"> - Extracted using dry mining techniques. - Initially used to construct infrastructure within the Mine Site or stockpiled for later use, after which it would be transferred directly to completed sections of the Extraction Area to reestablish the final landform. • Oversize <ul style="list-style-type: none"> - Screened and transferred directly to completed sections of the Extraction Area. • Interburden and Wet Concentration Plant reject and slimes <ul style="list-style-type: none"> - Initially transferred to the Off Path Storage Facility. Once the dredge pond has achieved its full operational size, reject would be combined with the extracted interburden to backfill completed sections of the Extraction Area. • Rare Earth Concentrate Plant reject. <ul style="list-style-type: none"> - Placed within completed sections of the Extraction Area. • General wastes and recyclables <ul style="list-style-type: none"> - Collected from site and transferred to a licenced waste management facility.
Transportation Operations	<ul style="list-style-type: none"> • Internal transportation <ul style="list-style-type: none"> - Mine Site Access Road (approximately 27 km) – would be constructed from Anabranh Mail Road to the Infrastructure Area. - Other light and heavy vehicle internal roads would be constructed within the proposed area of disturbance and would be relocated as required. • Transportation routes. <ul style="list-style-type: none"> - Realigned Anabranh Mail Road (approximately 6.1km) – from the Site Access Road to the Silver City Highway - Transportation Route - North (to Broken Hill) – Silver City Highway, Patton, Comstock and Eyre Streets and Holton Drive. - Transportation Route - South (to Wentworth) – Silver City Highway. - Other routes – use of other routes would be prohibited for Applicant-controlled vehicles and discouraged for all other vehicles. • Public road upgrades to accommodate Project generated traffic. <ul style="list-style-type: none"> - Realigned and upgraded section of Anabranh Mail Road from the intersection with the Mine Site Access Road to the Silver City Highway (approximately 6.1km). - Upgraded intersection of Anabranh Mail Road and the Silver City Highway. - Upgraded intersection of Patton and Comstock Streets. - Upgraded intersection of Comstock and Eyre Streets. - Upgraded intersection of Holten Drive and the Rail Facility Access Road. • Public road closure and realignment <ul style="list-style-type: none"> - Nulla Road between the “Huntingfield” homestead and the “Wenba” Station access road would be closed indicatively during Years 11, 12 and 13 when the Project would mine through the road. - The road would be reinstated in a realigned location as soon as practicable once mining has progressed through that section of the road. • Product/concentrate transportation <ul style="list-style-type: none"> - Route: via Transport Route North to the Rail Facility - Vehicle type: AB-triple (Type 1) or AB-quad (Type 2) road trains - Material classification (under Australian Code for the Transport of Dangerous Goods by Road & Rail) <ul style="list-style-type: none"> ▪ a primary and secondary ilmenite product. Ilmenite products and non-magnetic concentrate: Not classified ▪ Monazite product: Class 7 (Radioactive Material) - Traffic level <ul style="list-style-type: none"> ▪ AB-triple (Type 1) road trains: up to 16 laden movements per day ▪ AB-quad (Type 2) road trains: up to 12 laden movements per day - Onward transportation from Broken Hill (under separate approval)

Project Element	Summary of the Project		
	<ul style="list-style-type: none"> ▪ Ilmenite product and non-magnetic concentrate: by rail ▪ Monazite product: by road or rail <p>Note: AB-quad road trains would be used only once the required road permits have been obtained</p> <ul style="list-style-type: none"> • All other deliveries/consumables <ul style="list-style-type: none"> - Route <ul style="list-style-type: none"> ▪ Transport Route South: approximately 90% of movements ▪ Transportation Route North: approximately 10% of movements - Vehicle type: up to B-double - Traffic level: up to 11 laden movements per day 		
General Infrastructure	<p>On-site infrastructure not addressed above would include the following.</p> <ul style="list-style-type: none"> • Mine Camp associated infrastructure for up to 200 personnel. • A 66kV transmission line from the 220kV Buronga to Broken Hill transmission line. The transmission line would be located adjacent to the Mine Site Access Road. • Solar Farm and associated infrastructure. • A power station comprising modular, silenced, diesel generators and associated infrastructure for use during construction and for emergency power requirement during operations. • Offices and Administration Area. • Workshops, Stores and Laydown Areas. 		
Power	<ul style="list-style-type: none"> • Power for the Project would be provided by a combination of: <ul style="list-style-type: none"> - diesel generated power during construction operations - solar power from an approximately 35MW solar farm (if required); - mains power sourced via the above 66kV powerline. • Power distribution infrastructure, including substations and overhead, buried, and floating transmissions lines. • A minimum 30% of the Project's power would be sourced from renewable sources, including the onsite solar farm and/or externally contracted and certified renewable sources. 		
Water Management	<ul style="list-style-type: none"> • Groundwater within the target Loxton Parilla Sands is highly saline, with limited to no beneficial use. • Dredging operations would be reliant on groundwater inflows to the Extraction Area to form the pond upon which the dredges and Wet Concentration Plant would be floated. • Production bores would be installed within the Loxton-Parilla Sands to provide water for initial construction operations and feed for one or more reverse osmosis plants. <ul style="list-style-type: none"> - Treated water would be used for camp amenities, concentrate washing, dust suppression (in conjunction with polymer-based dust suppressants) and other purposes as required. - Brine from the reverse osmosis plant would initially be placed within a pond within the Extraction Area footprint, after which it would be transferred to the dredge pond. • Production bores and the Water Storage Dam would be used to manage the water level within the Starter Pond to allow construction and floating of the dredges and Wet Concentration Plant. • Sediment laden (dirty) water would be retained on site and used for mining-related purposes. • Water from undisturbed sections of the Mine Site (clean water) would be prevented from entering disturbed sections of the Mine Site. Where clean water accumulates adjacent to the clean water exclusion bunds, that water would be used for mining-related purposes. 		
Workforce	<ul style="list-style-type: none"> • Construction: up to approximately 480 persons • Operations: up to approximately 240 persons • Rehabilitation: up to approximately 40 persons <p>Note: Work and fatigue management rosters would result in not all personnel being on site at the same time</p>		
Hours of Operation	Activity	Proposed Days of Operation	Proposed Hours of Operation
	Land preparation	7 days per week	7:00am to 6:00pm
	Construction operations <ul style="list-style-type: none"> • Road construction within Broken Hill LGA • All other construction 	7 days per week	7:00am to 10:00pm
		7 days per week	24 hours per day
	Mining operations	7 days per week	24 hours per day
	Processing operations	7 days per week	24 hours per day
	Transportation operations <ul style="list-style-type: none"> • Heavy mineral concentrate transportation within Broken Hill LGA • All other transportation 	7 days per week	7:00am to 10:00pm
		7 days per weeks	24 hours per day
Capital Investment Value	AUD \$940 million		

Project Element	Summary of the Project
Final Landform	<ul style="list-style-type: none">• All infrastructure not required for the final land use removed or reduced in size• A backfilled, shaped, and revegetated Extraction Area with no final void• Nulla Road reinstated• Upgraded public infrastructure retained for public use.
Final Land Use	<ul style="list-style-type: none">• Native ecosystem, with active investigation of alternative post-mining land uses, including renewable energy generation.
Rehabilitation	<ul style="list-style-type: none">• Rehabilitation would occur progressively throughout the life of the Project, with the Extraction Area progressively backfilled, shaped, and rehabilitated.

Figure 1-1: Map showing the location of the Mine Site.

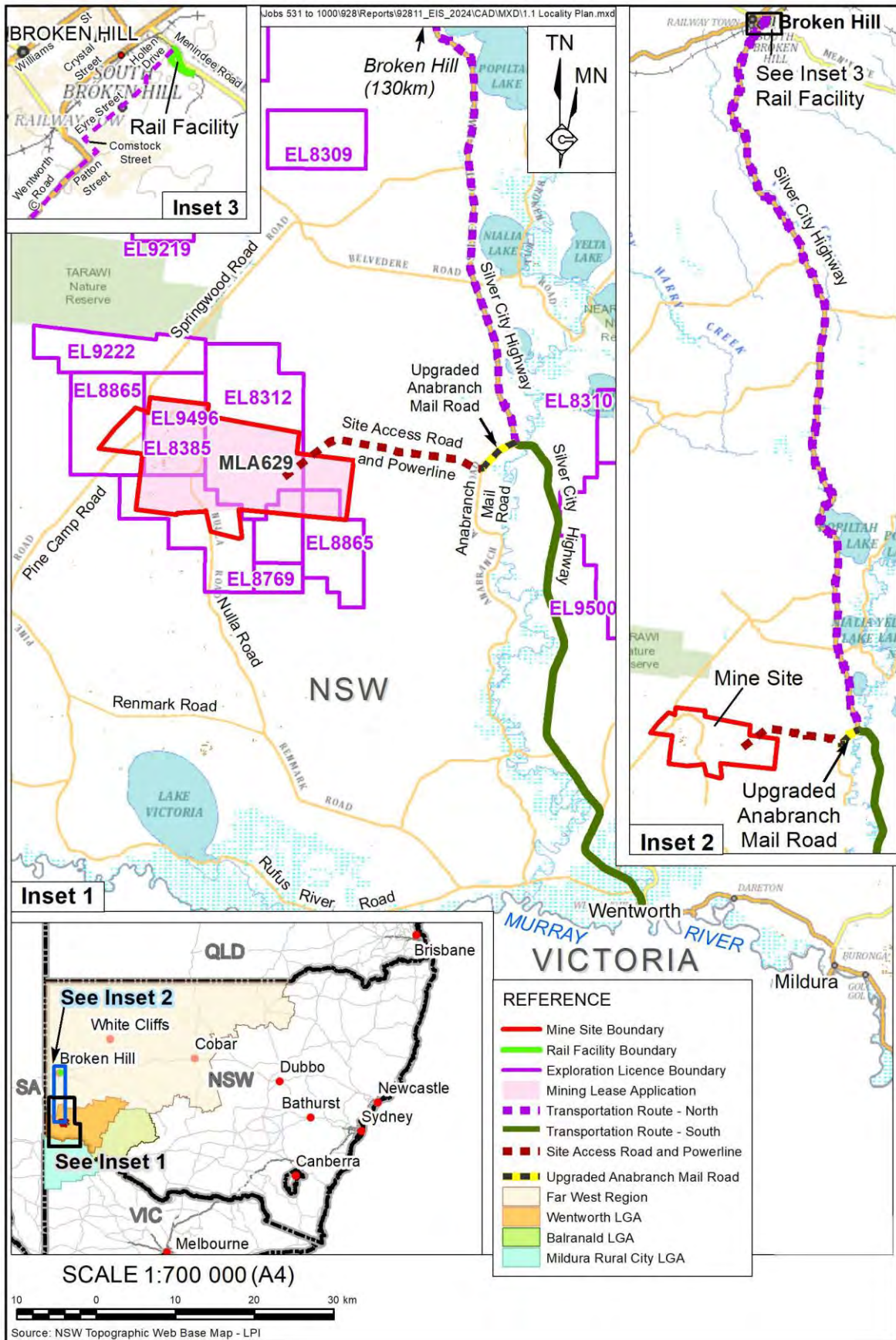
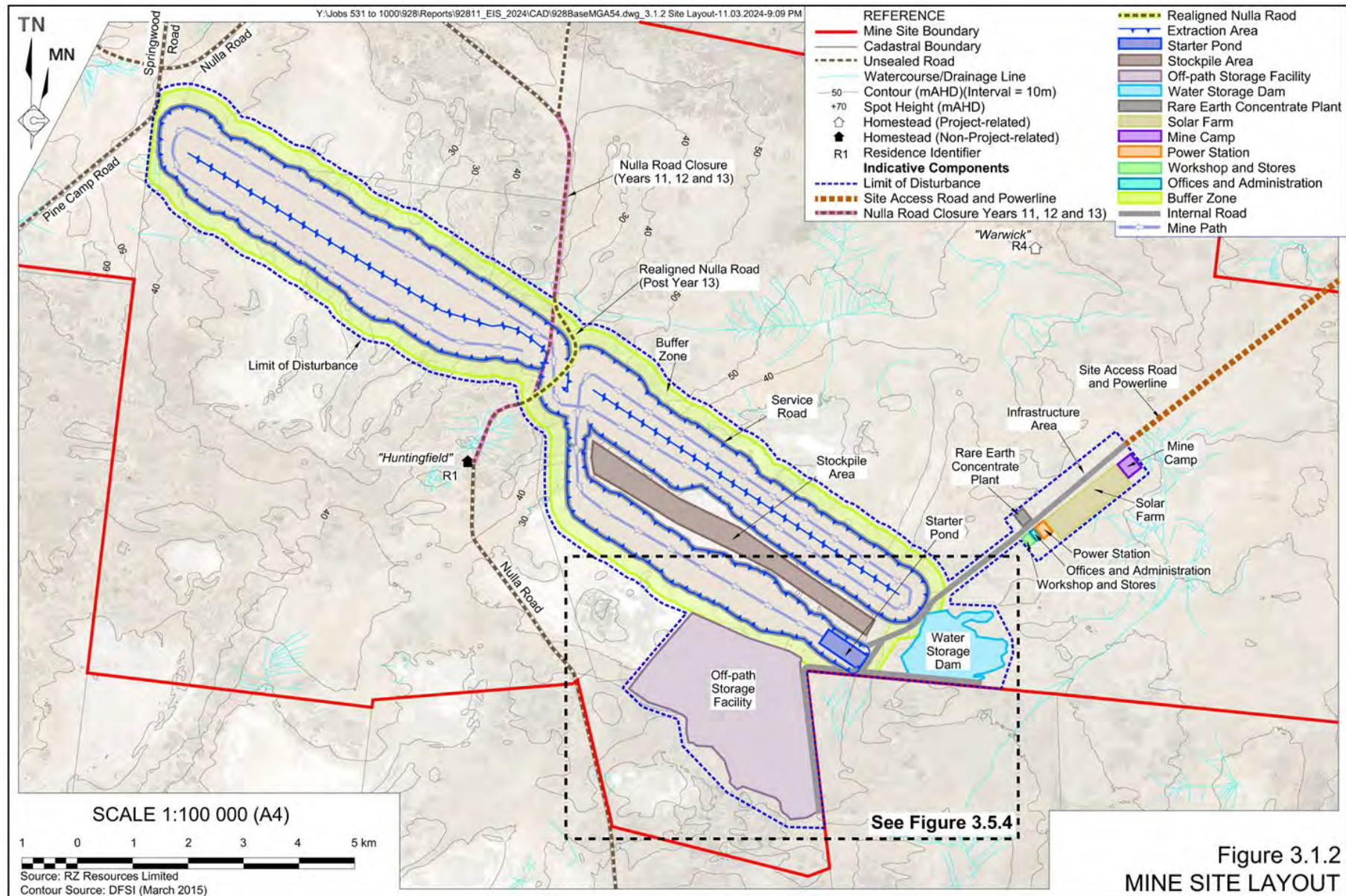


Figure 1-2: Proposed Project components.



1.3 HERITAGE ASSESSMENT AREA

The Heritage Assessment Area encompasses approximately 16,550.6 ha of land. The main components of the Project are located within Lot 1 DP 1255308, Lot 1 DP 756199, Lot 1907 DP 763791, Lot 1940 DP763792, Lot 4068 DP766543, Lot 4117 DP 766622 while ancillary infrastructure such as the site access road and powerline extend through Lot 3421 to 3423 DP765712, Lot 1908 DP763764 and Lot 1910 DP763766 (**The Heritage** Assessment Area is located within for pastoral stations: Warwick, Huntingfield, Nulla Nulla and Belmore.

Nulla Road intersects the central portion of the Heritage Assessment Area and the intersection of Nulla Road, Pine Camp Road and Springwood Road is in the western portion of the Heritage Assessment Area.

The Heritage Assessment Area is zoned RU1 – Primary Production under the Wentworth Local Environmental Plan (LEP) 2011 and is currently used for grazing. The principal portion of the Heritage Assessment Area consists of flat to gently undulating sand plains and dunes surrounding two salt pans, termed herein the eastern and western salt pans.

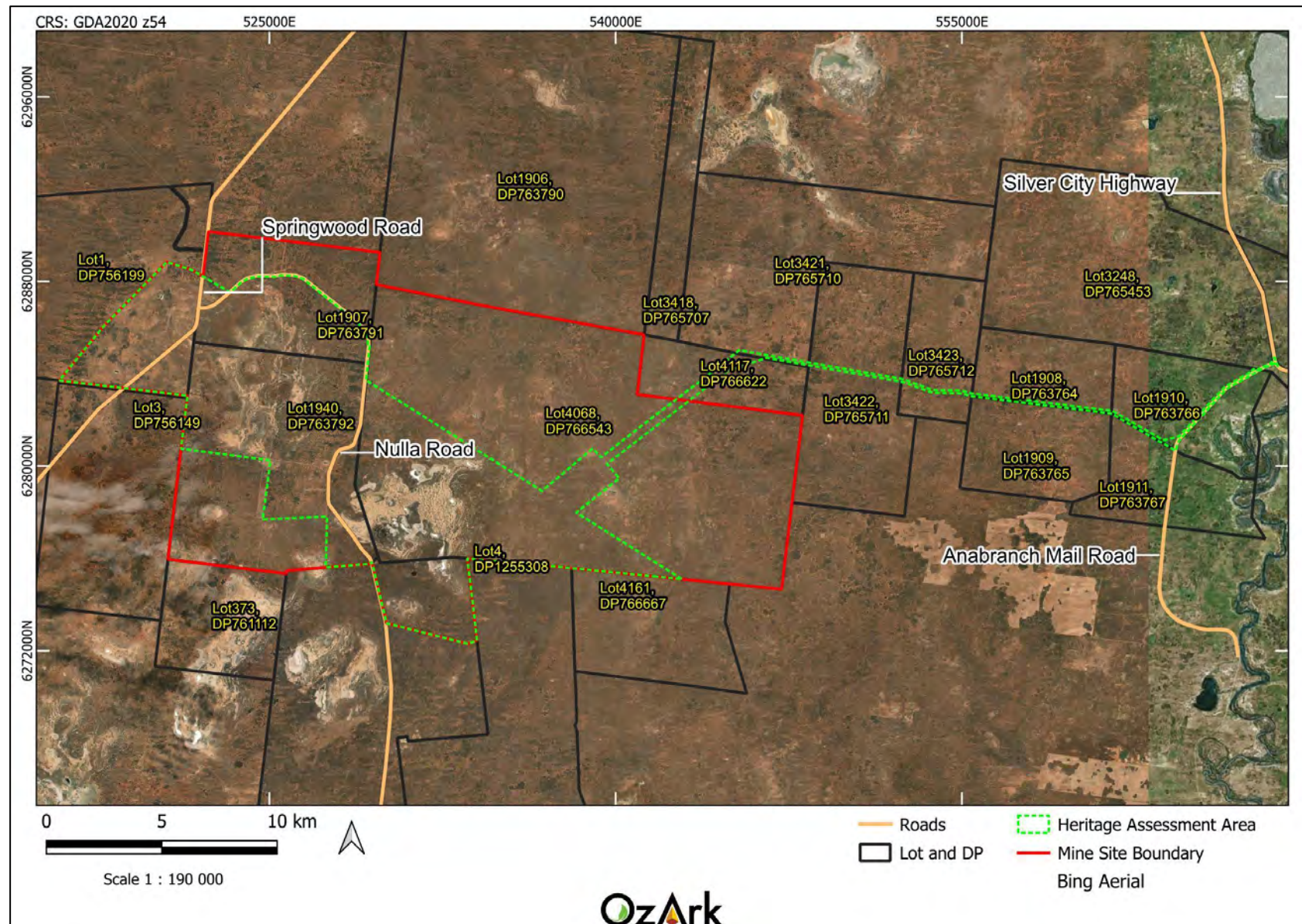
Figure 1-3).

The Heritage Assessment Area is located within for pastoral stations: Warwick, Huntingfield, Nulla Nulla and Belmore.

Nulla Road intersects the central portion of the Heritage Assessment Area and the intersection of Nulla Road, Pine Camp Road and Springwood Road is in the western portion of the Heritage Assessment Area.

The Heritage Assessment Area is zoned RU1 – Primary Production under the Wentworth Local Environmental Plan (LEP) 2011 and is currently used for grazing. The principal portion of the Heritage Assessment Area consists of flat to gently undulating sand plains and dunes surrounding two salt pans, termed herein the eastern and western salt pans.

Figure 1-3: Aerial showing cadastral details of the Heritage Assessment Area and Mine Site.



2 HISTORIC HERITAGE ASSESSMENT: INTRODUCTION

2.1 RELEVANT LEGISLATION

Cultural heritage is managed by several state and national Acts. Baseline principles for the conservation of heritage places and relics can be found in the *Burra Charter* (Burra Charter 2013). The *Burra Charter* has become the standard of best practice in the conservation of heritage places in Australia, and heritage organisations and local government authorities have incorporated the inherent principles and logic into guidelines and other conservation planning documents. The *Burra Charter* generally advocates a cautious approach to changing places of heritage significance. This conservative notion embodies the basic premise behind legislation designed to protect our heritage, which operates primarily at a state level.

Several Acts of parliament provide for the protection of heritage at various levels of government.

2.1.1 Commonwealth legislation

2.1.1.1 *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

The EPBC Act, administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), provides a framework to protect nationally significant flora, fauna, ecological communities, and heritage places. The EPBC Act establishes both a National Heritage List and Commonwealth Heritage List of protected places. The assessment and permitting processes of the EPBC Act are triggered when a proposed activity or development could potentially have an impact on one of the matters of national environment significance listed by the Act. Ministerial approval is required under the EPBC Act for proposals involving significant impacts to national/commonwealth heritage places.

Applicability to the Project

It is noted that there are no Commonwealth or National heritage listed places within the Heritage Assessment Area (**Section 4.2.1**), and as such, the heritage provisions of the EPBC Act and other Commonwealth Acts do not apply.

2.1.2 State legislation

2.1.2.1 *Environmental Planning and Assessment Act 1979 (EP&A Act)*

This Act established requirements relating to land use and planning. The main parts of the EP&A Act that relate to development assessment and approval are Part 4 (development assessment) and Part 5 (environmental assessment). The Minister responsible for the Act is the Minister for Planning.

The EP&A Act currently provides the primary legislative basis for planning and environmental assessment in NSW. The objects of the EP&A Act include encouragement of:

- The proper management, development, and conservation of natural resources
- The provision and coordination of the orderly and economic use and development of land
- Protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats
- Ecologically sustainable development.

The objects also provide for increased opportunity for public involvement and participation in environmental planning and assessment.

The EP&A Act includes provisions to ensure that the potential environmental impacts of a development or activity are rigorously assessed and considered in the decision-making process.

The framework governing environmental and heritage assessment in NSW is contained within the following parts of the EP&A Act:

- Part 4: Local government development assessments, including heritage. May include schedules of heritage items
 - Division 4.7: Approvals process for state significant development.

Applicability to the Project

As the Project is a State Significant Development (SSD), Section 4.41 of the EP&A Act (formerly Section 89J) applies and provides a defence for any investigative or other activities that are required to be carried out for the purpose of complying with any environmental assessment requirements (i.e. *Secretary's Environmental Assessment Requirements* [SEARs]: see **Section 2.1.2.3**).

2.1.2.2 Heritage Act 1977 (Heritage Act)

The *Heritage Act 1977* (Heritage Act) is applicable to the current assessment. This Act established the Heritage Council of NSW. The Heritage Council's role is to advise the government on the protection of heritage assets, make listing recommendations to the Minister in relation to the State Heritage Register (SHR), and assess/approve/decline proposals involving modification to heritage items or places listed on the SHR. Most proposals involving modification are assessed under Section 60 of the Heritage Act.

Automatic protection is afforded to 'relics', defined as 'any deposit or material evidence relating to the settlement of the area that comprised New South Wales, not being Aboriginal settlement, and which holds state or local significance' (note: formerly the Act protected any 'relic' that was more than 50 years old. Now the age determination has been dropped from the Act and relics are protected according to their heritage significance assessment rather than purely on their age).

Excavation of land on which it is known or where there is reasonable cause to suspect that ‘relics’ will be exposed, moved, destroyed, discovered, or damaged is prohibited unless ordered under an excavation permit.

Applicability to the Project

There are no SHR listed items within, or near to, the Heritage Assessment Area (**Section 4.2.1**).

2.1.2.3 Secretary’s Environmental Assessment Requirements

SEARs were issued for the Project (SSD-41294067) on 18 December 2023.

Table 2-1 addresses the general requirements in the SEARs for SSD-41294067 regarding historic heritage.

Table 2-1: SEARs General Requirements.

SEARs requirement	Where addressed in the HHAR
An assessment of the impact to historic heritage in accordance with the <i>NSW Heritage Manual</i> , including any heritage conservation areas and State and local historic heritage items within and near the site.	An extensive pedestrian survey has been conducted across the Heritage Assessment Area as reported in this HHAR and the assessment has considered all locally listed items within and near the Heritage Assessment Area. All assessment has followed the applicable guidelines.

2.1.3 Local legislation

Wentworth Shire Council Local Environmental Plan 2011 (Wentworth Shire LEP)

The Wentworth Shire LEP includes a schedule of heritage conservation areas and items that require either development consent or exemptions for projects that may impact conservation outcomes (Wentworth Shire LEP 2011: Section 5.10).

Applicability to the Project

There are three items listed on the Wentworth Shire Local Environmental Plan (LEP) of 2011 which overlap the Heritage Assessment Area and an additional two items adjacent to the Heritage Assessment Area (**Section 4.2.1**).

2.2 HISTORIC HERITAGE ASSESSMENT OBJECTIVES

The current assessment will apply the Heritage Council’s *Historical Archaeology Code of Practice* (Heritage Council 2006) in the completion of a historical heritage assessment, including field investigations, to meet the following objectives:

Objective One: To identify whether historical heritage items or areas are, or are likely to be, present within the Heritage Assessment Area

Objective Two: To assess the significance of any recorded historical heritage items or areas

Objective Three: To determine whether the proposal is likely to cause harm to recorded historical heritage items or areas

Objective Four: To provide management recommendations and options for mitigating impacts.

2.3 DATE OF HISTORIC HERITAGE ASSESSMENT

The field investigations were completed on the following dates:

- 25 to 29 February 2020 (5 days)
- 2 March to 4 March 2020 (3 days)
- 1 to 4 February 2022 (4 days)
- 1 to 5 March 2022 (5 days).

2.4 OZARK INVOLVEMENT

2.4.1 Field assessment

The fieldwork component of the heritage assessment was undertaken by:

- Fieldwork director: Stephanie Rusden (OzArk Senior Archaeologist, BSc, University of Wollongong, BA, University of New England)
- Archaeologist: Dr Alyce Cameron (OzArk Project Archaeologist, BA [Hons] and PhD [Archaeology & palaeoanthropology] Australian National University)
- Archaeologist: Ben Churcher (OzArk Principal Archaeologist, BA [Hons], University of Queensland; Dip Ed, University of Sydney)
- Archaeologist: Dr Jodie Benton (OzArk Director and Principal Archaeologist, PhD University of Sydney)
- Archaeologist: Kirwan Williams (OzArk Project Archaeologist, BA University of Queensland)
- Archaeologist: Adelia Gower (OzArk Project Archaeologist, BS [Hons], University of Queensland)
- Heritage officer: Harrison Rochford: (OzArk Heritage Officer, Masters Philosophy (Arts and Social Sciences) and Bachelor of Liberal Studies [Hons], University of Sydney)
- Archaeologist: Tenae Robertson (OzArk Project Archaeologist, B Archaeological Practices, Australian National University)
- Archaeologist: Eleanore Martin (OzArk Archaeologist, B. Science, University of Adelaide)
- Archaeologist: Jordan Henshaw (OzArk Archaeologist, B. Ancient History, Macquarie University)

- Archaeologist: Sophia Grubnic (OzArk Archaeologist, BA Ancient History [Hons], University of Queensland, BA Ancient History/Art History, University of Melbourne)
- Archaeologist: Imogen Crome (OzArk Archaeologist, B Science Biological Anthropology, B Arts Archaeology, Australian National University and Master of Arts (Archaeology) [in progress] University of New England)
- Archaeologist: Martyn Poyitt (OzArk Archaeologist, B Arts Ancient History Macquarie University, Bachelor of Theology Honours [in progress] Australian Catholic University).

2.4.2 Reporting

The reporting component of the heritage assessment was undertaken by:

- Report Author: Stephanie Rusden (OzArk Senior Archaeologist, BSc, University of Wollongong, BA, University of New England)
- Major contributor: Harrison Rochford (OzArk Heritage Officer, Masters Philosophy (Arts and Social Sciences) and Bachelor of Liberal Studies [Hons], University of Sydney)
- Reviewer: Ben Churcher (OzArk Principal Archaeologist, BA [Hons], University of Queensland; Dip Ed, University of Sydney).

3 ENVIRONMENTAL CONTEXT

3.1 ENVIRONMENTAL OVERVIEW

The landforms of the Heritage Assessment Area consist of flat to gently undulating sand plains and dunes surrounding small, sub-circular to irregular relict lakes (referred to as the eastern and western salt pans; **Figure 3-1** and **Figure 3-2**). Overall, the landforms have little topographic variation, with average slope across the Heritage Assessment Area about 2% and local relief up to 10 m.

The western and eastern salt pans are remnants of an ancient freshwater mega-lake, known as Lake Bungunna which covered the Lower Darling region around two-and-a-half million years ago (Stephenson 1986, McLaren and Wallace 2010). Increasing climatic aridity around one million years ago caused the mega-lake to dry out (McLaren and Wallace 2010). It shrank into smaller lakes, which became saline (Stephenson 1986, McLaren et al. 2009, McLaren and Wallace 2010; as illustrated on **Figure 3-2**).

Soils within these landscape units are mostly aeolian (wind-lain) and consist of deep, sandy red earths along the lunettes and dunes, sandy solonised brown soils on the sand plains, dark, cracking clays in the depressions and powdery gypsum on islands adjacent to the salt pans.

Vegetation along the plains is generally comprised of dense mallee and/or belah, saltbush, chenopods, and rosewood with more isolated instances of black box and white cypress pine woodland (Mitchell 2002:42).

Pastoral runs were established within and surrounding the Heritage Assessment Area, including Warwick, Huntingfield, Belmore and Nulla Nulla Stations, which predominately graze sheep (**Section 4.1**). Examination of aerial imagery of the Heritage Assessment Area shows that it has been subject to very low levels of disturbance, limited to the construction of graded roads which traverse portions of the Heritage Assessment Area. Other disturbances are likely confined to long-term but low intensity grazing by sheep and goats, rabbit infestation, and the associated, and sometimes substantial, erosion that has ensued.

Figure 3-1: Location of the western and eastern salt pans within the Heritage Assessment Area.

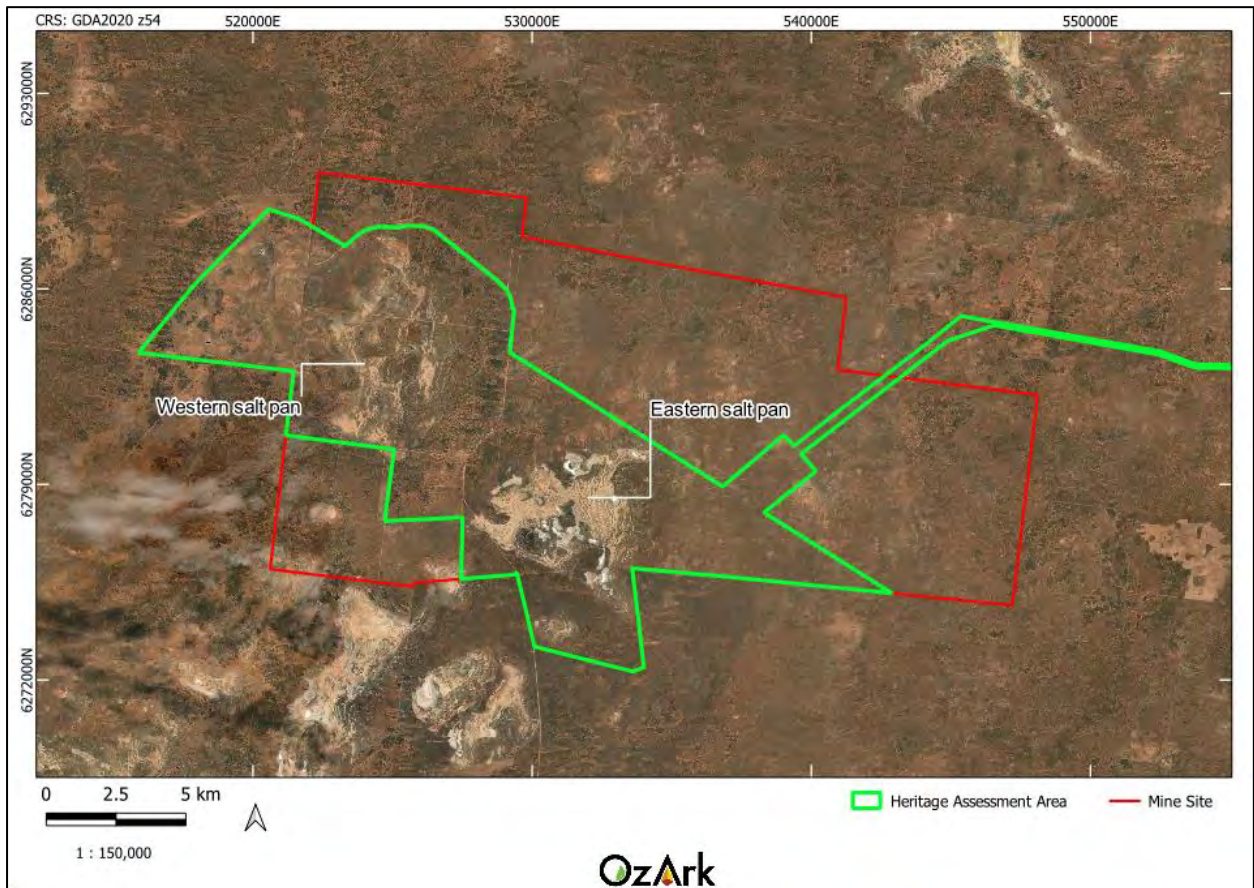


Figure 3-2: Aerial image of the eastern salt pan.



4 HISTORIC HERITAGE ASSESSMENT: BACKGROUND

4.1 BRIEF HISTORY OF THE WENTWORTH AND LAKE VICTORIA AREA.

Aboriginal people inhabited the Murray-Darling basin and have sustainably harvested its associated resources for around 50,000 years (Allen and Holdaway 2009:99; Bowler et al. 2003). Within the Murray Darling Depression bioregion, European graziers began to displace Aboriginal traditional custodians as early as the 1830s.

Colonial settlement of the Wentworth area began with the arrival of Charles Sturt at the confluence of the Murray and Darling rivers in 1830 after following the Murrumbidgee River downstream. Settlements around the confluence developed after further exploratory journeys along the rivers by Major Thomas Mitchell in 1838 and the concurrent overland expedition of Joseph Hawdon and Charles Bonney leading cattle from Howlong to Adelaide that crossed the Darling River at a point that became known as Hawdon's Ford. The future location of Wentworth was known by several names before the town was incorporated in 1879, such as: 'The Rinty'; Darling Junction and McCleod's Crossing.

The first unlicensed pastoral runs in the area were claimed before 1847, occupying the water fronting land on the rivers, Great Darling Anabranh and Lake Victoria. A large holding called Lake Victoria Station was granted to John McInlay in 1854 and the station changed hands at least three times before it was split into smaller 'Homestead' leases after the Land Act of 1884 (Withers 1989; Westbrooke 2012). These Homestead leases were a 4200 ha at minimum (compared to the 457,000 ha of Lake Victoria Station), leading to the proliferation of smaller lots that characterise the region, despite these lots often being untenanted, due to their unviability without access to water, or subsumed into much larger holdings, such as Nulla Station (Westbrooke 2012:58).

The Heritage Assessment Area and surrounding lots were known as the 'Scrub run' blocks when they formed part of Lake Victoria Station prior to 1884 (**Figure 4-1**). These large waterless areas were frequently destocked, especially during the drought and Depression years of 1868–70.

Life for pastoralists in the Lake Victoria area was arduous, and rarely offered the prosperity of pastoral holdings that had more secure water access (Westbrooke 2012). Droughts, rabbits, and uncertain leasehold legislation led to frequent surrender of lots, especially north of the Heritage Assessment Area in the Scotia area (Scotia no. 1 and Amoskeag on **Figure 4-1**). In 1895, Lake Victoria Station reported no income, despite including an area of over 600,000 ha and reporting that it had shorn a million sheep (Hassel 1989).

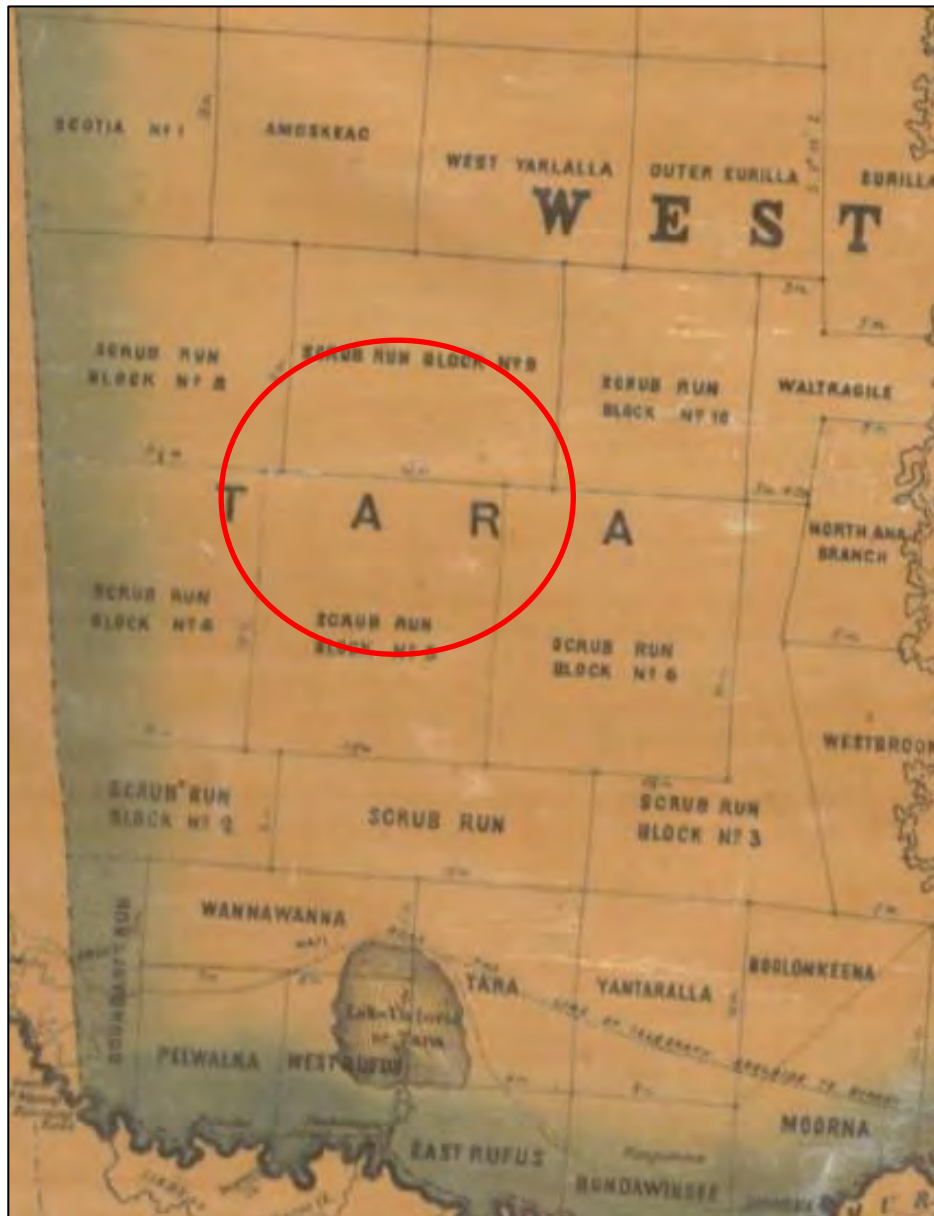
The increase of sources available after the turn of the 20th century offer a wider range of insights into daily life at Lake Victoria Station and Nulla Station, which are representative of other landholdings in the region at this time. Nulla station's development during J.B. Armstrong's

tenure, at least during 1917–28, is well documented. The extant Nulla woolshed, constructed in 1920, had 36 shearing stands and was described as '*the largest and best fitted in the western division*' (*SMH* 1922) or even '*largest and best appointed in the Commonwealth*' (*Adelaide Register* 1928). It was the site of both a shearer's strike in 1917, where it is assumed a less grand woolshed existed before 1920 (*SMH* 1917), and a ball held to fundraise for the Wentworth hospital in 1928 was held in the woolshed (*Murray Pioneer* 1928).

The introduction of irrigated pastures in the Wentworth region at the turn of the 20th century led to a shift in focus toward horticulture. Nevertheless, grazing has continued in the area on a smaller scale, accompanied by technological and industrial change. Water infrastructure such as bores and pipes have become more cost effective and the graziers in the region have adapted to dry conditions and deteriorating soils by running Dorper sheep and maintaining flocks of once-feral goats as an income source (Westbrook 2012).

The Heritage Assessment Area encompasses four properties that were likely part of Lake Victoria Station: Nulla Nulla, Warwick, Huntingfield, and Belmore. There are few specific mentions of these stations in the available sources, although it appears that Belmore had more of an association with the Scotia runs to the north than the larger Lake Victoria Station runs to the south. George Anderson's successful bore on Belmore in 1922 allowed the opening of more of the Scotia country to grazing, although Land Titles Office (LTO) charting maps indicate that the Belmore tank is no longer located within the current Belmore lot (LTO 1911). The earliest landholders associated with the Heritage Assessment Area are the Anderson, Armstrong, Higgins, Scadding, and Smith families.

Figure 4-1: Detail of MacDonald's 1879 *Map of the Riverina and the Northern and Northwestern Pastoral Lots*. Approximate location of Heritage Assessment Area is within the red circle.



4.2 LOCAL CONTEXT

4.2.1 Desktop database searches conducted

A desktop search was conducted on the following databases to identify any potential previously recorded heritage within the Heritage Assessment Area. The results of this search are summarised in **Table 4-1**.

Table 4-1: Historic heritage: desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
National and Commonwealth Heritage Listings	12/01/2020 14/12/2022 14/11/2023	Wentworth LGA	No places listed on either the National or Commonwealth heritage lists are located within the Heritage Assessment Area.
State Heritage Register	12/01/2020 14/12/2022 14/11/2023	Wentworth LGA	No items on the SHR are located within or near the Heritage Assessment Area.
Section 170 Register	12/01/2020 14/12/2022 14/11/2023	Wentworth LGA	No items on the Section 170 Register are located within or near the Heritage Assessment Area.
Local Environmental Plan (LEP)	12/01/2020 14/12/2022 14/11/2023	Wentworth Shire LEP (2011)	The Heritage Assessment Area overlaps the curtilage for LEP listed items I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' and I81 'Nulla Nulla Woolshed'. It is also adjacent to the curtilage for I82 'Nulla Nulla Homestead and Associated Dwellings' and near I4 'Bunnerungie Cemetery'.

4.2.2 LEP listed item details

A search of the Heritage Council of NSW administered heritage databases and the Wentworth Shire LEP (2011) returned three records for historical heritage items within the Heritage Assessment Area (**Figure 4-2** and **Figure 4-3**). An additional two items are located adjacent to the Heritage Assessment Area.

4.2.2.1 I2 'Bunnerungie Homestead'

Locally listed item I2 'Bunnerungie Homestead' is located within Lot 3248 DP765453. The curtilage for the item extends into the easternmost portion of the Heritage Assessment Area, however, Bunnerungie Homestead itself is approximately 2km southeast of the Heritage Assessment Area (**Figure 4-2**). The item includes a rectangular timber dwelling with a high hipped bellcast roof clad with iron sheeting, extending over a wraparound verandah supported by timber posts. The interior walls are clad with futed iron sheets. The structure is situated on the eastern bank of the Great Annabranh and is in poor condition. The following details presented below and in **Table 4-2** regarding the assessed significance of this item is repeated from the State Heritage Inventory (SHI) entry (NSW Heritage Office, database number 2650114, 23 November 2007):

The homestead is historically significant as part of early grazing in the district with associations with the Crozier and Chaffey families.

Table 4-2: Assessment of heritage significance – I2 'Bunnerungie Homestead'.

Criteria	Assessment of significance
a	The homestead is historically significant associated with early grazing in the area.
b	The homestead has associations with the Crozier family and Ben Chaffey.

c	The homestead has technical associations with early irrigation attempts in the area.
f	The dwelling with verandah under one roof is a rare type in the Shire.

4.2.2.2 I3 ‘Bunnerungie Bridge’

Locally listed item I3 ‘Bunnerungie Bridge’ is located within Lot 3248 DP765453. The curtilage for the item extends into the easternmost portion of the Heritage Assessment Area, however, the bridge itself is approximately 940 m to the east of the Heritage Assessment Area (**Figure 4-2**). The item includes the remains of a log bridge constructed over the Great Darling Anabranh. The bridge was built in c. 1870 to enable sheep to be transported from western portion of property to woolshed once located near the homestead. The following details presented below and in “**The bridge reflects the transport difficulties encountered by earlier settlers, caused by extending their runs to the western sector of the property but requiring to base the home activity near reliable waterways**”.

Table 4-3 regarding the assessed significance of this item is repeated from the State Heritage Inventory (SHI) entry (NSW Heritage Office, database number 2650072, 23 November 2007):

“The bridge reflects the transport difficulties encountered by earlier settlers, caused by extending their runs to the western sector of the property but requiring to base the home activity near reliable waterways”.

Table 4-3: Assessment of heritage significance – I3 ‘Bunnerungie Bridge’.

Criteria	Assessment of significance
a	Historically significant associated with early days of pastoralism in Shire.
c	Has technical significance of simple post and log bridge construction.
f	A rare form of bridge construction.

4.2.2.3 I4 ‘Bunnerungie Cemetery’

Locally listed item I4 ‘Bunnerungie Cemetery’ is located within Lots 1913 and 1914, DP763770. The curtilage for the item is approximately 395 m to the east of the Heritage Assessment Area although the exact location of the cemetery cannot be determined at a desktop level (**Figure 4-2**). The item includes a small graveyard containing two headstones, one with wire netting fence. There is also an unmarked grave surrounded by a dilapidated paling fence. The marked graves belong to Donald Cameron, a shepherd who died in 1864, and Ethel Colley a 20 month old child who drowned in Bunnerungie Creek. The graveyard contains the oldest known memorial in the Anabranh and one of the few reminders of the shepherds who tended the large sheep flocks prior to fencing.

4.2.2.4 I81 ‘Nulla Nulla Woolshed’

Locally listed item I81 ‘Nulla Nulla Woolshed’ is located within Lot 4069 DP766544. The curtilage for the item extends into the southern portion of the Heritage Assessment Area, however, Nulla Nulla Woolshed’ itself is approximately 17 km south of the Heritage Assessment Area (**Figure 4-3**). The item includes a large, elevated shed which is clad with corrugated iron and supported on timber posts. The following details presented below and in **Table 4-4** regarding the assessed significance of this item is repeated from the State Heritage Inventory (SHI) entry (NSW Heritage Office, database number 2650024, 23 November 2007):

“A large modern shearing shed with sawtooth roof, representative of the pastoral industry modernisation, and associated with Lake Victoria”.

Table 4-4: Assessment of heritage significance – I81 ‘Nulla Nulla Woolshed’.

Criteria	Assessment of significance
a	Associations with Lake Victoria Station and the change of transport from river to road.
c	Significant building off road on almost featureless landscape.
d	Point of gathering in the district for shearers and others involved in the wool industry.
e	Timber saw tooth roof structure is innovative of the evolution of the shearing shed building type.
f	Rare structural form for a wool shed.
g	Representative of sheep industry.

4.2.2.5 I82 ‘Nulla Nulla Homestead and Associated Dwellings’

Item I82 ‘Nulla Nulla Homestead and Associated Dwellings’ is located within Lot 4070 DP766545. The curtilage for the item is located along the southern boundary of the Heritage Assessment Area, however, the buildings themselves are 14.7 km to the south of the Heritage Assessment Area (**Figure 4-3**). The item includes two weatherboard dwellings with wrap around verandahs. The dwellings are reminiscent of Queensland architecture. The following details presented below and in **Table 4-5** regarding the assessed significance of this item is repeated from the SHI entry (NSW Heritage Office, database number 2650139, 11 July 2014):

“A rare, elevated homestead representative of management changes in the pastoral industry in the twentieth century”.

Table 4-5: Assessment of heritage significance – I82 ‘Nulla Nulla Homestead and Associated Dwellings’.

Criteria	Assessment of significance
a	The homestead is historically significant associated with the modernisation of agriculture in the 1920s.
c	The dwelling is aesthetically significant because of its unique elevated design.
f	The high set dwelling is unique in the Shire.

Figure 4-2: LEP listings I2 'Bunnerungie Homestead' and I3 'Bunnerungie Bridge' in relation to the Heritage Assessment Area.

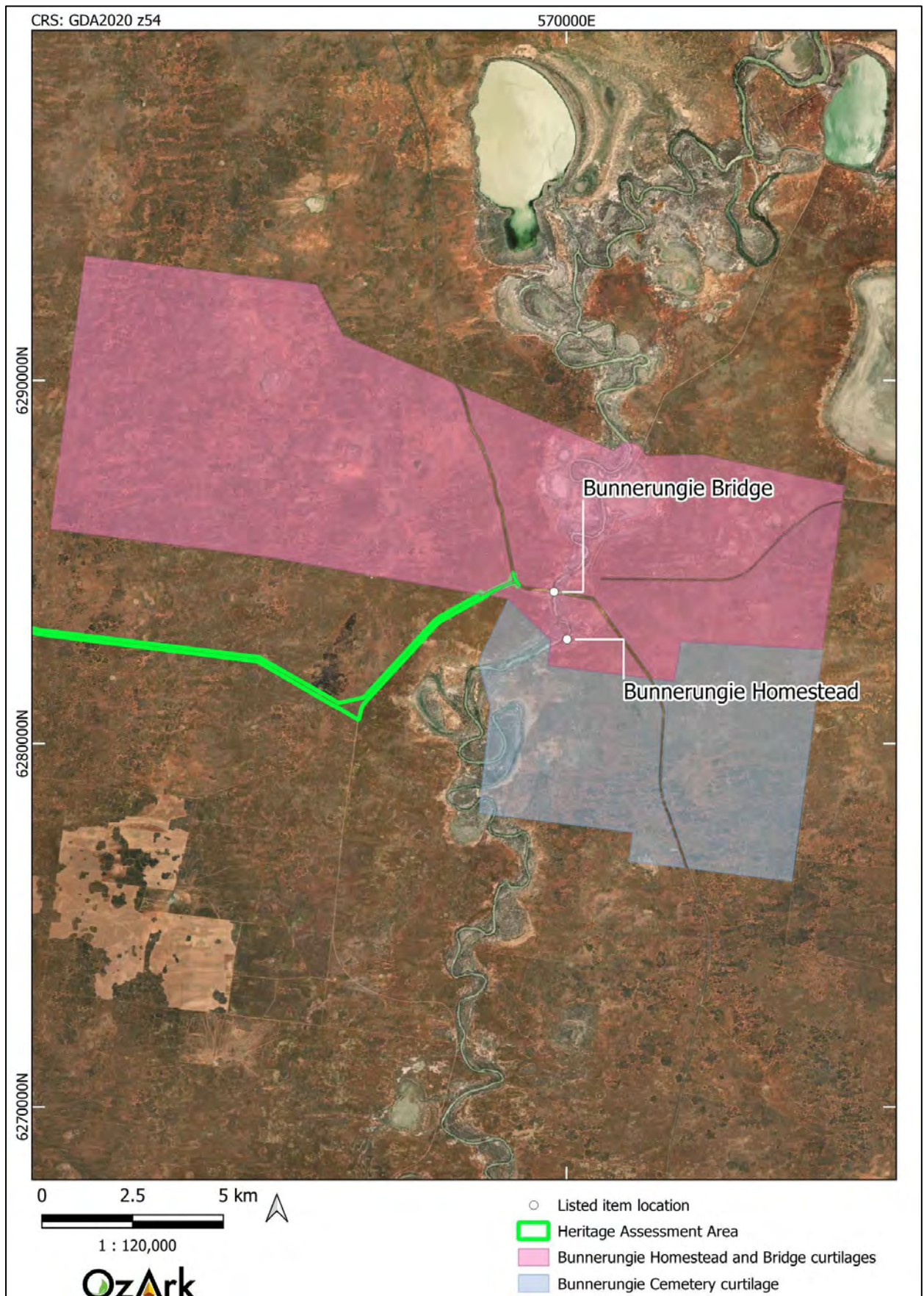
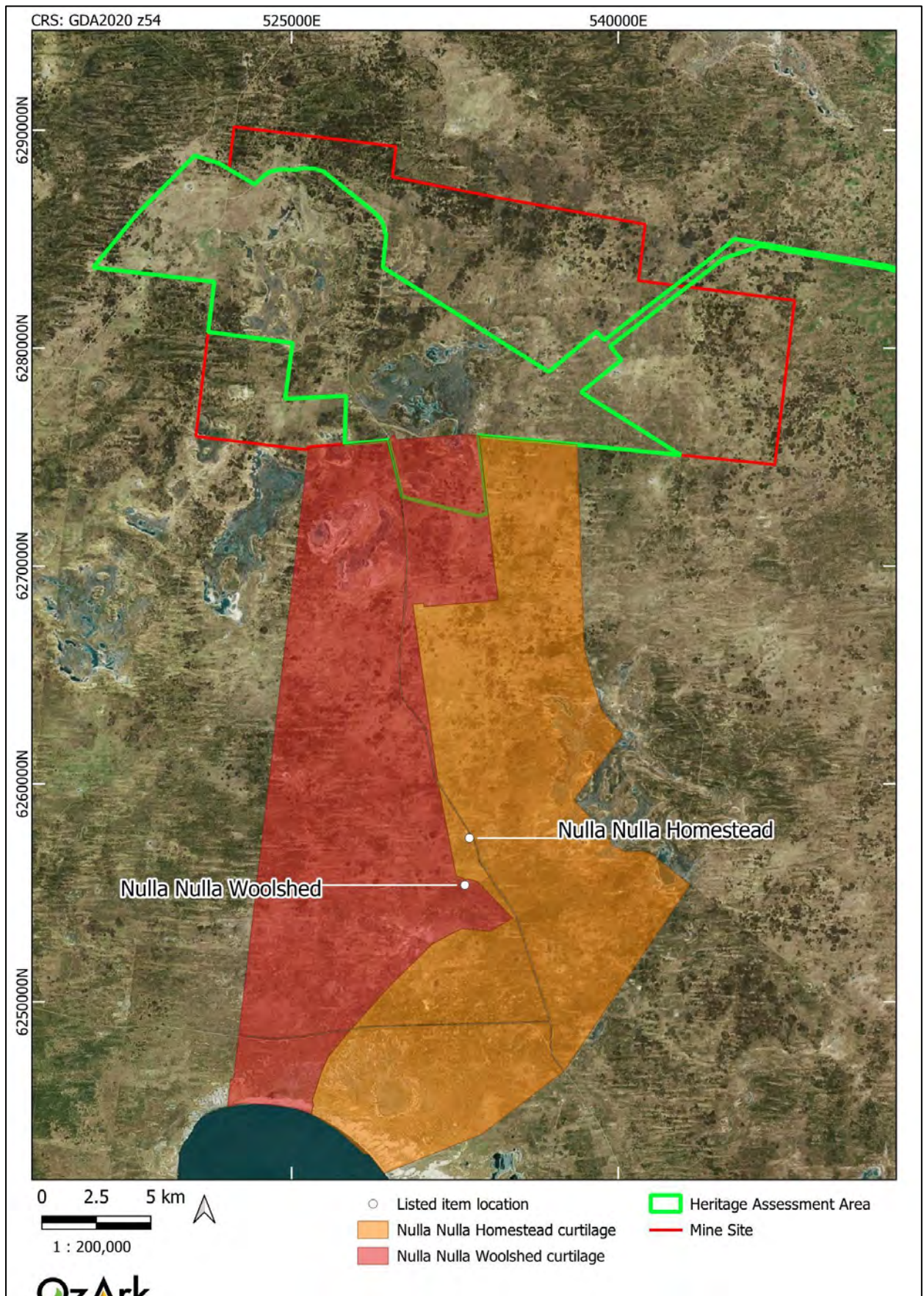


Figure 4-3: LEP listings I81 ‘Nulla Nulla Woolshed’ and I82 ‘Nulla Nulla Homestead and Associated Dwellings’ in relation to the Heritage Assessment Area.



5 RESULTS OF HISTORIC HERITAGE ASSESSMENT

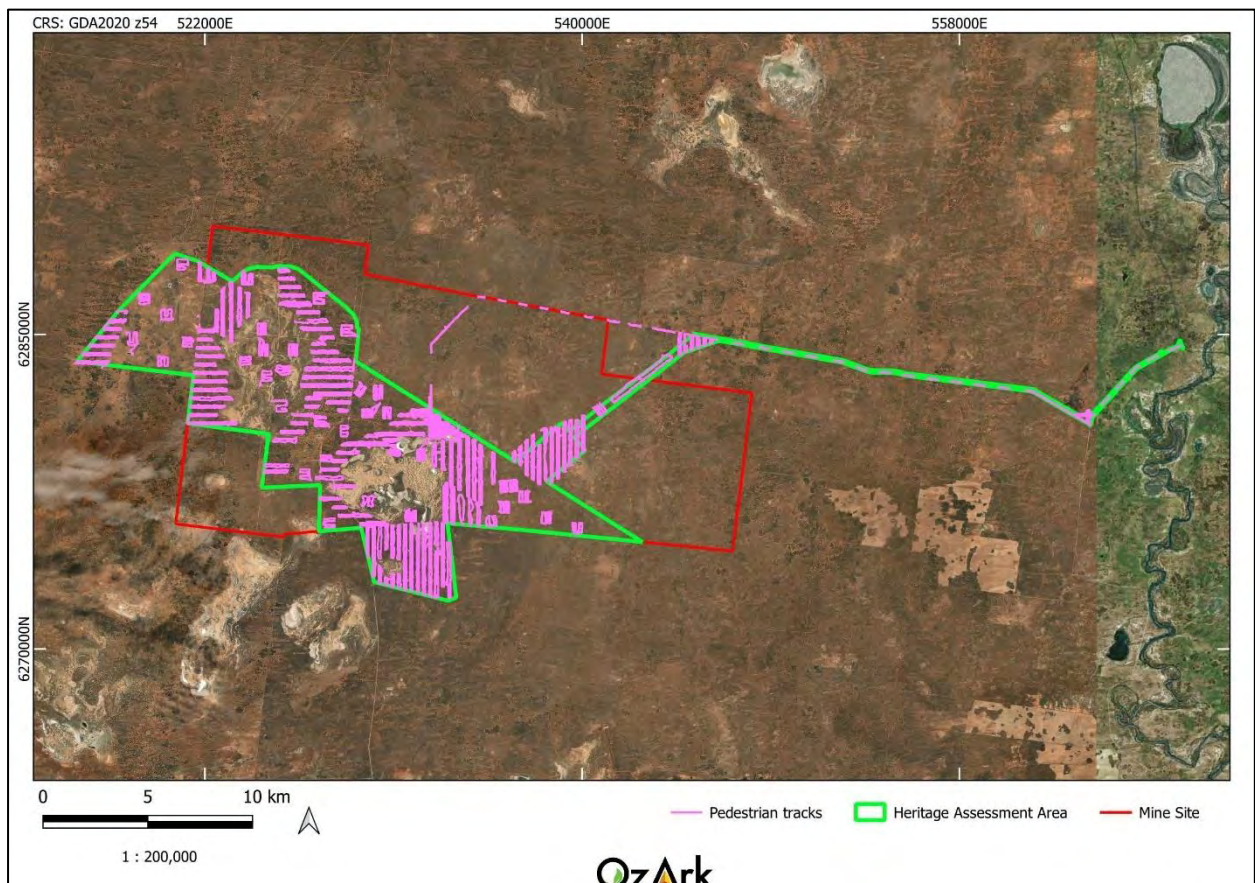
5.1 SURVEY AND FIELD METHODS

Standard archaeological field survey and recording methods were employed in this study (Burke & Smith 2004). The historic heritage assessment occurred concurrently with the Aboriginal heritage survey. Variable levels of pedestrian survey were completed across the Heritage Assessment Area as per the Aboriginal heritage survey methodology, namely:

- Full survey areas: Across these landforms, transects were completed in pairs spaced 100 m apart, with 200 m between pairs of transects. Where it was deemed necessary, additional transects were completed to 'fill in' the space between pairs.
- Sample landform surveys: Survey of these areas were spaced across 500 x 500 m areas.
- Site Access Route: Sample survey every one kilometre.

Pedestrian coverage across the Heritage Assessment Area is shown on **Figure 5-1**.

Figure 5-1: Survey coverage within the Heritage Assessment Area.







5.2 PROJECT CONSTRAINTS

There were no significant constraints in completing the historic heritage assessment. Wet conditions on Thursday 5 March 2020 prevented access to much of the former site access route¹. As a result, survey of this portion of the Heritage Assessment Area was completed in May 2020 during the Aboriginal heritage test excavation program.

Visibility across the Heritage Assessment Area was high during the survey due to sparse shrub cover. Examples of the environment and general visibility are shown on **Figure 5-2**.

Figure 5-2: Environmental context of the Heritage Assessment Area.

	
<p>1. View south across the central portion of the Heritage Assessment Area towards the eastern salt pan with ground cover consisting of sparse saltbush.</p>	<p>2. View east across the northern portion of the Heritage Assessment Area along a footslope with ground cover consisting of sparse saltbush.</p>
	
<p>3. View west across the western salt pan with ground cover consisting of sparse saltbush.</p>	<p>4. View east across a sandplain to the west of Nulla Road with ground cover consisting of spinifex and leaf litter.</p>

¹ See footnote 1.

5.3 HISTORIC HERITAGE ITEMS

Three historic heritage items were recorded during the survey (**Table 5-1**, **Figure 5-3** and **Figure 5-4**).

Huntingfield-HS01 and Huntingfield-HS02 share a clear association with each other, and local knowledge was offered by the current landowner of Huntingfield station concerning their provenance.

Table 5-1: Recorded historic heritage items.

Item name	GDA 2020 Zone 54 coordinates	Type of heritage item
Huntingfield-HS01	524809E 6285430N	Habitation structure (hut)
Huntingfield-HS02	524829E 6285412N	Memorial site - cremated remains and ironstone marker
Warwick-HS01	548424E 6284379N	Stock yards/pen

Figure 5-3: Location of Warwick-HS01, Huntingfield-HS01 and HS02 in relation to the Heritage Assessment Area.

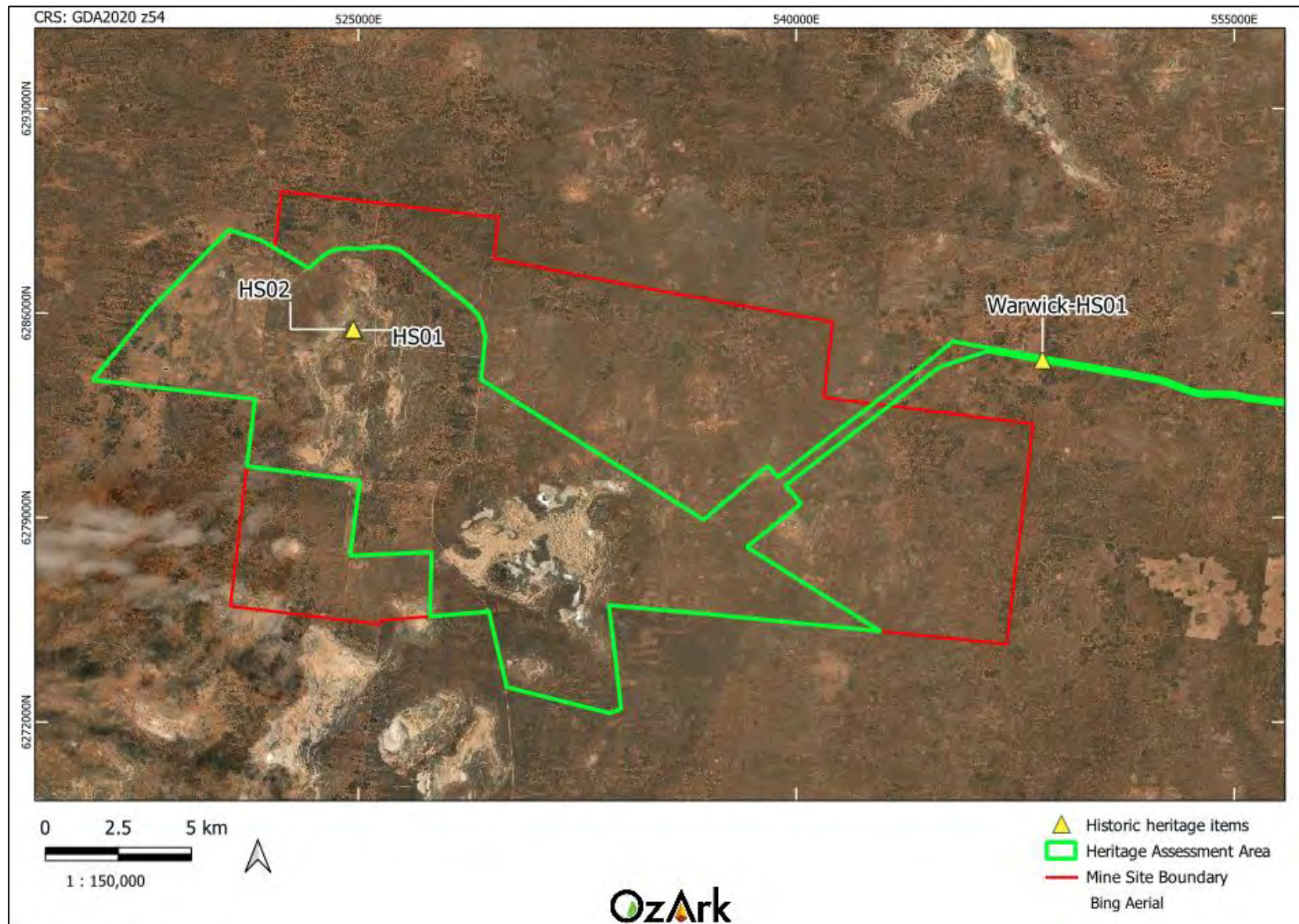


Figure 5-4: Detail showing the location of Huntingfield-HS01 and HS02.



Huntingfield-HS01





Site Type: Habitation structure (hut)

GPS Coordinates: GDA 2020 Zone 54 — 524809E 6285430N

Location of Site: Site is located on the crest of a gypsum island elevated above the surrounding salt pan (**Figure 5-3** and **Figure 5-4**), 4.4 km west of Nulla Road, 78.4 km northwest of Wentworth, NSW. Huntingfield-HS01 is located within Lot 1940 DP763792 on Huntingfield Station.

Description of Site: Site consists of a habitation structure (hut) given a likely construction date within the past 50 years due to evidence of chainsaw cuts (**Figure 5-5**). The hut features an open structure manufactured from locally procured timber posts with wire walls insulated with twigs. The hut was built by previous landholder of Huntingfield station following the internment of his wife's cremated remains nearby (Huntingfield-HS02)².

Figure 5-5: View of Huntingfield-HS01.

	
<p>1. View of structure and site from west.</p>	<p>2. Interior of the structure from northern open entrance.</p>
	
<p>3. Table or possible sink east of the structure.</p>	<p>4. Bottle, iron plate and assorted bricks.</p>

² Pers. Comm. S. Vagg (current Huntingfield landowner) to J. Benton (OzArk Director) on 17 May 2020.

Huntingfield-HS02

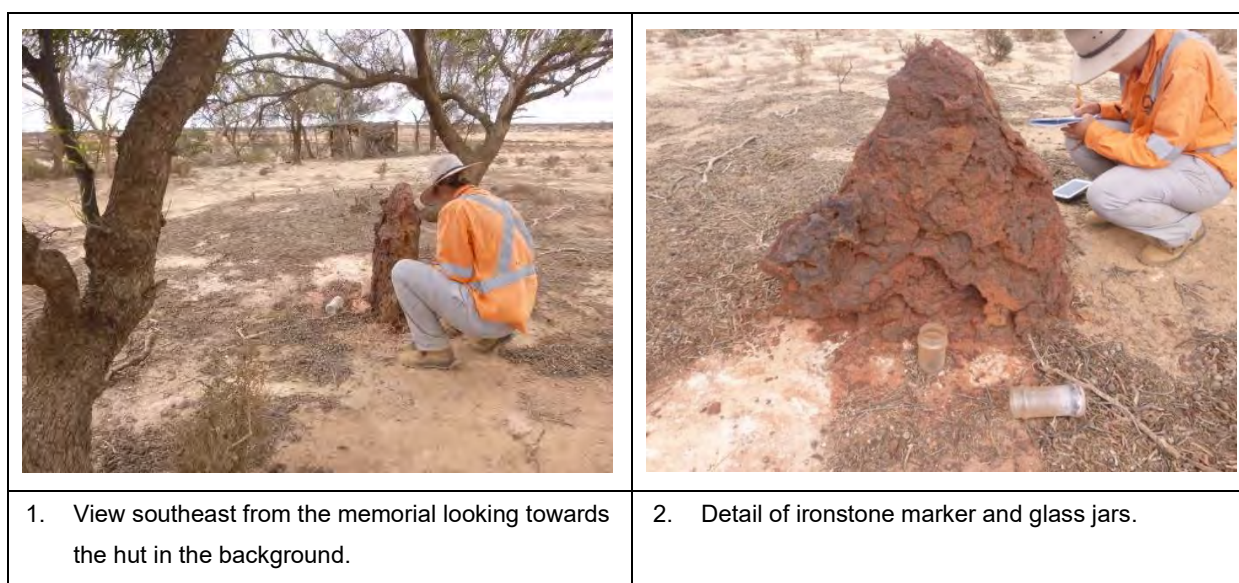
Site Type: Memorial site - cremated remains and ironstone marker

GPS Coordinates: GDA 2020 Zone 54 524829E 6285412N

Location of Site: Site is located on the crest of a gypsum island elevated above the surrounding salt pan and sandplain (**Figure 5-3** and **Figure 5-4**), 4.4 km west of Nulla Road, 78.4 km northwest of Wentworth, NSW. Huntingfield-HS02 is located within Lot 1940 DP763792 on Huntingfield Station.

Description of Site: Site consists of an ironstone marker commemorating the location at which the cremated remains of a previous landholder were interred by her husband (**Figure 5-6**)³. The site is associated with Huntingfield HS-01, where the husband stayed for a few days after the interment.

Figure 5-6: View of Huntingfield-HS02.



Warwick-HS01

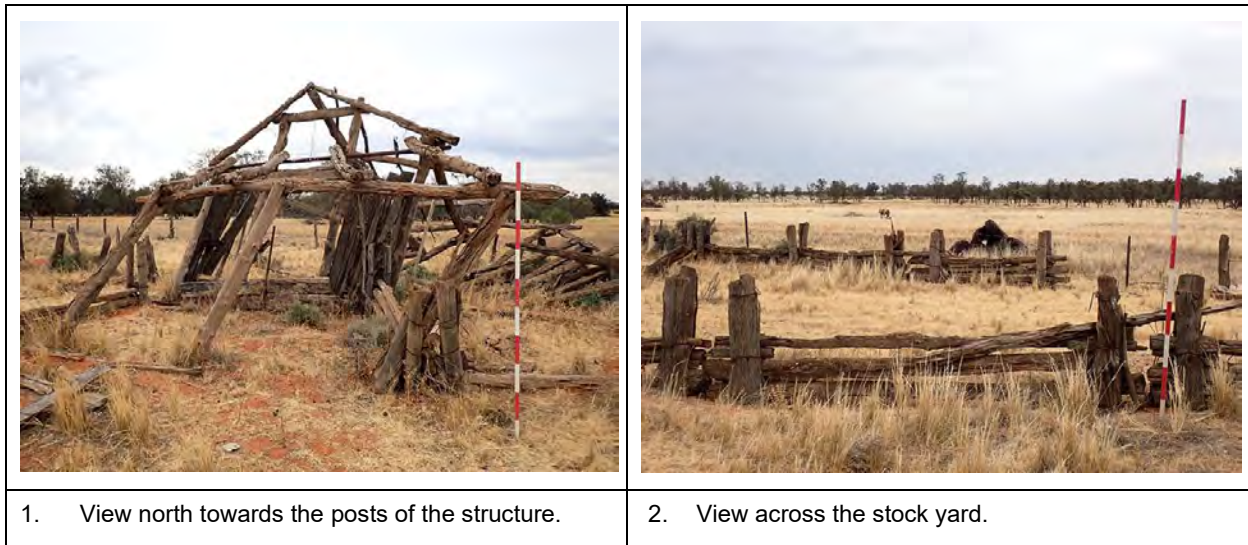
Site Type:

GPS Coordinates: GDA 2020 Zone 54 548424E 6284379N

Location of Site: Site is located on a sandplain approximately 20 km east of the intersection of the Silver City Highway and Anabranh Mail Road, 60 km northwest of Wentworth, NSW (**Figure 5-3**). Warwick-HS01 is located within Lot 3422 DP765711.

Description of Site: Site consists of the ruins of an agricultural shed and small stock yard constructed from likely local pine materials (**Figure 5-7**).

³ Pers. Comm. S. Vagg (current Huntingfield landowner) to J. Benton (OzArk Director) on 17 May 2020.

Figure 5-7: View of Warwick-HS01.

5.4 ASSESSMENT OF HISTORIC HERITAGE SIGNIFICANCE

5.4.1 Assessment of significance—general principles

The current assessment will evaluate the heritage significance of the historic heritage sites identified within the Heritage Assessment Area in accordance with the NSW Heritage Office's publication *Assessing Heritage Significance* (Heritage Office 2001). A historic heritage site must satisfy at minimum one of the following criteria to be assessed as having heritage significance:

Criterion (a): *An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)*

Criterion (b): *An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)*

Criterion (c): *An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)*

Criterion (d): *An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons*

Criterion (e): *An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)*

Criterion (f): *An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)*

Criterion (g): *An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).*

Significance assessments are carried out on the basis that decisions about the future of heritage items must be informed by an understanding of these items' heritage values. The *Australia ICOMOS Burra Charter* (Burra Charter 2013) recognises four categories of heritage value: historic, aesthetic, scientific, and social significance

Items are categorised as having local or state level, or no significance. The level of significance is assessed in accordance with the geographical extent of the item's value. An item of state significance is one that is important to the people of NSW whilst an item of local significance is one that is principally important to the people of a specific LGA.

5.4.2 Assessment of significance of historic items

Table 5-2 details the assessed significance of recorded historic heritage items in accordance with the NSW Heritage Office guidelines and the *Burra Charter*.

Table 5-2: Historic heritage: assessment of significance.

Item name	Level of Significance
Huntingfield-HS01	No historical heritage significance
Huntingfield-HS02	No historical heritage significance
Warwick-HS01	No historical heritage significance

Huntingfield-HS01

Table 5-3 assesses Huntingfield-HS01 against the assessment criteria established in the Heritage Office publication, *Assessing Heritage Significance* (Heritage Office 2001).

Table 5-3: Assessment of heritage significance – Huntingfield-HS01.

Criteria	Comments	Significance
a	The item has not influenced the pattern or course of NSW or local history	Does not satisfy this criterion
b	The item has no known associations with an individual of importance to the locality or state, although the site has clear personal significance.	Does not satisfy this criterion
c	The item does not meet the threshold for aesthetic significance.	Does not satisfy this criterion
d	The item does not have any known strong/special associations for a group of people in the state or local area.	Does not satisfy this criterion
e	While the site demonstrates facets of life in the local area, it does not have broader research potential in relation to local or state history.	Does not satisfy this criterion
f	The item does not represent a class, rural habitation shelters, that are endangered or uncommon in the state or local area.	Does not satisfy this criterion
g	The principal or defining characteristics of the item's class are not effectively demonstrated in this example.	Does not satisfy this criterion

Huntingfield-HS02

Table 5-4 assesses Huntingfield-HS02 against the assessment criteria established in the Heritage Office publication, *Assessing Heritage Significance* (Heritage Office 2001).

Table 5-4: Assessment of heritage significance – Huntingfield-HS02

Criteria	Comments	Significance
a	The item has not influenced the pattern or course of NSW or local history	Does not satisfy this criterion
b	The item has no known associations with an individual of importance to the locality or state, although the site has clear personal significance.	Does not satisfy this criterion
c	The item does not meet the threshold for aesthetic significance.	Does not satisfy this criterion
d	The item does not have any known strong/special associations for a group of people in the state or local area.	Does not satisfy this criterion
e	While the site demonstrates facets of life in the local area, it does not have broader research potential in relation to local or state history.	Does not satisfy this criterion
f	The item does not represent a class, headstones and memorials, that are endangered or uncommon in the state or local area.	Does not satisfy this criterion
g	The principal or defining characteristics of the item's class are not effectively demonstrated in this example.	Does not satisfy this criterion

Warwick-HS01

Table 5-5 assesses Warwick-HS01 against the assessment criteria established in the Heritage Office publication, *Assessing Heritage Significance* (Heritage Office 2001).

Table 5-5: Assessment of heritage significance – Warwick-HS01

Criteria	Comments	Significance
a	The item has not influenced the pattern or course of NSW or local history	Does not satisfy this criterion
b	The item has no known associations with an individual of importance to the locality or state, although the site has clear personal significance.	Does not satisfy this criterion
c	The item does not meet the threshold for aesthetic significance.	Does not satisfy this criterion
d	The item does not have any known strong/special associations for a group of people in the state or local area.	Does not satisfy this criterion
e	The item has little potential for further scientific and/or archaeological information. It does not have the qualities of an important benchmark or reference site or type.	Does not satisfy this criterion
f	The item is not a rare site type for the region or NSW.	Does not satisfy this criterion
g	The item does not represent well the characteristics of the site type.	Does not satisfy this criterion

5.5 DISCUSSION

The three identified historic items have been assessed as having no historic heritage significance under the current Heritage NSW guidelines and the Burra Charter. It is noted that this result reflects the current thresholds and principles of the assessment criteria that rightly emphasise items with collective, aesthetic, technological, and/or natural significance. These values are not present at the sites identified during the survey.

However, Huntingfield-HS01 and Huntingfield-HS02 has high personal significance to the individual who created them and to the family whose ancestor's ashes are interred at this location. The location and its story are also part of the history of the Huntingfield Station.

5.6 LIKELY IMPACTS TO HISTORIC HERITAGE FROM THE PROJECT

Huntingfield-HS01 and Huntingfield-HS02 are both located outside the Limit of Disturbance and therefore will not be impacted by the Project (**Table 5-6** and **Figure 5-8**). These items are also located within the extent of an Aboriginal site (Copi OS-1).

Warwick-HS01 is located along the proposed site access and powerline route and has potential to be directly impacted by the Project (**Table 5-6** and **Figure 5-9**).

While the Project will impact land within the curtilage of LEP listed items I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' and I81 'Nulla Nulla Woolshed', there will be no direct or indirect impact to the original fabric associated with these items. Given the items' distance to the Limit of Disturbance, the items' visual amenity will also be unaffected (**Table 5-6**, **Figure 5-9** and **Figure 5-10**). As such, the Project will have no impact to the heritage values of these items.

There will also be no indirect impact to I4 'Bunnerungie Cemetery' and I82 'Nulla Nulla Homestead and Associated Dwellings' (**Table 5-6**, **Figure 5-9** and **Figure 5-10**).

Table 5-6: Historic heritage: impact assessment.

Item name	Will this site be impacted?
Huntingfield-HS01	No
Huntingfield-HS02	No
Warwick-HS01	Yes
I2 'Bunnerungie Homestead'	No
I3 'Bunnerungie Bridge'	No
I4 'Bunnerungie Cemetery'	No
I81 'Nulla Nulla Woolshed'	No
I82 'Nulla Nulla Homestead and Associated Dwellings'	No

Figure 5-8: Huntingfield-HS01 and Huntingfield-HS02 in relation to the Limit of Disturbance.



Figure 5-9: Warwick-HS01, I2 ‘Bunnerungie Homestead’ and I3 ‘Bunnerungie Bridge’ in relation to the Limit of Disturbance.

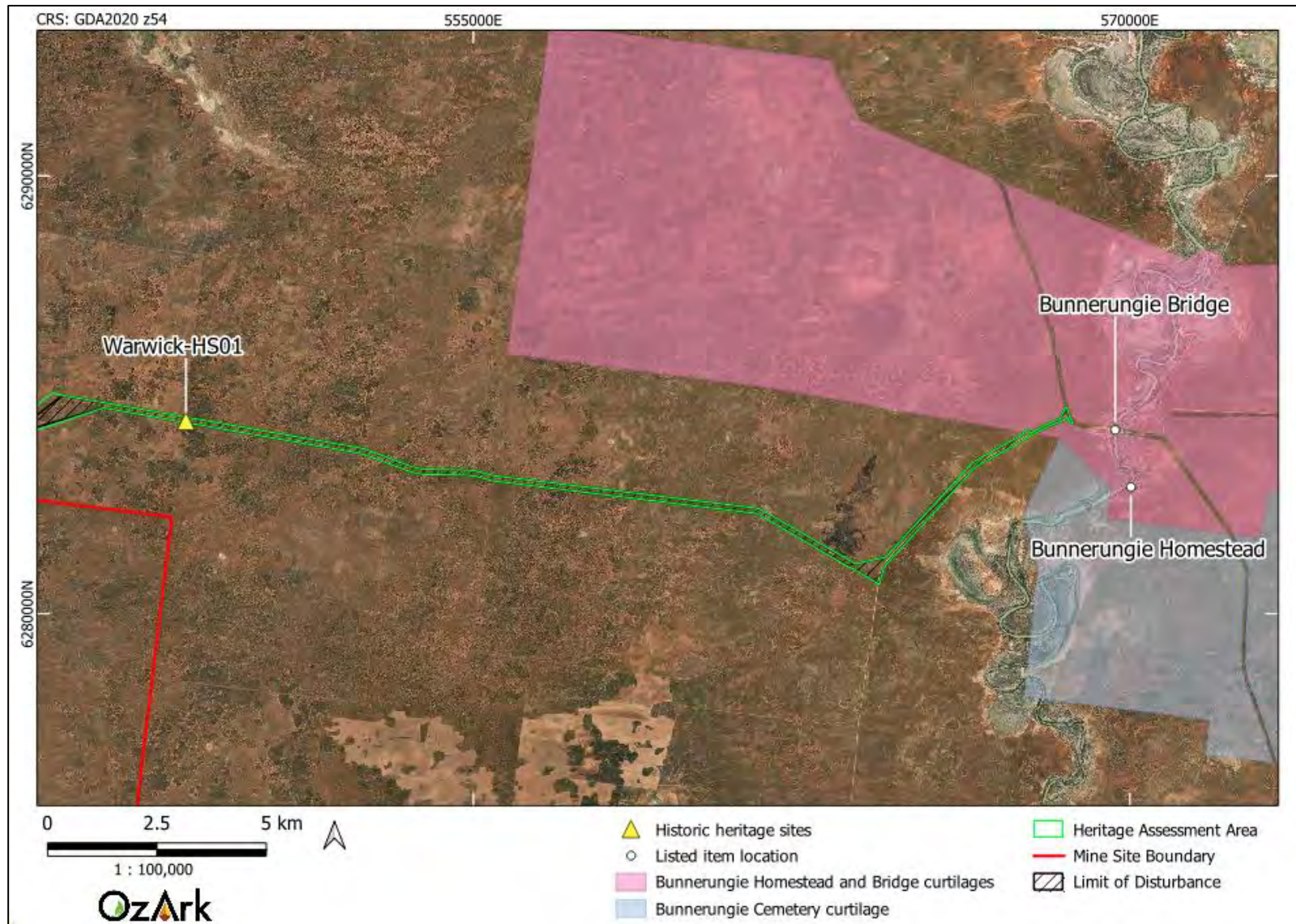
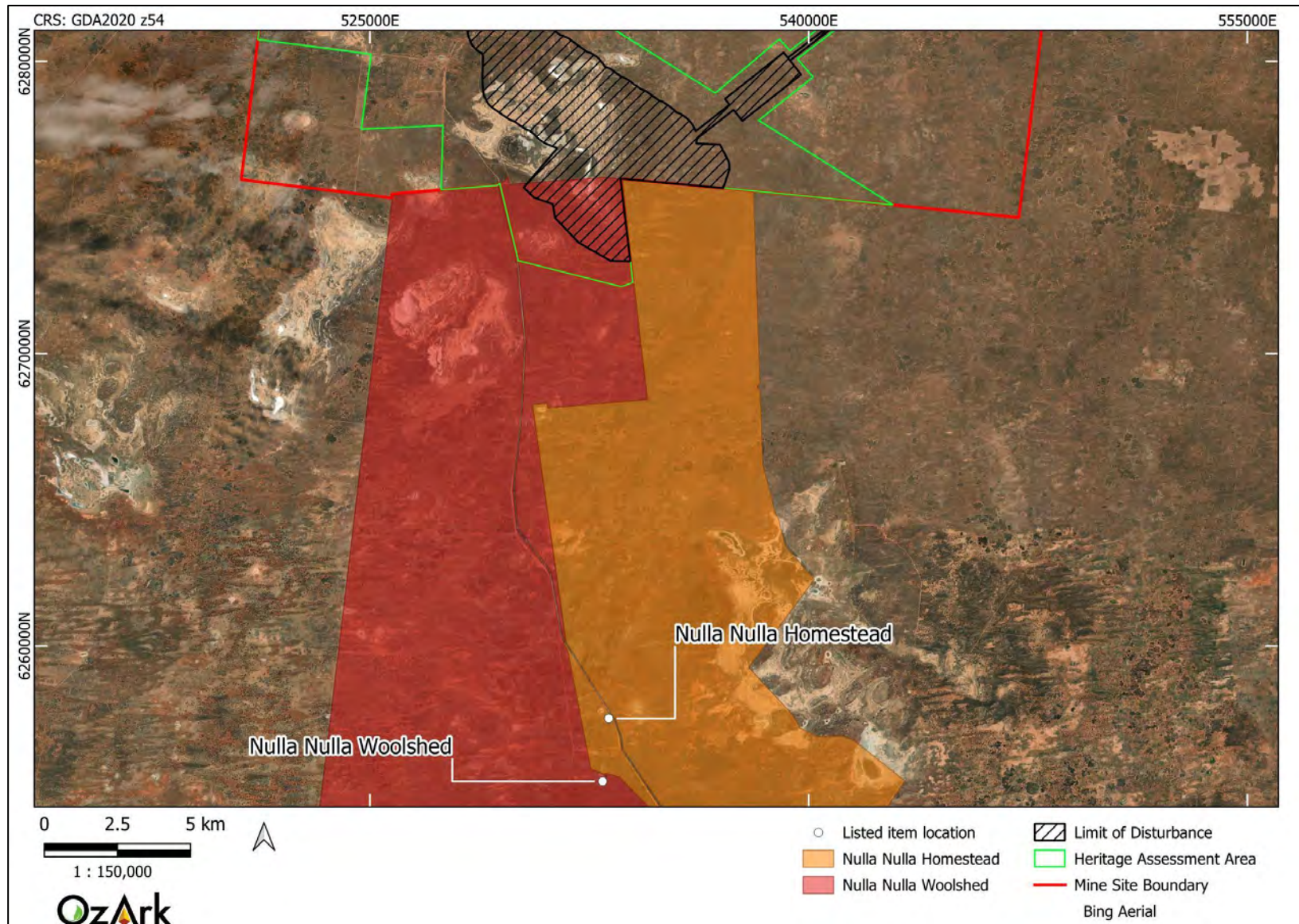


Figure 5-10: I81 ‘Nulla Nulla Woolshed’ and I82 ‘Nulla Nulla Homestead and Associated Dwellings’ in relation to the Limit of Disturbance.



6 MANAGEMENT AND MITIGATION: HISTORIC HERITAGE

6.1 GENERAL PRINCIPLES FOR THE MANAGEMENT OF HISTORIC SITES

Appropriate management of heritage items is primarily determined based on their assessed significance as well as the likely impacts of the proposed development.

In terms of best practice and desired outcomes, avoiding impact to any historical item is a preferred outcome, however, where a historical site has been assessed as having no heritage value, impacts to these items do not require any legislated mitigation.

6.1.1 Management and mitigation of recorded historic sites

No management measures are required for Huntingfield-HS01 and HS02 as they are outside of the proposed Limit of Disturbance and do not have significant heritage values. While Huntingfield-HS01 and Huntingfield-HS02 have been assessed as having no significant heritage values, mitigation measures are appropriate considering the personal significance of the item to the previous owners of the Huntingfield Station. If subsequent revision or expansion to the current Limit of Disturbance will result in impact to the area containing Huntingfield-HS02, mitigation measures are appropriate considering the personal significance of the site to the previous owners of the Huntingfield property. Should impacts be planned in this area, the Applicant should attempt to contact the family of the previous landholder whose ashes are interred at the site to discuss potential management measures. Any actions to relocate elements of the site must also be arranged in consultation with the current Huntingfield landholder.

Warwick-HS01 has been assessed as having no heritage significance and is not protected by the Heritage Act. As such, no management measures are required for the item should it be impacted by the Project.

No management measures are required for LEP listed items I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge', I4 'Bunnerungie Cemetery', I81 'Nulla Nulla Woolshed' and I82 'Nulla Nulla Homestead and Associated Dwellings' as the significant items associated with these listings are distant from the Limit of Disturbance.

6.1.2 Unanticipated finds protocol

Procedures for the unexpected discovery of historic items and/or human skeletal material during the construction and/or use of the Project will be set out in an approved HMP that will be developed following Project approval. The HMP will contain procedures should a new discovery of significant historic artefacts or items be made during construction or operation of the Project.

7 RECOMMENDATIONS

The following recommendations are made based on the impacts associated with the Project and regarding:

- Legal requirements under the terms of the Heritage Act
- Guidelines presented in the Burra Charter
- The findings of the current assessment
- The interests of the local community.

Recommendations concerning the historic values within the Heritage Assessment Area are as follows.

1. All land-disturbing activities must be confined within the assessed Limit of Disturbance. Should Project impacts change such that the area to be impacted is outside of the assessed Limit of Disturbance, then additional assessment may be required.
2. No management measures are required for Huntingfield-HS01, Warwick-HS01, I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge', I4 'Bunnerungie Cemetery', I81 'Nulla Nulla Woolshed' and I82 'Nulla Nulla Homestead and Associated Dwellings'.
3. If subsequent revision to the impacts of the Project will result in harm to Huntingfield-HS02, the Applicant should attempt to contact the family of the previous landholder whose ashes are interred at the site to discuss management options.
4. Following Section 5.10 (3alii) of the Wentworth Shire LEP, Wentworth Shire Council must be informed prior to any impact that the Project will not adversely affect the heritage significance of I2 'Bunnerungie Homestead', I3 'Bunnerungie Bridge' or I81 'Nulla Nulla Woolshed'. Wentworth Shire Council must reply in writing prior to any works commencing that they are satisfied that the heritage item will not be harmed.
5. Procedures for the unexpected discovery of historic items and/or human skeletal material during the construction and/or use of the Project should be set out in an approved *Heritage Management Plan* (HMP) that would be developed following Project approval. The HMP will address both historic and Aboriginal heritage. No construction work associated with the Project can commence until the HMP has been approved by the Department of Planning, Housing and Infrastructure (DPHI).

REFERENCES

- Adelaide Register 1928 'Shearing at Nulla', *The Register (Adelaide, SA)*. Monday 24 September, 1928: 6.
- Allen and Holdaway 2009 Allen, H. and Holdaway, S. 2009. The Archaeology of Mungo and the Willandra Lakes: Looking Back, Looking Forward. *Archaeology in Oceania* 44(2):96-106.
- Bowler et al. 2003 Bowler, J., Johnston, H. Olley, J. Prescott, J. Roberts, R. Shawcross, W. and Spooner, N. New Ages for Human Occupation and Climatic Change at Lake Mungo, Australia. *Nature* 421(6925):837.
- Burke & Smith 2004 Burke, H. and Smith, C. 2004. *The Archaeologist's Field Handbook*, Blackwell, Oxford.
- Burra Charter 2013 International Council on Monuments and Sites 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*.
- DECCW 2010 Department of Environment, Climate Change and Water, Sydney (now OEH). *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
- DECCW 2010b Department of Environment, Climate Change and Water, Sydney (now OEH). *Aboriginal Cultural Heritage Consultation Requirements for Applicants 2010*.
- Hassell 1989 Hassell Planning Consultants 1989. *Wentworth Shire Heritage Study*. Report to Wentworth Shire Council.
- Heritage Council 2006 Heritage Office of the Department of Planning (now Heritage NSW). *Historical Archaeology Code of Practice*.
- Heritage Office 2001 Heritage Office of the Department of Planning (now Heritage NSW). *Assessing Heritage Significance*.
- LTO 1911 *Map of the County Tara*. Western Division (Shire of Wentworth post 1956). Department of Lands, Sydney.
- LPI 2001 Land and Property Information NSW (2001). *Parish Maps, Western Lands Division Set*. Land and Property Information, Bathurst.
- MacDonald 1879 MacDonald, A.C. (1879). *Map of the Riverina and the Northern and Northwestern Pastoral Districts, New South Wales*. A.C. MacDonald, Melbourne.

- McLaren et al. 2009 McLaren, S., Wallace, M.W., Pillans, B.J., Gallagher, S.J., Miranda, J.A., and Warne, M.T. 2009. Revised stratigraphy of the Blanchetown Clay, Murray Basin: age constraints on the evolution of paleo Lake Bungunnia. *Australian Journal of Earth Sciences* 52, 259-270.
- McLaren and Wallace 2010 McLaren, S. and Wallace, M.W. 2010. Plio-Pleistocene climate change and the onset of aridity in southeastern Australia. *Global and Planetary Change* 71, 55-72.
- Mitchell 2002 Mitchell, P. 2002. *Descriptions for NSW (Mitchell) Landscapes, Version 2*. Department of Environment & Climate Change. Available from: <http://www.environment.nsw.gov.au/resources/conservation/landscapesdescriptions.pdf>.
- Murray Pioneer 1928 'Ball at Nulla', *Murray Pioneer* (Renmark, SA). Friday 14 September 1928: 8.
- OEH 2011 Office of Environment and Heritage 2011. *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*.
- OzArk 2022 OzArk Environment & Heritage. 2022. *Aboriginal Cultural Heritage Assessment Report: Copi Mineral Sands Project, Wentworth Local Government Area*. Report to RZ Resources Limited.
- SMH 1914 'Position on the Darling: Absence of Rain' *Sydney Morning Herald* (Sydney, NSW). Thursday 30 July 1914: 5.
- SMH 1922 'Locking the Murray: Wool or Wheat' *Sydney Morning Herald* (Sydney, NSW). Friday June 22: 7.
- Stephenson 1986 Stephenson, A.E. 1986. Lake Bungunnia: a Plio-Pleistocene megalake in southern Australia. *Palaeogeography, Palaeoclimatology, Palaeoecology* 57, 137-156.
- Withers 1989 Withers, M. 1989. *The Bushmen of the Great Anabranch*. Withers, Woodlands.