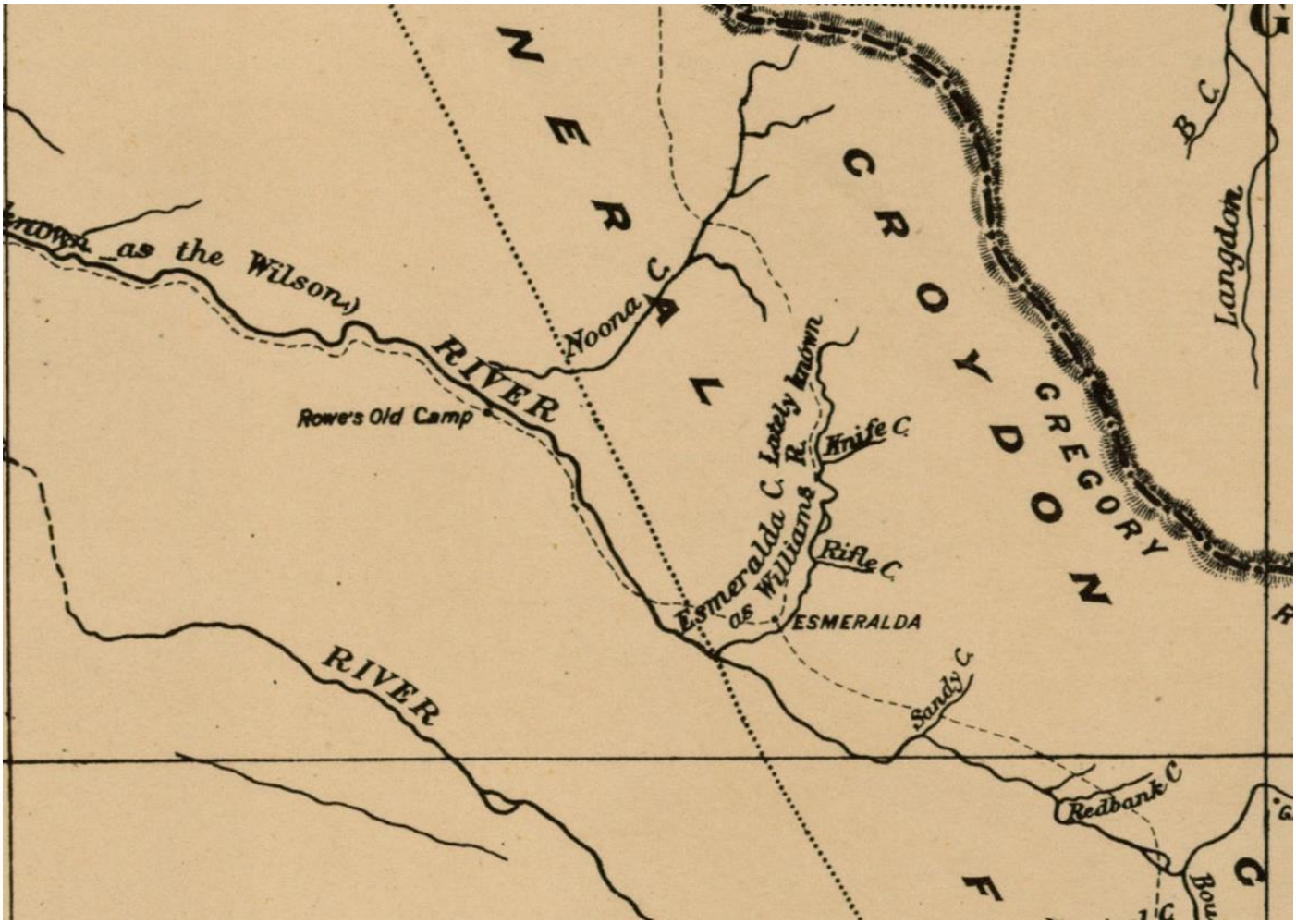
Graphinex – Esmeralda Graphite Project

Environmental Impact Statement

Appendix Q – Non-Indigenous Cultural Heritage Environmental Impact Assessment

GRAPHINEX



ESMERALDA GRAPHITE PROJECT NON-INDIGENOUS CULTURAL HERITAGE TECHNICAL REPORT

For AARC Environmental Solutions Pty Ltd

January 2026

Version 3

CONVERGE
HERITAGE + COMMUNITY

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GLOSSARY OF TERMS

ACRONYM OR TERM	DEFINITION
AARC	AARC Environmental Solutions Pty Ltd
ACH	Australian Heritage Council
ACH Act	*Australian Heritage Council Act 2003*
Burra Charter	*The Burra Charter of Australia International Council on Monuments and Sites*
Converge	Converge Heritage + Community
CHL	Commonwealth Heritage List
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of the Environment, Tourism, Science and Innovation
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection Biodiversity Conservation Act 1999*
ha	hectare
IAS	Initial Advice Statement
km	kilometre
LGA	Local Government Area
LHR	Local Heritage Register
m	metre
ML	Mining Lease
Mtpa	million tonnes per annum
NICH	Non-Indigenous Cultural Heritage
NHL	National Heritage List
NRM	natural resource management
the Project	Esmeralda Graphite Project
QH Act	*Queensland Heritage Act 1992*
QHC	Queensland Heritage Council
QHR	Queensland Heritage Register
QM	Queensland Museum
QNT	Queensland National Trust
RNE	Register of the National Estate (former)
ROM	Run-of-Mine
ToR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List

EXECUTIVE SUMMARY

The Esmeralda Graphite Project is a proposed open cut graphite mine, located on light grazing land approximately 70km south of Croydon, Queensland, Australia. This report presents the results of a Non-Indigenous Cultural Heritage (NICH) study for the Environmental Impact Statement (EIS) for the Project.

Heritage Framework

Determining the significance of a heritage place, item or site requires researching and understanding its value or level of importance. Assessments of significance are based on an understanding of a place's history together with a physical analysis and an appreciation of the comparative level of rarity or representative that a site possesses. Once these are understood, recommendations about how to manage and protect those values can be developed. In Queensland, heritage practitioners rely on two key documents to undertake significance assessments: *The Burra Charter of Australia International Council on Monuments and Sites* (Burra Charter) and the *Queensland Heritage Act 1992* (the QH Act) under which places of state significance are managed and the Queensland Heritage Register (QHR) is established. The QH Act also applies to archaeological places.

Federal legislation including although not limited to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a number of statutory and legislative controls for heritage places aimed at protecting Australia's heritage.

Local heritage places, i.e., those that do not threshold state, national or world levels are managed in 'Part 11: Provisions about places of cultural heritage significance in local government areas' under the QH Act and local government planning schemes.

Also relevant are non-statutory sources for heritage places or historical sites. It is important to note that the absence of a place on statutory and non-statutory registers does not demonstrate that it is not significant, as the registers are not comprehensive. Values can also change and evolve, and places may become significant as a result.

Identified NICH

Searches of various NICH databases and registers did not identify any registered NICH sites or places within or near the Project area. The desktop review did not identify any NICH in or near the Project area.

Significance Assessment

The NICH significance of the Project area was evaluated using recognised benchmarks such as the QH Act, the Burra Charter and the *GUIDELINE: Identifying and assessing places of local cultural heritage significance in Queensland* (Queensland Government, 2020).

There are no known NICH sites or places in the Project area which may threshold for entry to the Queensland Heritage Register (QHR) under the criteria outlined in the QH Act.

There are no known NICH sites or places in the Project area which may threshold for entry to the Croydon Shire Council's Local Heritage Register (LHR).

There are no known NICH archaeological deposits currently identified within the Project area that are likely to contain an archaeological artefact that is an important source of information about Queensland's history. As such, the Project area is not considered to have significant NICH archaeological potential.

Impacts to NICH Sites and Places

There is a low potential for NICH places or items to exist within the Project area and as such, impacts to NICH are unlikely. Unidentified items/sites/places are likely to relate to pastoral activities, such as bores, dams, historic survey trees, and remnant boundary fence lines.

Impacts to Fossils

There is a low potential that the Project may impact on fossils.

Recommendations

The recommendations of this report (Section 7) provide strategies for the management of the NICH including:

- That a site assessment be undertaken to ground truth the results of this desktop study.
- The practice of due diligence during works conducted within the Project area, particularly during any clearing or construction phases associated with initial preparation of the Project area.
- The adoption of a process for the cultural heritage management of currently unknown NICH.
- The adoption of a process to manage incidental fossil finds.

1 INTRODUCTION

Converge Heritage + Community (Converge) was engaged by AARC Environmental Solutions Pty. Ltd. (AARC) to undertake a desktop based NICH study for the EIS for the Esmeralda Graphite Project. This report includes:

- An overview of relevant legislation (Chapter 2).
- A contextual history of the region including the Project area (Chapter 3).
- An assessment of the outcomes of the desktop study (Chapter 4).
- The nature of cultural heritage significance of the proposed development area and any NICH places and features, including fossils, noted during the assessment (Chapter 5).
- An assessment of potential impacts to identified NICH, including fossils, in the Project area (Chapter 6).
- Specific management and mitigation recommendations for the identified NICH, including fossils, contained within the Project area, and recommendations to manage additional NICH sites and places which potentially exist within the Project area, and which have not, to date, been assessed and/or identified as requiring assessment (Chapter 7).

1.1 Project Description

The Project is located approximately 70km south of Croydon within the Croydon Shire Council area. The Project area is remotely located with the Gulf Savannah natural resource management (NRM) region. The Project area covers approximately 4,444 ha wholly contained within the Esmeralda pastoral station. See Figure 1.

The following information for the Project is sourced from the Initial Advice Statement (IAS) for the Project prepared by AARC in July 2025. Refer to the IAS for further details about the Project.

The Project proposes mining of the Esmeralda Granite unit and on-site concentration of graphite ore. The Project will mine up to 3.5 million tonnes per annum (Mtpa) of Run-of-Mine (ROM) ore over a mine life of approximately 50 years. The targeted resource is comprised of a globally significant deposit, currently reporting 25 Mt of graphite, making it the 3rd largest deposit in the world. Extracted graphite ore (~ 6% total graphite) will be trucked to the mineral processing plant for stockpiling and concentration via conventional flotation methods. Concentrate will then be trucked to a separate facility in Townsville for refinement and distribution. Graphinex plans to commence construction of the Project in 2027 – subject to relevant approvals being granted.

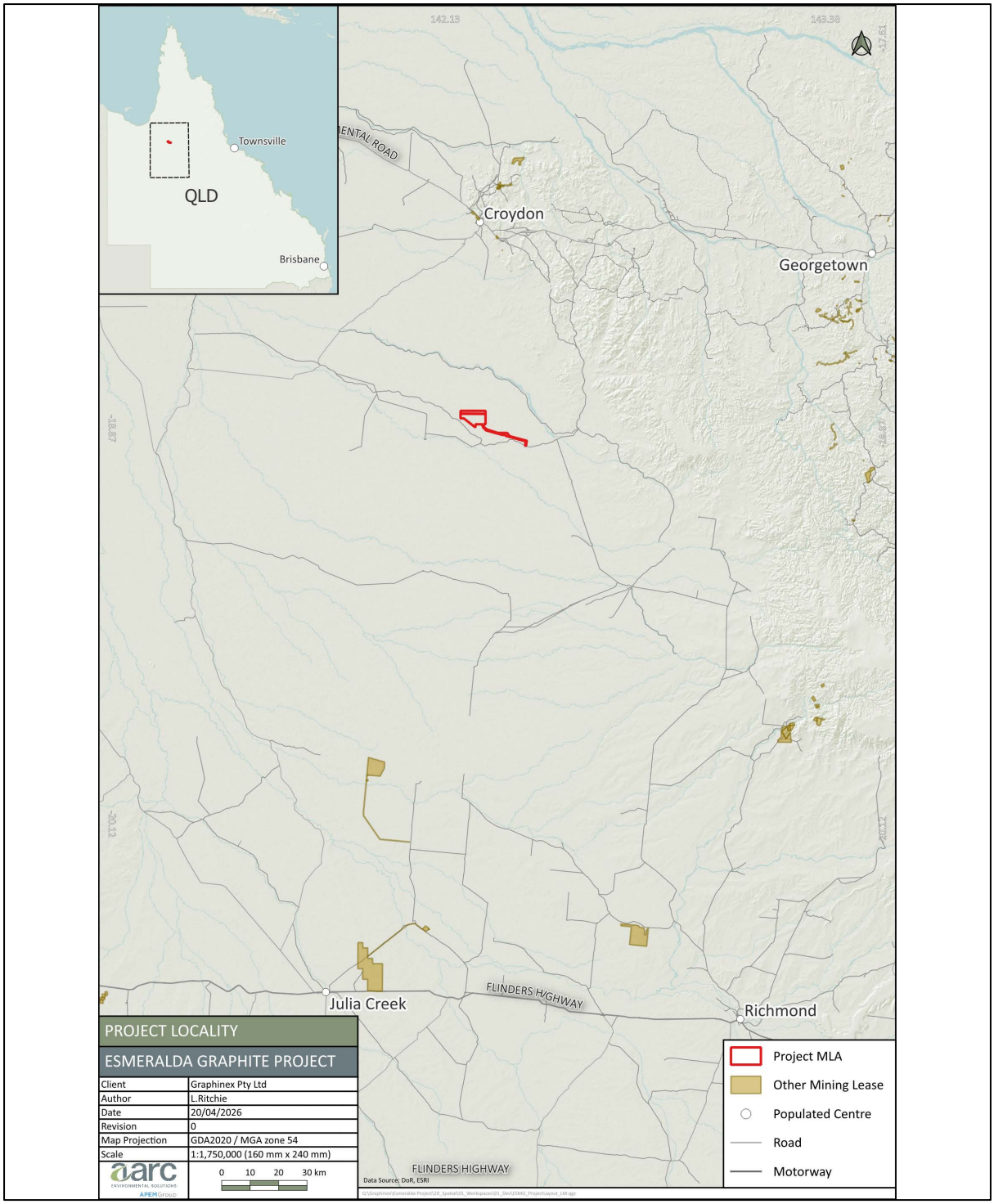


Figure 1: Location of the Project area (AARC, 2025).

1.2 Terms of Reference for NICH

The following information is sourced from the Terms of Reference (ToR) for NICH for the Project. Note that Indigenous Cultural Heritage is excluded from Converge's scope and as such is not included below.

Cultural heritage:

Objective and outcomes

The design and all phases of the project are to:

> *(a) avoid, minimise and mitigate adverse impacts on non-Indigenous cultural heritage of Queensland*
>
> *(b) achieve the purposes of the Queensland Heritage Act 1992*
>
> *(c) ensure that the nature and scale of the project does not compromise the cultural heritage significance of a heritage place or heritage area.*

Existing environment:

For aspects of non-Indigenous historical heritage protected by the Queensland Heritage Act 1992 (Queensland Heritage Act), undertake a study of, and describe, the known and potential historical cultural, archaeological, underwater cultural heritage artefacts and landscape heritage values of the area potentially affected by the project in accordance with the Non-Indigenous cultural heritage – EIS information guideline. Identify values at local and state thresholds and assess the significance of identified values using recognised criteria.

In consultation with Queensland Museum, review and assess the extent and stratigraphic context of fossil deposits (if any) within the project area to determine their value to the community, such as age, species, rarity and representation.

Impact assessment and mitigation measures

Detail potential impacts on Queensland (non-Indigenous) historical heritage identified under the Queensland Heritage Act.

Provide strategies to mitigate and manage all impacts on non-Indigenous cultural heritage values.

In consultation with Queensland Museum, identify strategies to mitigate and/or manage impacts on fossils should they be found within the project area. Include a strategy to address unexpected archaeological discoveries and cultural places in accordance with the relevant part of the Non-Indigenous cultural heritage – EIS information guideline.

1.3 Personnel

The report was prepared by Samantha Negoita (Professional Services Manager and Senior Heritage Consultant) and Linden Gablonski (Archaeologist). The report was reviewed for quality assurance purposes by Dr James Smith (Senior Archaeologist).

1.4 Methodology

The following methodology was employed to meet the requirements of the ToR, best practice and legislative framework (see Chapter 2).

1.4.1 Desktop Assessment

A contextual desktop study was undertaken to determine the existence, extent and probable levels of significance of any places likely to be located within the Project area. This study comprised searches of statutory and non-statutory registers and databases and historical and archival research of the region in the vicinity of the Project area.

1.4.2 Significance Assessment

A NICH significance assessment was prepared based on the result of the desktop assessment. Determining the significance of a heritage place, item or site requires researching and understanding its value or level of importance. Assessments of significance are based on an understanding of a place's history together with a physical analysis and an appreciation of the comparative level of rarity or representativeness that a site possesses. Once practitioners understand its value and significance, they can then make recommendations about how best to manage and protect those values. In Queensland heritage, practitioners rely on two key documents to undertake significance assessments the Burra Charter (Australia ICOMOS 2013) and the QH Act.

1.4.2.1 State Heritage Criteria

The QH Act and its amendments outlines specific criteria for assessing the cultural significance of heritage places. Under Section 35 (1) of the Act, a place may be entered into the register if it satisfies one or more of the following criteria:

a. If the place is important in demonstrating the evolution or pattern of Queensland's history.
b. If the place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage.
c. If the place has potential to yield information that will contribute to an understanding of Queensland's history.
d. If the place is important in demonstrating the principal characteristics of a particular class of cultural places.
e. If the place is important because of its aesthetic significance.
f. If the place is important in demonstrating a high degree of creative or technical achievement at a particular period.
g. If the place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
h. If the place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

1.4.2.2 Local Heritage Criteria

The Queensland Government prepared the '*GUIDELINE: Identifying and assessing places of local cultural heritage significance in Queensland*' (Queensland Government 2020) which is used for assessing places of potential local heritage significance. This Guideline takes the State cultural heritage criteria as a starting point but reduces the number of local cultural heritage criteria to five, with various sub-criteria.

The criteria used for assessing places of local heritage significance is shown below:

1. Historical – The place makes a significant contribution to our understanding of local history.
    1.1 is associated with an event, phase, movement, activity, way of life, custom, process, function or land use that has made a notable or influential contribution to local history;
    1.2 exemplifies a way of life, custom, process, function or land use that once was common but is now rare or uncommon or that has always been uncommon;
    1.3 shows creative or technical achievement at a particular period in local history; or
    1.4 has a special association with a person, group of people or organisation who or which has made a notable or influential contribution to local history.

2. Scientific – The place has potential to yield information that may make a significant contribution to our understanding of local history.
    2.1 knowledge that may lead to a greater understanding of an aspect of local history; or
    2.2 knowledge that may aid in comparative analysis of similar places.

3. Typological – The place demonstrates the key characteristics of a type or class of place that makes a significant contribution to our understanding of local history.
    3.1 a way of life or custom, function, process or land use, that has made a notable contribution to local history;
    3.2 the impact of an ideology, value or philosophy on the local built environment (including cultural landscapes);
    3.3 the work of a designer who has made a notable or influential contribution to the local built environment (including cultural landscapes);
    3.4 a form that has made a notable contribution to the local built environment (including cultural landscapes);
    3.5 an architectural style that has made a notable contribution to the local built environment (including cultural landscapes);
    3.6 a construction technique or specific use of materials that has made a conspicuous or early contribution to the local built environment (including cultural landscapes);
    3.7 the evolution or development of the key characteristics of a type of class of place; or
    3.8 a design or form that once was common but is now rare or uncommon or that has always been uncommon.

4. Aesthetic – The place has aesthetic qualities that contribute to its cultural heritage significance.
    4.1 beautiful attributes;
    4.2 natural aesthetic quality;
    4.3 picturesque or evocative attributes;
    4.4 expressive attributes;
    4.5 landmark quality;
    4.6 streetscape contribution;
    4.7 symbolic meaning;
    4.8 artistic value;

4.9 design merit (including in architectural design, landscape design, technological design or construction technique); or
4.10 a high level of craftsmanship.

5. Spiritual – The place has a strong or special association with a local community or local cultural group, for social, cultural or spiritual reasons.
   5.1 is important to a local community as a landmark, marker or signature;
   5.2 offers a valued customary experience;
   5.3 is a popular meeting or gathering place;
   5.4 is associated with events having a profound effect on a local community or cultural group;
   5.5 is a venue for ritual or ceremony;
   5.6 symbolically represents the past in the present; or
   5.7 has an essential community function leading to special attachment

1.4.2.3 Relative Significance

The following thresholds (Table 1) of relative significance are applied to determine the level (i.e., local, state, or national) at which a site or element is considered significant.

Table 1: Relative Significance Criteria.

DEFINITION	THRESHOLD
Element of **outstanding/exceptional** significance or heritage value - embodies national or state heritage significance in its own right and makes an irreplaceable contribution to the significance/heritage value of the place as a whole.	Likely to fulfil national heritage entry criteria.
Element of **high** significance or heritage value - embodies state heritage significance in its own right and makes an irreplaceable contribution to the significance/heritage value of the place as a whole.	Likely to fulfil state heritage entry criteria.
Element of **moderate** significance or heritage value - embodies state or local heritage values in its own right and makes an irreplaceable contribution to values of the place as a whole.	Likely to fulfil state and/or local heritage entry criteria
Element of **low** significance or heritage value - embodies local heritage values in its own right and makes a significant contribution to the significance/heritage value of the place as a whole.	Likely to fulfil local heritage entry criteria
Element is **neutral**, with little or no heritage value.	Unlikely to fulfil local heritage entry criteria. May contribute to other elements of heritage value.
Intrusive element which detracts, or has the potential to detract, from the significance of the place.	Does not have heritage value. Does not contribute to other elements of heritage value.

Section 5 presents the results of the significance assessment of the Project area and these consequently informed the impact assessment (Section 6). Recommendations and management strategies for management of potential NICH in the Project area (Section 7).

1.5 Acknowledgements

Dr Andrew Rozefelds (Principal Scientist and Curator of Palaeobotany) of the Queensland Museum (QM) assisted with the Paleontological information and recommendations for this study.

1.6 Constraints and Limitations

The following constraints and limitations apply to this assessment:

- Indigenous cultural heritage is outside the scope of this assessment.
- A physical site inspection was not undertaken for this study. This report presents the results of a desktop assessment only.
- Natural heritage is outside the scope for NICH; however the ToR requires an assessment of the potential for fossil finds in the Project area.
- No field assessment or detailed studies were undertaken by a palaeontologist.

2 HERITAGE FRAMEWORK

Several national, state and local Acts and regulations are relevant to this NICH assessment. Knowledge of the heritage framework is essential when assessing sites, places or items of NICH significance. Searches of relevant statutory heritage registers associated with national, state and local legislation were undertaken for this study (refer to Section 3.1 for heritage searches outcomes). Places included on these registers possess an established level of significance. However, the absence of a place on these registers does not demonstrate that it is not significant, as the registers are not comprehensive. Values can also change and evolve, and places may become significant as a result.

2.1 World Heritage List

The World Heritage List (WHL) is compiled by United Nations Educational, Scientific and Cultural Organisation (UNESCO) and is an inventory of places considered to have outstanding universal value. WHL places in Australia are managed under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), see below.

2.2 National Legislation

2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the key national heritage legislation and is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). This Act provides a number of statutory and legislative controls for heritage places. The EPBC Act protects Australia's heritage. This includes:

- Natural, historic or Indigenous places of outstanding national heritage value.
- Heritage places on or in Commonwealth lands and waters, or under Australian Government control.
- Areas on the WHL, or that the minister declares as a World Heritage property.

Places of national heritage value and those owned or managed by the Commonwealth are located on the National Heritage List (NHL) and Commonwealth Heritage List (CHL) respectively.

2.2.2 Australian Heritage Council Act 2003

The *Australian Heritage Council Act 2003* (AHC Act) provides for the establishment of the Australian Heritage Council (AHC), which is the principal advisory group to the Australian Government on heritage issues. The AHC Act is also responsible for the assessment and nomination of places to the NHL and CHL.

2.2.3 Protection of Moveable Cultural Heritage Act 1986

The Protection of Moveable Cultural Heritage Act 1986 regulates the export of Australia's significant cultural heritage objects. The Act does not restrict normal and legitimate trade in cultural property and does not affect an individual's right to own or sell within Australia.

2.3 State Legislation

Places of State heritage significance in Queensland are managed under the QHA. The Act provides for the establishment of the Queensland Heritage Council (QHC) and the Queensland Heritage Register (QHR), which lists places of cultural heritage significance to Queensland and regulates development of registered places. Under the provisions of the Act, any development of a place listed on the QHR must be carried out in accordance with the Act. A place may be entered in the register if it satisfies one or more of the assessment criteria under Section 35 (1) of this Act (see Section 1.4.2.1).

The Act also applies to potential archaeological places under Part 9 'Discovery and protection of archaeological artefacts and underwater cultural heritage artefacts'; Section 88 – 90:

- Section 89 requires a person to advise the Chief Executive Officer of DESI of an archaeological artefact that is an important source of information about an aspect of Queensland's history. This advice must be given as soon as practicable after the person discovers the item.
- Section 90 stipulates that it is an offence to interfere with an archaeological artefact once notice has been given of the artefact to the Chief Executive Officer.

2.4 Local Legislation

Local heritage places are managed under 'Part 11: Provisions about places of cultural heritage significance in local government areas' under the QH Act and local planning schemes. It is mandatory for local government to have a Local Heritage Register (LHR). The QHA provides a process for establishing and nominating places to a LHR. Specific criteria must be met to nominate a place to the LHR, and these include:

- Enough information to identify the location and boundaries of the place.
- A statement about the cultural heritage significance of the place.

As the Project area is located within the LGA of the Croydon Shire Council the relevant planning scheme is the *Croydon Shire Planning Scheme 2019*. Places listed in the Croydon Shire Council's LHR are identified in 'Schedule 3 – Croydon heritage places'.

2.5 Non-Statutory Framework

There are sources for heritage places or historic sites other than statutory registers. Places included in these sources are not generally afforded legislative protection. Nonetheless, places identified during searches of these sources contribute to a better understanding of the Project area and often identify places that have been overlooked for entry on statutory heritage registers. This is particularly important when considering the provisions of the QH Act regarding archaeological places.

2.5.1 Register of the National Estate – Archive

The AHC manages the former Register of the National Estate (RNE). The RNE was frozen in 2007 and from February 2012 ceased to exist as a statutory register. However, the RNE remains an archive of information for more than 13,000 places across Australia, many of which are of local and state significance, and is therefore considered in this report.

2.5.2 Queensland National Trust

The register of the Queensland National Trust (QNT) was searched for the Project. The QNT is the Queensland branch of the National Trust of Australia, a community based, non-government organisation that maintains a non-statutory register of heritage places. The listing of a place on the QNT register, known as 'classification', has no legal force; however, it is widely recognised as an authoritative statement of the cultural significance of a place.

2.6 Other Guidelines and Charters

This Section provides details of the relevant guidelines and charters that are applicable to heritage practice in Australia. These key documents include *The Burra Charter* (Australia ICOMOS 2013), the *Australian Historic Themes Framework,* and *Using the criteria: a methodology guideline* and are often used to assist practitioners in determining the heritage value of a place.

2.6.1 The Burra Charter

The Burra Charter (Australia ICOMOS 2013) is the leading guideline for heritage practitioners and provides guidance for the conservation and management of significant places. It defines cultural significance as "aesthetic, historic, scientific or social value for past, present and future generations" and goes onto state "cultural significance is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, *meanings*, records, *related places* and *related objects*" (Australia ICOMOS 2013). It outlines a specific methodology/ process for assessing sites.

2.6.2 Queensland Heritage Council Using the Criteria: A Methodology Guideline

QHC provides guidelines to assist in assessing which level of cultural heritage significance is applicable to a site (QHC 2006). These guidelines provide the following definitions:

> *A place is of local cultural heritage significance if its heritage values are of a purely localised nature and do not contribute significantly to our understanding of the wider pattern and evolution of Queensland's history and heritage…*
>
> *A place is of state cultural heritage significance if its heritage values contribute to our understanding of the wider pattern and evolution of Queensland's history and heritage. This includes places that contribute significantly to our understanding of the regional pattern and development of Queensland.*

2.6.3 Archaeological Research Potential

The heritage significance of potential archaeological relics within the Project area was considered according to their potential to contribute to our understanding of the culture and history of the nation, state and local area, and the site itself. Overall, more intact deposits and archaeological resources that can address important research questions, or which can reveal information about little known aspects of history, will have the highest heritage significance. This is a matter that has been considered in an influential paper by Bickford and Sullivan (1984). They note that archaeological significance has long been accepted elsewhere in the world as being linked directly to scientific research value:

> *A site or resource is said to be scientifically significant when its further study may be expected to help answer questions. That is scientific significance is defined as research potential.*

This is a concept that has been extended by Bickford and Sullivan (1984) in the context of Australian archaeology and refined to the following three questions which can be used as a guide for assessing the significance of an archaeological site or resource within a relative framework:

- Can the site contribute knowledge which no other resource can?
- Can the site contribute knowledge which no other site can?
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

3 HISTORY AND CONTEXT

3.1 Heritage Searches

Table 2 presents the results of the NICH database and register searches which were undertaken on 1 December 2025.

Table 2: Results of heritage searches.

DATABASE	HERITAGE PLACE
WHL	No places were identified on the World Heritage List within or near the Project area.
NHL	No places were identified on the National Heritage List within or near the Project area.
CHL	No places were identified on the Commonwealth Heritage List within or near the Project area.
QHR	No places were identified on the Queensland Heritage Register within or near the Project area.
LHR	No places were identified on the Croydon Shire Local Heritage Register within or near the Project area.
RNE	No places were identified on the Former Register of the National Estate within or near the Project area.
QNT	No places were identified on the Queensland National Trust Register within or near the Project area.

3.2 Historical Background

This section provides desktop review of readily available studies that may be relevant to the Project area.

The following discussion is not intended to be an exhaustive historical treatment of the Project area. Rather it provides an historical overview of the broad areas under consideration and includes context from the broader region based on library and archival research in relevant documents and secondary sources. Further research and analysis of specific areas and places may be required to assist with assessment of particular cultural heritage issues arising in relation to the Project area.

An understanding of historical themes is central to determining whether a place should be included in a heritage register (using the criteria identified in the QH Act). A historical thematic framework was developed by Blake in conjunction with DEHP heritage staff (2005), which is based on the Australian Historic Theme Framework developed by the Australian Heritage Commission (Australian Heritage Commission, 2001). This history, therefore, is generally structured using this framework as a guide for identifying relevant historic themes.

The following themes have been identified as being relevant to the region:

2. Exploiting, utilising and transforming the land
    2.1 Exploring, surveying and mapping the land
    2.3 Pastoral activity
5. Moving goods, people and information
    5.2 Using draught animals

3.2.1 Exploration in the region

Exploration was an important activity in colonial Australia. It served dual roles: establishing the basic geography of the continent, and identifying key natural advantages such as water courses, arable land, and grazing country, and thus informing the future development of the nation. The routes taken by early expeditions regularly followed Aboriginal pathways and consequently confirmed these pathways as the first transport corridors for the first European 'settlers'.

The region was first explored by Europeans in the 1860s. John McKinlay (1819-1872) searched for lost Burke and Wills expedition in 1862. He travelled north of Esmerelda and south of Croydon naming the Gregory Ranges after the Surveyor General of Queensland, Augustus Gregory (Figure 2). In 1864, John Graham MacDonald explored a route from Carpentaria Downs to the Gulf (Queensland Government, 2025(b)).

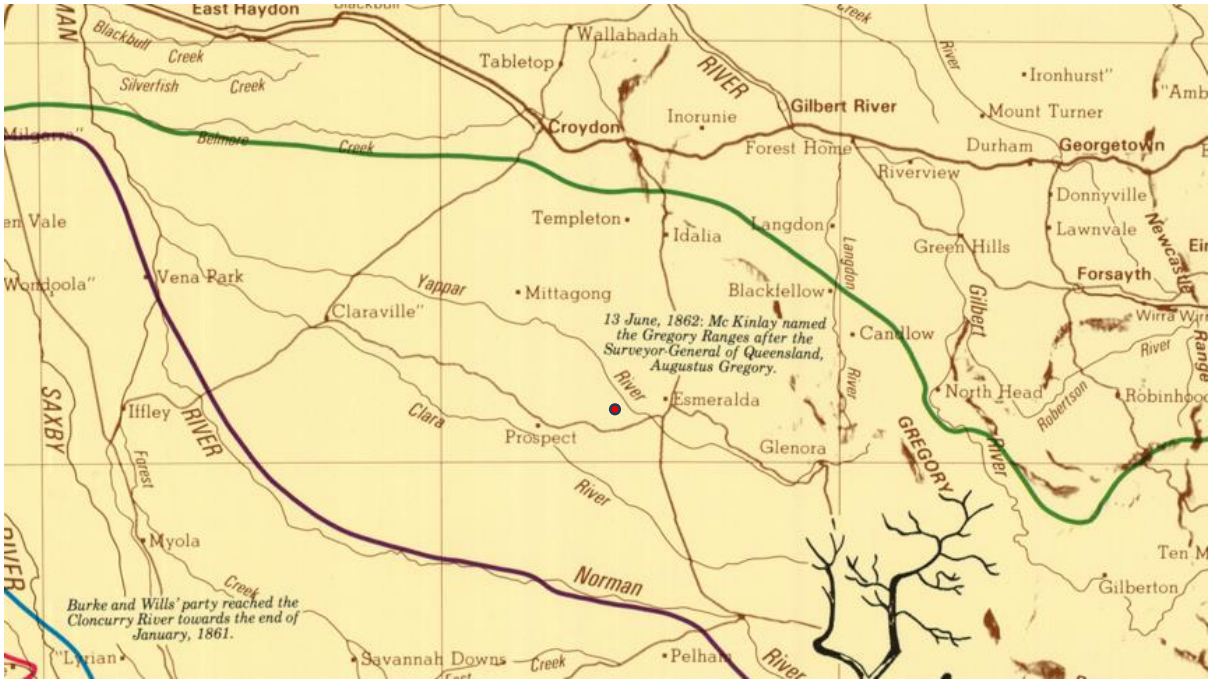


Figure 2: McKinlay's route in 1862, shown with a green line. Approximate location of Project area shown with red dot (Queensland Government).

H.E. Young also explored the region while investigating routes for an overland telegraph line between Cardwell and Normanton. Built between 1869 and 1872 this line passed through the Croydon district and became a lifeline for the northern mining fields (Queensland Government, 2025(b)).

3.2.2 Early European Pastoralism

Pastoralists bringing in sheep followed the early explorers, in 1865. However, by 1867 many had retreated because of fever, drought, low wool prices and distance from markets. The Croydon Downs station, present day Croydon, was taken up in 1881 by William Browne (Queensland Government, 2025(b)) while Esmeralda station, south of Croydon, was taken up prior to 1885. Stocked with cattle Esmeralda was owned by De Mestre and Rowe (The Brisbane Courier, 17 Aug 1885, P.5). Esmeralda homestead was built to the west of Esmerelda Creek and north of the Yappar River, about 30km east of the Project area. The property was offered for sale in 1887, at which time it was described as comprising 1,275 square miles of well-watered country, carrying an estimated 5,500 head of cattle. (The Australasian, 22 Oct 1887, P.43). Figure 3 shows the extent of Esmerelda station in 1891.

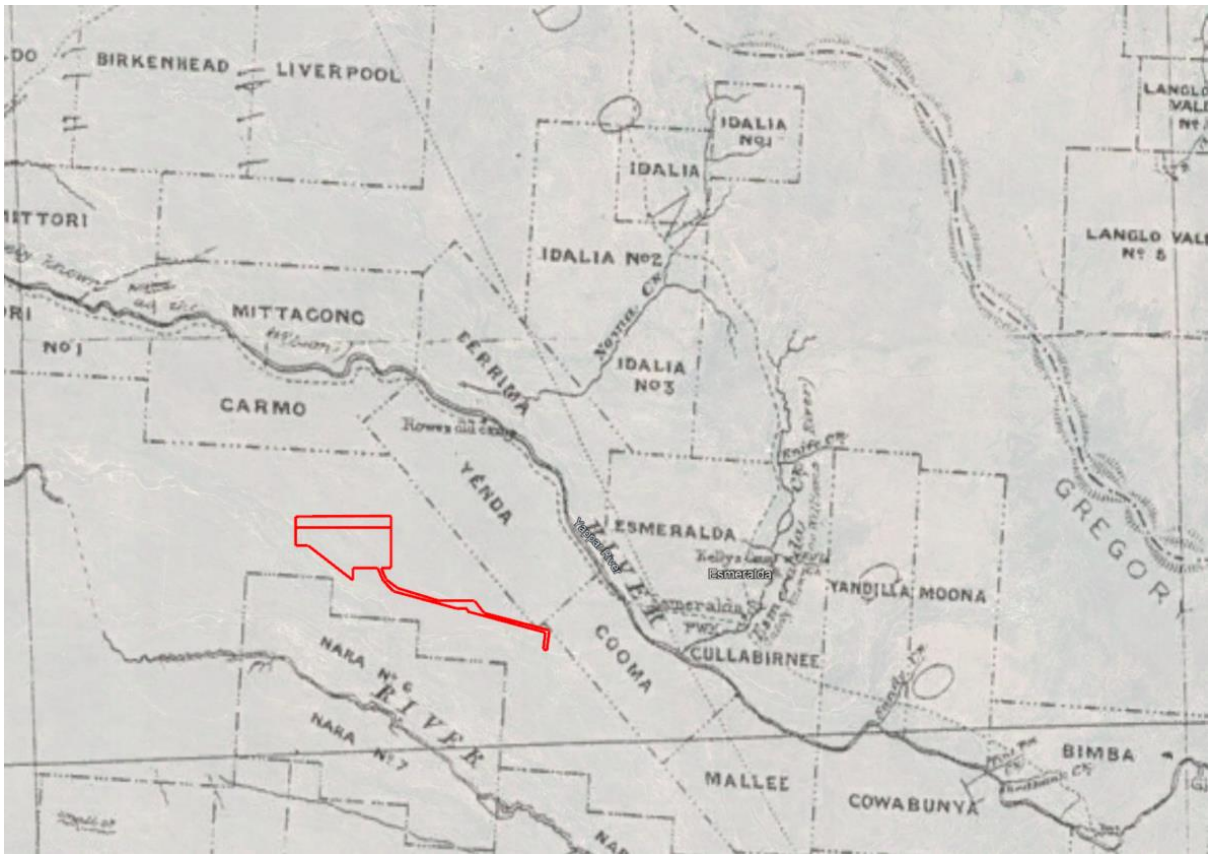


Figure 3: Plan showing the extent of the Esmeralda station in 1891. Rowe's old camp is shown at Yenda. The Project area is to the west of Yenda, shown in red outline (Queensland Government).

By 1899, Esmeralda station was owned by the Trust and Agency Company of Australasia Limited (The North Queensland Register, 27 Nov 1899, P.14). The size of the station was increased considerably in the late 1890s when it was consolidated other surrounding runs including Yenda and part of Cooma (Figure 4).

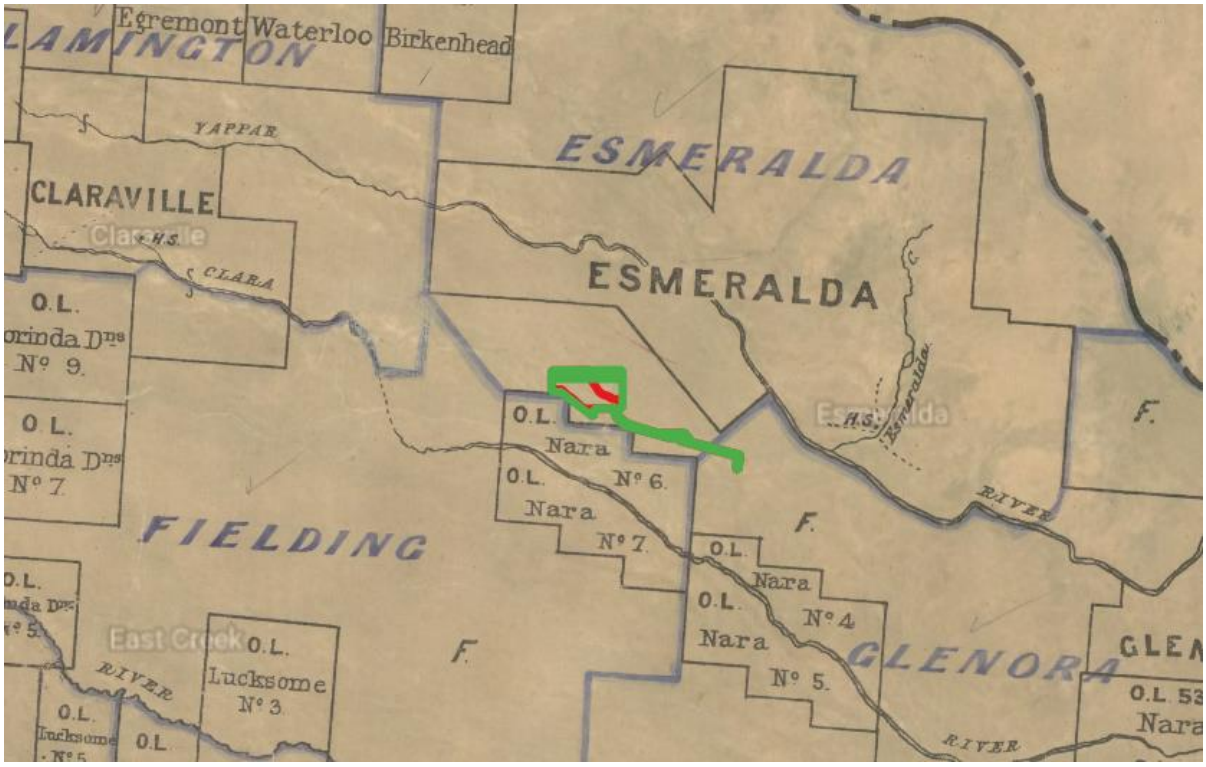


Figure 4: Plan of the consolidated Esmeralda station in 1897, showing the location of the Project area in green, just north of Nara No.6 (Queensland Government).

In 1902 Esmeralda Station was advertised for private sale. At that time, it comprised 632 square miles of Leasehold and 816 square miles of Leasehold Occupation License (1,448 square miles in total). It was stocked with 8,000 cattle and 150 horses (The Queenslander, 29 Nov 1902, P.1177). James Hendy acquired the station in 1905, taking possession of it unstocked apart from a number of bulls and horses. (Morning Post, 29 May 1905, P.2). By 1913 Esmeralda station was owned by Frank Duncombe who sold it to Bourke and Co. for £12,000 (The Brisbane Courier, 7 Jun 1913, P.4).

Esmeralda station was reduced in size and other holdings were formed. In 1914 the Rowe holding was located on the south side of the Yappar River, comprising Yenda and Yenda West. It was 178 square miles and no improvements were noted on the holding at that time. The lessee was Reginald John Mott and the annual rent was 15 shillings per square mile (Queensland State Archives, ITM28104). The current Project area is situated in what was formerly Rowe. 'Rowe's old camp' and yards are shown on the maps in the north of the holding, about 12km to the northeast of the Project area (Figure 5).

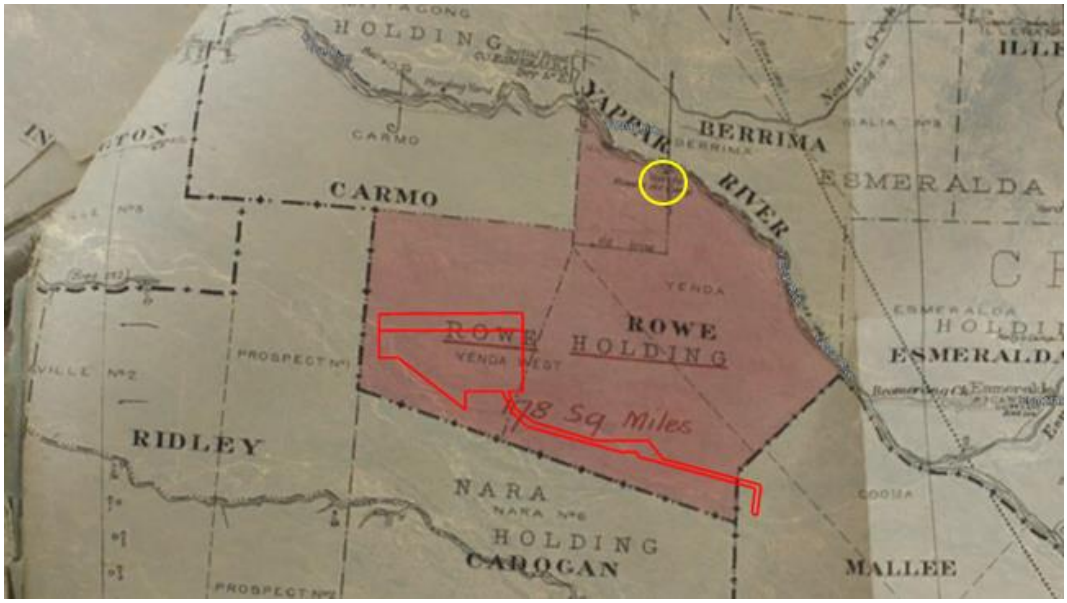


Figure 5: Rowe holding in 1914, with Esmeralda to the east. Project area shown in red outline. The location of Rowe's old camp and yards shown with yellow circle (Queensland State Archives, ITM28104).

In 1927 the Rowe holding, having no improvements was described as so poor and isolated that it wasn't worth the expense. In 1939 the lessee of Rowe was listed as R. E. Fletcher and others. While possessing no permanent water of its own, it could access to two bores situated on the adjoining Esmeralda property. With much of the holding covered by forest it was considered suitable for breeding only and not for fattening cattle (Queensland State Archives, ITM28104). In 1952 the Rowe holding was run in conjunction with other nearby holdings including Rifle Creek, Harlem, Cowabunya, Mallee, Esmeralda, Candia and Wonnemarral, with a combined total area of 1,503 square miles and referred to as the 'Esmeralda Aggregation Part III' (Queensland State Archives, ITM28104). See Figures 6 and 7.

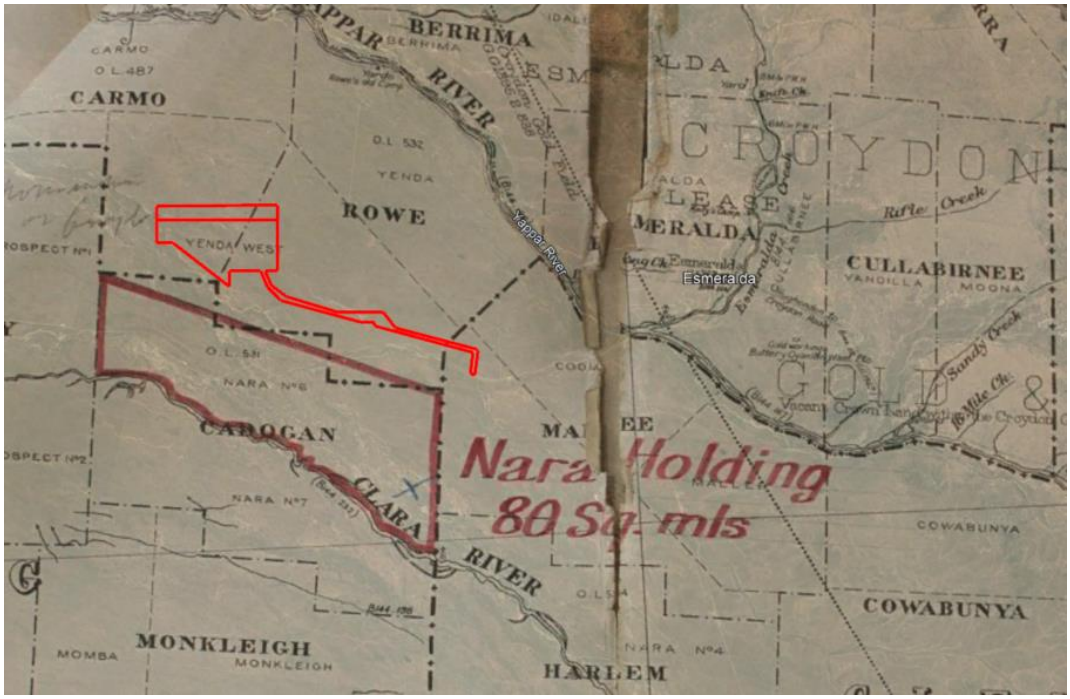


Figure 6: Rowe and surrounding holdings in 1952. Project area shown in red outline (Queensland State Archives, ITM28703).

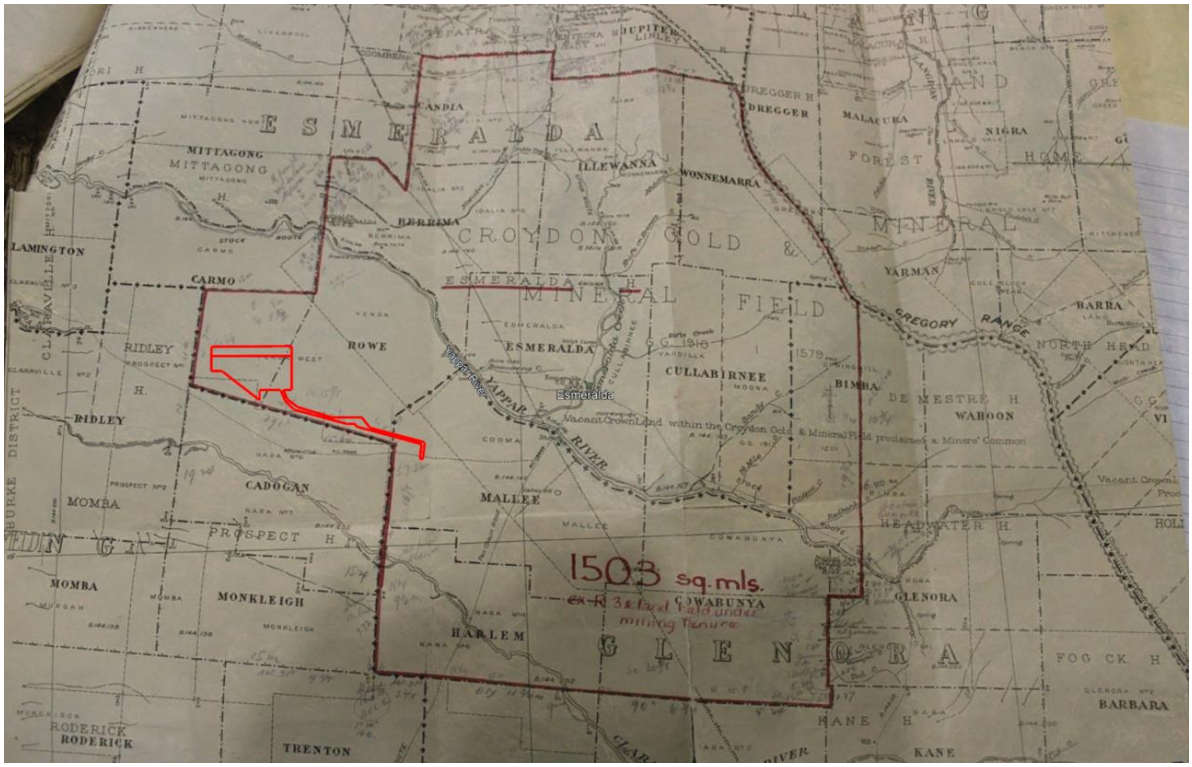


Figure 7: Extent of the Esmerelda Aggregation in 1952. Project area shown in red outline (Queensland State Archives, ITM306186).

Today the Esmeralda property is vast and includes eight holdings, including Rowe, Mallee, Harlem and many others (Figure 8).

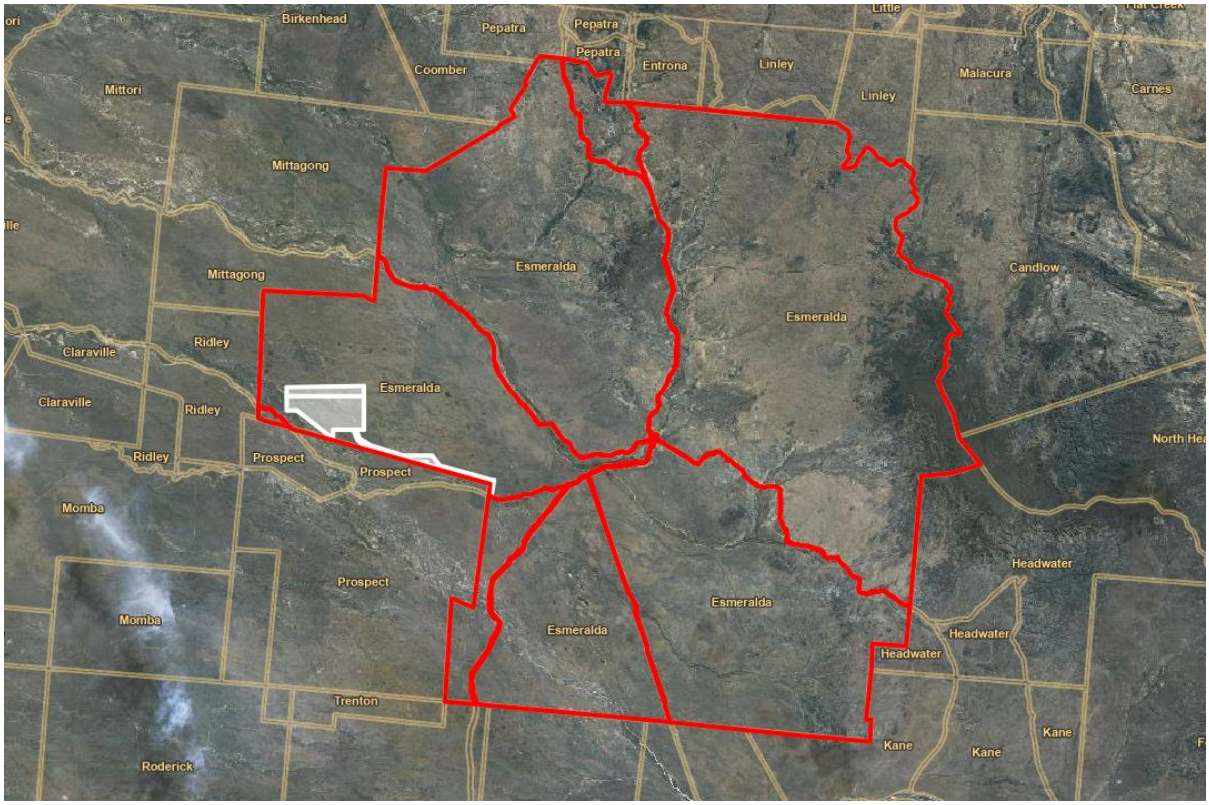


Figure 8: Current extent of the Esmeralda holdings shown in red. Project area shown in white (Queensland Globe, 2025).

3.2.3 Stock Routes

Stock routes were vital infrastructure for early pastoralists, providing the principal means of moving livestock prior to the development of formed roads. In Queensland, these routes have figured prominently in the state's rural history for more than 150 years and evolved as settlers drove stock along corridors following river systems and Aboriginal pathways. Established stock routes were recognised and dedicated as roads between 1860 and 1890 (Queensland Government, 2022). A stock route from Croydon to Esmeralda was established around the same time the station (Figure 9).

By 1922 a stock route had also been established along the south bank of the Yappar River, running northwest from the Esmeralda head station through Rowe. See Figure 10.

Use of stock routes declined in the 1950s and 1960s when road improvements made road transport more convenient and efficient (Queensland Government, 2022).

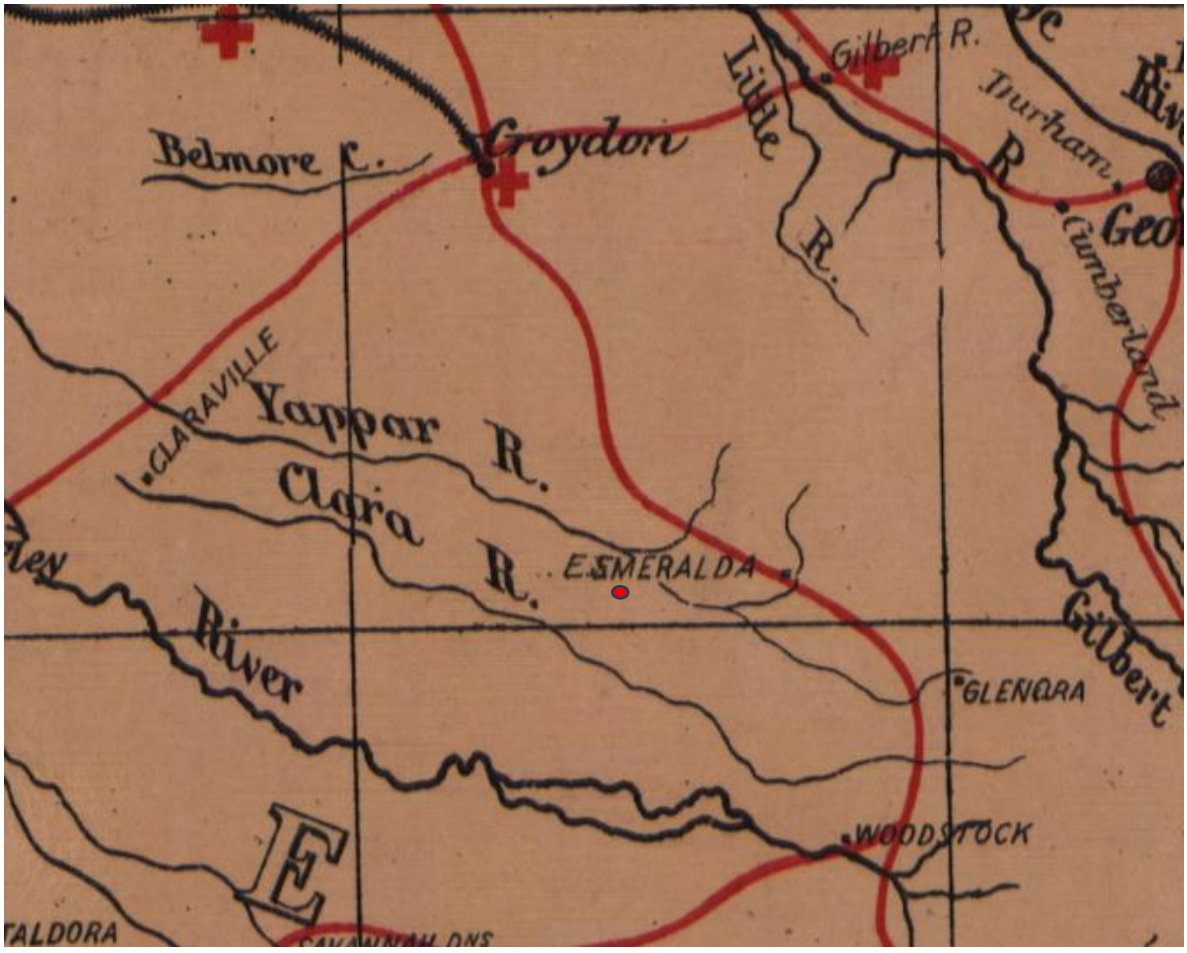


Figure 9: Stock route to Esmeralda from Croydon in 1892. Approximate location of Project area shown with red dot (Queensland Government).

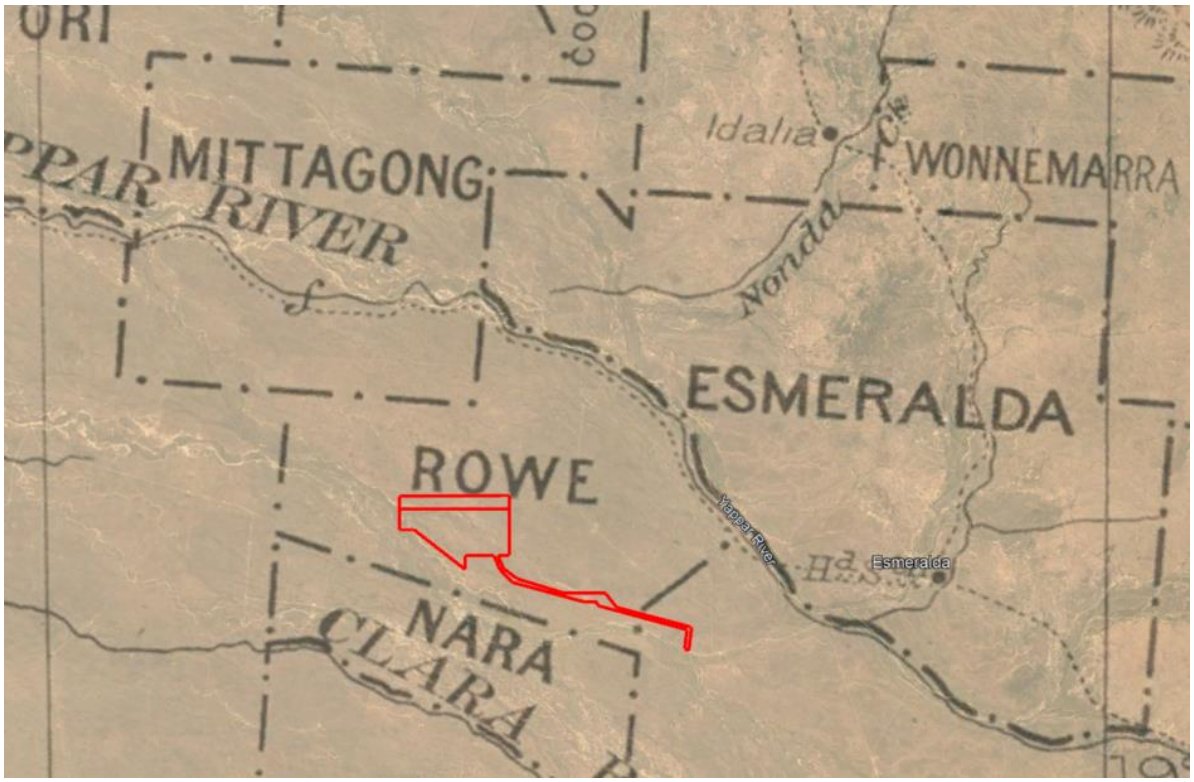


Figure 10: Tenure map, 1922 showing stock routes to Esmeralda and along the south bank of the Yappar River. Project area shown in red outline (Queensland Government).

3.2.4 Croydon

The name Esmeralda is taken from a nearby hill which was named by explorer, public servant and politician George Elphinstone Dalrymple (1826-1876), on 30 September 1873 (Queensland Government, 2025(a)).

The nearest town to the Project area is Croydon, which is a small rural town named after the Croydon Downs pastoral station. Initially the station was partly owned by William Browne from Croydon, England. Gold was discovered at the site of the future township in 1885 sparking a considerable gold rush. By 1886 ore processing batteries had been constructed along with several buildings including two storey hotels. A hospital was established and a foundry to support the batteries was built and operated until 1920. The Croydon local government division was established in 1887 and a borough council followed in 1892. By 1899 the estimated population of Croydon and its surrounding small towns was about 6,000 (University of Queensland, 2018).

A railway between Normanton and Cloncurry was constructed in 1886 by the colonial government and following the discovery of gold at Croydon, a 21km deviation was built to the new town between 1888 and 1891. By 1903 Croydon had a post office, bank, school, telegraph office, a dozen hotels and was considered a municipality containing around 750 dwellings. Gold production had markedly declined by 1915 and virtually ceased by 1925 and by 1931, only three hotels remained. In 2011, the population of Croydon was just 312 (University of Queensland, 2018).

3.2.5 Fossil Discoveries

Converge engaged Dr Andrew Rozefelds, Principal Scientist and Curator of Palaeobotany at Queensland Museum (QM) to assess the potential for fossil finds in the Project area. Based on the area's geological characteristic the advice received indicated a low potential for fossil material occurring within the Project area.

3.3 Historic Aerial Imagery

A review of historic aerial images obtained from QImagery provides an understanding of previous levels of ground disturbance and informs an understanding of historical development in the Project area. The earliest aerial imagery available dates to 1967, with the next series dating to 1999. Unfortunately, there is a large gap in the 1967 imagery over the Project area and thus no analysis was possible. The 1999 imagery does not show any buildings or structures in the Project area and given that the run files note a lack of improvements on the property up to the 1940s it is reasonable to assume, although not conclusive that no structures were erected in the Project area after this date.

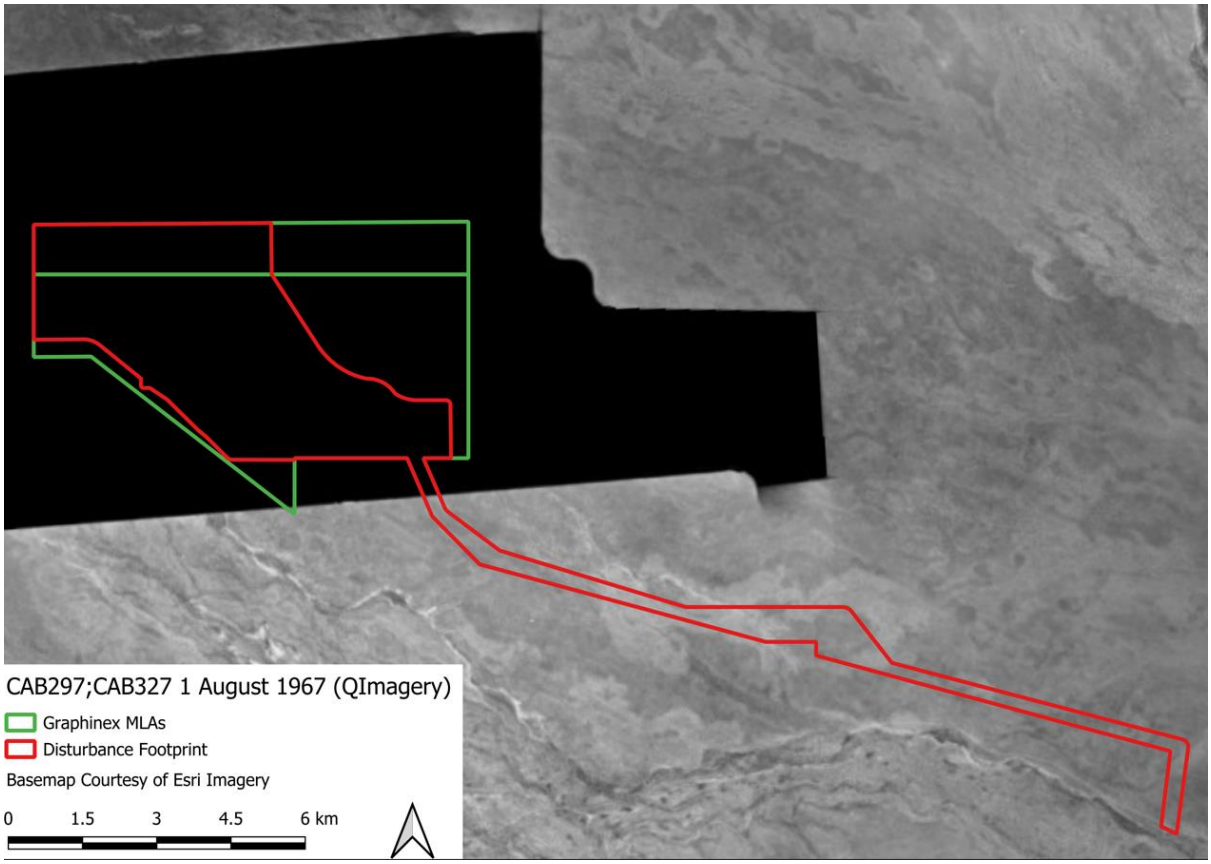


Figure 11: 1967 aerial imagery (QImagery).

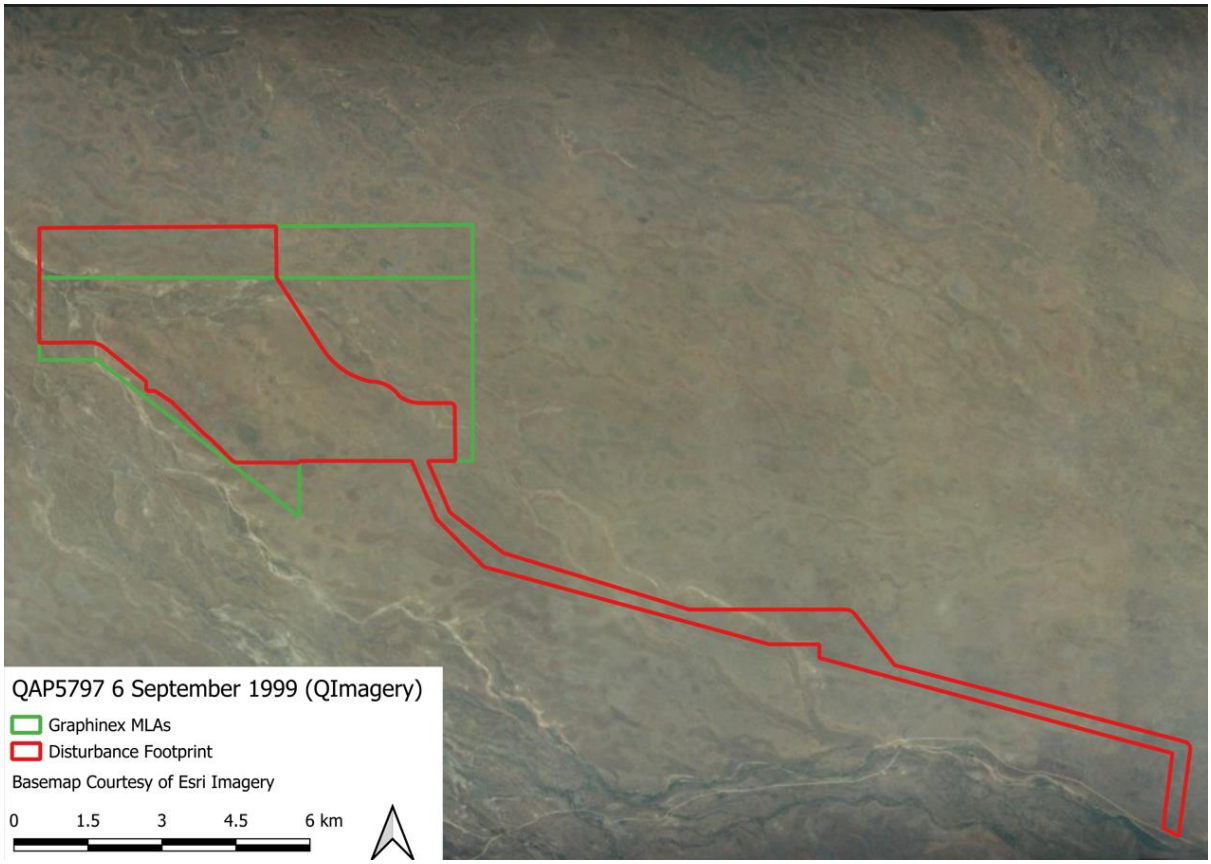


Figure 12: 1999 aerial imagery (QImagery).

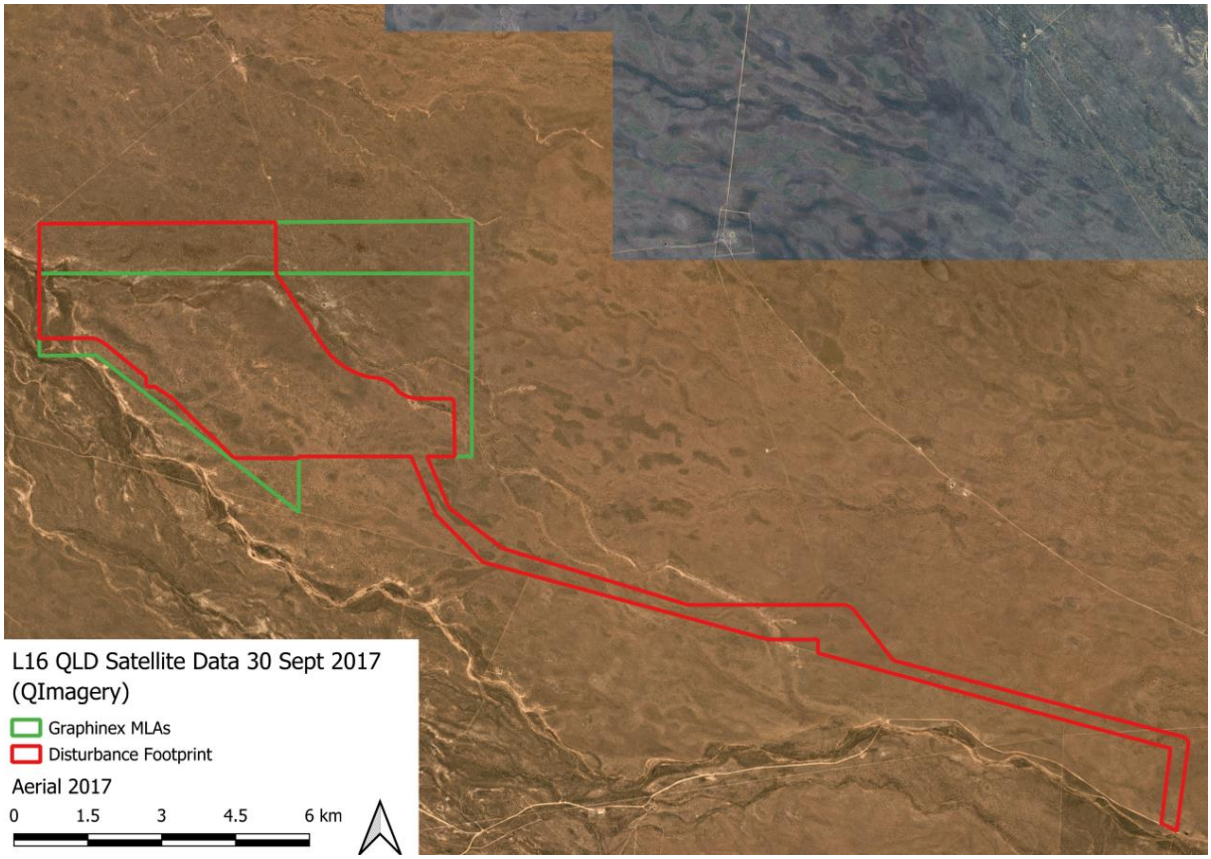


Figure 13: 2017 aerial imagery (QImagery).

4 ASSESSMENT OUTCOMES

4.1 Assessment Findings

The research undertaken for this desktop assessment has found that the Project area has operated as a cattle station since at least the 1880s. Archival searches did not identify any improvements in the Project area up to the 1940s. The Esmeralda homestead and outbuildings are located about 30km east of the Project area and Rowe's old camp and yards are located about 12km to the northeast. Similarly, no evidence of structures or improvements were identified in the Project area by the review of historic aerial imagery, although this was not conclusive.

4.2 Analysis of Results

4.2.1 NICH Sites and Places

Searches of the various NICH databases and registers did not identify any NICH in or near the Project area, and the desktop review did not identify any NICH in or near the Project area. It is considered unlikely that NICH sites or places are extant in the Project area.

4.2.2 Archaeological Potential

Based on the results of the desktop assessment, including a review of historic aerial imagery, it is considered there is a very low potential for significant archaeological features or deposits to be present in the Project area.

4.2.3 Unknown NICH

The desktop assessment indicates that NICH within the Project area would most likely relate to pastoral activities which commenced in the 1880s. The prolonged history of these activities suggests there is some potential for associated materials to be present. Items may include unregistered historic bores, dams, fencing elements and 'dumps', as well as discarded tools and equipment that are not visible in the available aerial and satellite imagery.

4.2.4 Fossils

Based on the results of the consultation with QM, it is understood that the potential for fossils to be in the Project area is low.

5 SIGNIFICANCE ASSESSMENT

5.1 Significance of the Project Area

A summary of the significance of the Project area using the criteria identified under the *GUIDELINE: Identifying and assessing places of local cultural heritage significance in Queensland'* is:

Table 3: NICH significance ratings for the Project area.

Criteria	Discussion
1	The Project area is not considered to make a significant contribution to our understanding of local history. This criterion has not been met.
2	There are no archaeological deposits currently identified within the Project area that are likely to contain an archaeological artefact that is an important source of information about Queensland's history. As such, the Project area is not considered to have significant archaeological potential. This criterion has not been met.
3	There are no known architectural elements, designs or forms of note in the Project area. This criterion has not been met.
4	The Project area is not considered to have aesthetic significance that contributes to an understanding of local history. This criterion has not been met.
5	The Project area is not known to have significant spiritual or social significance. This criterion has not been met.

5.2 Potential for Fossil Finds

There is a low potential for fossil finds in the Project area.

5.3 Significance of Unidentified NICH Sites

Cultural heritage significance relates to people's perspective of place and sense of value, within the context of history, environment, aesthetics and social organisation. During the desktop assessment of the Project area, no NICH sites were identified. As such, the Project area is not considered to have significant NICH potential.

6 POTENTIAL IMPACTS

6.1 Types of Potential Impacts

The Project area will be impacted by vegetation clearing, topsoil stripping, excavation, bulldozing, and other ground-disturbing activities associated with mining operations. Project Impact on Sites of Cultural Heritage Significance

Due to the lack of identified NICH sites within the Project area, the risk of the Project impacting on sites of historical cultural heritage significance is considered to be low. However, it is possible that unidentified NICH sites and items may be identified during works. As a result, it is recommended that a site assessment is conducted to identify areas that may require further management or monitoring.

6.2 Potential Impact on Fossils

QM have advised that there is low potential for fossils finds in the Project area, therefore it is unlikely that the Project will impact on fossils.

7 CONCLUSIONS AND RECOMMENDATIONS

This assessment has not identified any NICH sites in the current Project area. However, the region is representative of the regional pastoral activities established in the 1880s and due to their extended presence, it is possible that some NICH material may be encountered during the proposed works and particularly those that could not be identified by analysing aerial and satellite imagery.

The following provides general mitigation recommendations to manage unknown and unexpected historic cultural heritage sites which may be located within the Project area.

7.1 Site Assessment

Whilst no potential NICH sites were identified by this assessment, the limitations inherent in a desktop study mean that, the presence of unknown NICH cannot be categorically excluded. It is therefore recommended that in an abundance of caution a site inspection be undertaken of the Project area by a suitably qualified and experienced heritage practitioner to ground truth the findings of this assessment.

7.2 Due Diligence

It is recommended that due diligence be practiced during works conducted within the Project area, particularly during clearing and/or construction phases associated with initial preparation of the area. To support due diligence obligations, it is recommended that a NICH Induction Booklet be prepared after all Project approvals are in place and prior to the commencement of any ground-disturbing activities. This booklet can then be incorporated into the General Site Induction. The NICH Induction Booklet should be prepared by a qualified heritage professional and include the following:

- Specific instructions for crews regarding their obligations to look for and avoid impacting NICH material until it has been properly assessed;
- Presentation of familiarisation material for work crews so that they are aware of what constitutes a NICH find;
- Provision of educational material to personnel informing them what archaeological material may look like, and clear instructions for required actions if such material is encountered; and,
- A process for the collection, transport and storage of any NICH items.

7.3 Management of Unknown Sites

There is low potential for NICH places or items to exist within the Project area. Unidentified items including sites/places are likely to relate to pastoral activities, historic survey trees, and remnant boundary fence lines. In these circumstances it is recommended that the process outlined in Appendix A is adopted.

7.4 Management of Fossils

A stop work procedure for incidental fossils finds is provided at Appendix B. If fossils are found during work, follow this procedure and contact QM for further guidance.

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Queensland State Archives – run files:

- Esmeralda 1898-1932 - PR25956 - ITM25956
- Esmeralda 1932-1958 - PR306186 - ITM306186
- Rowe 1914-1954 - PR28104 - ITM28104
- Nara 1914-1932 - PR28073 - ITM28073

APPENDIX A: STOP WORK PROCEDURE FOR NICH

Procedure for Discovery of a NICH Site, Place or Item of Potential Cultural Heritage Significance

Stop Work

If potential places, sites or items of NICH are located during works: stop work, mark and protect the site. Work can continue elsewhere, if it will not affect the item.

↓

Initial Contact

Contact the Esmeralda Graphite Project Environment Officer immediately and notify them of the item.

↓

Notification to Project Heritage Advisor

The Esmeralda Graphite Project Environment Officer is to contact the Project Archaeologist, including details of the nature of the item. The Project Archaeologist should be commissioned in an 'on-call' capacity during the Project construction phases.

↓

Assess Significance

The Project Archaeologist will attend the site (if necessary) as soon as possible to assess significance of item and recommend a course of action. These may include:
i) protect and avoid;
ii) excavate, record and remove;
iii) investigate and preserve;
iv) collection, storage and conservation strategies; or
v) no action if the item is deemed to have no significance.

Recommendations i), ii) and iii) will require preparation of a work method statement in consultation with DETSI Cultural Heritage Branch prior to any action commencing.

IS ITEM DISCOVERED SIGNIFICANT?

Yes ↓

Report Find to DETSI Cultural Heritage Branch

Reporting of find to DETSI Cultural Heritage Branch is required by law.

Depending on the nature of the find, the Project Archaeologist and DETSI will negotiate the requirements of the find.

↓

Complete Recording/ Field Work

Complete the cultural heritage or remedial works in accordance with the consent permit or agreed course of action. Advise the Esmeralda Graphite Project Environment Officer when the assessment is complete.

No ↓

Recording

Items deemed to have no significance will require recording as evidence. A photograph of the item and a description of why it is not of significance should be recorded by the Project Archaeologist and forwarded to the Esmeralda Graphite Project Environment Officer.

↓

Advice

Advise the Esmeralda Graphite Project Environment Officer when the assessment is complete.

Confirm advice with DETSI Cultural Heritage Branch if required.

↓

Work Recommences

Esmeralda Graphite Project Environment Officer to advise when works can re-commence in the original or changed form.

↓

Submit Final Report

Project Archaeologist completes reporting in accordance with the appropriate guidelines and conditions. A copy of the report to go to relevant government authorities and Esmeralda Graphite Project Environment Officer.

Converge 2026

APPENDIX B: PROCEDURE FOR INCIDENTAL FOSSIL FINDS

Procedure for Discovery of Palaeontological Resources - QM

Based upon guideline developed in various Canadian states for the salvage of significant fossils from active mining sites.

The following procedure can be used to recover and salvage significant palaeontological resources.

Upon discovery of a palaeontological resource (fossil):

a. The machine operator should cease excavation in the immediate vicinity to avoid any future damage to the specimen
b. A mine supervisor should be notified of the discovery and should redirect excavation to an area a safe distance from the fossil. (Suggest a minimum of 20 m ideally)
c. The mine supervisor should flag and define the area from which the fossil was recovered to ensure no further disturbance from mining equipment or personnel.
d. The 'dump pile' should be left undisturbed to allow for the recovery of associated fossil material.
e. The 'dump pile' should be flagged to minimize and further disturbance from mining equipment or personnel.
f. Mine staff (geologist or mining engineer) should note:
    1. 1.Locality description
    2. Stratigraphic position, i.e. Formation
    3. Rock type
    4. Any associated fossil material
    5. General description of fossil
    6. 6 Photo documentation of the fossil
g. A professional palaeontological consultant should be contacted to assess the significance of the fossil
h. If the fossil is deemed to be significant, the paleontological consultant should consult the Queensland Museum (QM) to discuss plans for the recovery and transportation to the museum