



## **PUBLIC DISPLAY**

APPENDIX P

TRANSPORT HAUL ROUTE ABORIGINAL  
CULTURAL HERITAGE ASSESSMENT  
REPORT



# The Plains Transport Route

Aboriginal Cultural Heritage  
Assessment Report

PREPARED FOR



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# The Plains Transport Route

## Aboriginal Cultural Heritage Assessment Report

0667692



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## ACRONYMS AND ABBREVIATIONS

| Acronym          | Description                                                                                                |
|------------------|------------------------------------------------------------------------------------------------------------|
| ACHAR            | Aboriginal Cultural Heritage Assessment Report                                                             |
| ACHMP            | Aboriginal Cultural Heritage Management Plan                                                               |
| ACHSR            | Aboriginal Cultural Heritage Survey Report                                                                 |
| AHIMS            | Aboriginal Heritage Information Management System                                                          |
| AHIP             | Aboriginal Heritage Impact Permit                                                                          |
| asl              | Above Sea Level                                                                                            |
| ASR              | Archaeological Survey Report                                                                               |
| ATSIHP Act       | <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>                                  |
| BP               | Before Present                                                                                             |
| Burra Charter    | <i>Australia International Council on Monuments and Sites, Charter for Places of Cultural Significance</i> |
| CHL              | Commonwealth Heritage List                                                                                 |
| CMT              | Culturally Modified Tree                                                                                   |
| Code of Practice | Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales                 |
| DA               | Development Application                                                                                    |
| DCCEEW           | Department of Climate Change, Energy, the Environment and Water                                            |
| DCP              | Development Control Plan                                                                                   |
| DPE              | Department of Planning and Environment                                                                     |
| DPHI             | Department of Planning, Housing and Infrastructure                                                         |
| DPIE             | Department of Planning, Industry and Environment (now DPE)                                                 |
| EIS              | Environment Impact Statement                                                                               |
| EPBC Act         | <i>Environment Protection and Biodiversity Conservation Act 1999</i>                                       |
| EP&A Act         | <i>Environmental Planning and Assessment Act 1979</i>                                                      |
| ERM              | Environment Resource Management                                                                            |
| ESD              | Ecologically Sustainable Development                                                                       |
| ha               | Hectare                                                                                                    |
| HA               | Heritage Assessment                                                                                        |
| IBRA             | Interim Biogeographic Regionalisation of Australia                                                         |
| kV               | Kilovolt                                                                                                   |
| LALC             | Local Aboriginal Land Council                                                                              |
| LEP              | Local Environmental Plans                                                                                  |
| LGA              | Local Government Area                                                                                      |
| MW               | Mega Watts                                                                                                 |



| Acronym  | Description                                         |
|----------|-----------------------------------------------------|
| NHL      | National Heritage List                              |
| NNTT     | National Native Title Tribunal                      |
| NPW Act  | <i>National Parks and Wildlife Act 1974</i>         |
| NSW      | New South Wales                                     |
| NSW NPWS | New South Wales National Park and Wildlife Services |
| NTS Corp | Native Title Services Corporation                   |
| PAD      | Potential Archaeological Deposit                    |
| RAP      | Registered Aboriginal Parties                       |
| REF      | Review of Environmental Factors                     |
| RLU      | Regolith Landform Unit                              |
| RNE      | Register of National Estate                         |
| RNTBC    | Registered Native Title Body Corporate              |
| SEARs    | Secretary's Environmental Assessment Requirements   |
| SHR      | State Heritage Register                             |
| SoHI     | Statement of Heritage Impact                        |
| SSD      | State Significant Development                       |
| WHL      | World Heritage List                                 |
| WTG      | Wind Turbine Generator                              |

## EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd has prepared this Aboriginal Cultural Heritage Assessment Report (ACHAR) on behalf of ENGIE Australia and New Zealand. This ACHAR relates to road upgrades required along the transport route proposed for The Plains Renewable Energy Park. The Project is located approximately 15 kilometers south of Hay, New South Wales, and the transport route includes pinch points with ground disturbance works in the Broken Hill and Hay areas.

ERM has previously completed two ACHARs for the Project – one for the wind farm and one for the solar farm. ERM has also complete a Heritage Assessment and Statement of Heritage Impact for the proposed transport route in the Broken Hill area.

The following is a summary of the findings of this ACHAR:

- No previously registered sites are located within the Project area;
- No new Aboriginal sites were identified within the Project area; and
- Areas of low to moderate archaeological sensitivity were identified within the Project area.

Proposed key measures to manage and mitigate impacts to potential unidentified heritage sites are summarised below:

### RECOMMENDATION 1: CULTURAL HERITAGE AWARENESS INDUCTION

All personnel involved with construction activities within the Transport Route Activity Areas should undertake a cultural awareness induction prior to commencing any activities in the works site. The cultural awareness induction should include:

- A summary of the cultural heritage values of the Transport Route Activity Areas and surrounds;
- Guidance on the identification of potential Aboriginal objects; and
- An explanation of the Unexpected Finds Procedure.

### RECOMMENDATION 2: UNEXPECTED FINDS PROCEDURE

In the event that cultural heritage sites or materials (or suspected cultural sites or materials) are discovered during earthworks at the open and close borehole locations or open trenching location, development operations or similar activities within proximity to the ground works location the procedure at is to be implemented.

# 1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) has prepared this Aboriginal Cultural Heritage Assessment Report (ACHAR) on behalf of ENGIE Australia (ENGIE) (the Applicant). The ACHAR relates to road upgrades required along the transport route proposed for The Plains Renewable Energy Park (the Project). These road works are required to facilitate the transportation of blade and tower components from the Port of Adelaide to the Project area. This ACHAR will only consider road upgrades required for the NSW section of the transport route. The Project area is located approximately 15 kilometers (km) south of Hay, New South Wales (NSW). The Project will require the transporting of up to 171 wind turbine generators (WTGs).

ERM has previously completed two ACHARs for the Project – one for the wind farm and one for the solar farm. ERM has also completed a Heritage Assessment (HA) and Statement of Heritage Impact (SoHI) for the proposed transport route in the Broken Hill area. These documents accompanied the Project EIS which was exhibited by the Department of Planning, Housing and Infrastructure (DPHI) between 8 May and 4 June 2024. The Project was assessed as a State Significant Development (SSD) under Part 4, Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979*.

This Transport Route ACHAR identifies and assessed impacts relating to identified Aboriginal cultural heritage within the Transport Route Activity Areas. This ACHAR has been prepared in accordance with the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a) (Consultation Requirements).

Preparation of the ACHAR will include Aboriginal community consultation which will be undertaken with the Registered Aboriginal Parties (RAPs) who have expressed interest in the overall Project.

The ACHAR assessed potential impacts to Aboriginal cultural heritage at two main areas:

- Broken Hill bypass; and
- Hay Plain region near to the site entrances to the Project area.

## 1.1 DESCRIPTION OF THE PROJECT AND PROPOSED TRANSPORT ROUTE

The Project is a proposed Wind Farm located in Hay, NSW. The Project extends across an area of approximately 46,431 hectares (ha), with a development footprint of 1,887 ha. The wind farm will consist of up to 171 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,230 megawatts (MW). The Project is located within the boundaries of the Hay Local Aboriginal Land Council (LALC).

The Project will feature wind turbine generators with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to the Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components.

These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades. A Route Study assessment was conducted by Ares Group in March 2024 (*Appendix K*). This assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide. Two transport routes are proposed - one for blades and one for towers and other components. Only the transport route proposed for blades has pinch points (e.g., areas where modifications or upgrades are required to facilitate blade transport), which will be referred to as Transport Route Activity Areas, therefore only this route (the 'blade transport route') will be assessed in the ACHAR. (Figure 1-1).

Most of the blade transport route is on state highways via Broken Hill, Wilcannia, and Hay. The blade route is further detailed in Table 1-1.

**TABLE 1-1 BLADE ROUTE**

| <b>START – Port Adelaide</b> |                                                        |
|------------------------------|--------------------------------------------------------|
| 0.0 KM to 463.1 km           | Ocean Streamers Road – Barrier Highway (SA-NSW border) |
| 510.9 KM                     | Broken Hill bypass                                     |
| 515.1 KM                     | Barrier Highway                                        |
| 729.1 KM                     | Cobb Highway                                           |
| <b>1,133.8 KM</b>            | <b>FINISH – The Project area</b>                       |

The proposed transport route is summarised as follows:

- SA: The transport route leaves the Port of Adelaide via Ocean Steamers Road, Eastern Parade, Port River Expressway, and Port Wakefield Highway;
- SA: The route then deviates along Port Wakefield/Augusta Highway, Wilkins Highway (Jamestown Bypass), Jamestown-Yarcowie/Whyte Road, to the Barrier Highway;
- SA: The blade transport route progresses along Angle Vale Road, North-South Motorway, Horrocks Highway to the Barrier Highway; and
- NSW: The transport route then uses the Barrier Highway, and Cobb Highway to get to the Project Site.

Ten pinch points were identified along the proposed blade transport route. However, this report details those pinch points that relate to the current transport route chosen by ENGIE. A full description of the Ares Route Study is provided within *Appendix K*.

## 1.2 PROPOSED TRANSPORT ROUTE ACTIVITY AREAS – NSW SECTION OF TRANSPORT ROUTE

This assessment is only concerned with proposed areas of disturbance identified within the NSW section of the proposed Transport Route Activity Areas (Figure 1-1). There are several road modifications required at Broken Hill, within the Broken Hill Local Aboriginal Land Council (LALC) boundary; and within the Hay Plain region, within the Hay LALC and Deniliquin LALC boundaries.

The works required at Broken Hill include an option for the entrance into the western side of the township.

The proposed route, Pinch Point 9, turns southward off the Barrier Highway approximately 2.4 km west of Broken Hill, with the route then passing along existing dirt tracks adjacent to the Broken Hill Recycling Centre and then through part of the Barkandji native title area and onto Gaffney Street in Broken Hill town. For the trucks to be able to leave town and return to the Barrier Highway several new tracks will need to be built through Crown land connecting Crystal Street to Sturt Street and then to Chettle Street before crossing the historically listed Perilya Mine precinct onto the Barrier Highway (Pinch Points 10a-c). These proposed road modification areas are referred to throughout this assessment as the Broken Hill Transport Route Activity Areas (Figure 1-2).

The road works proposed for the Hay Plain region are located along the Cobb Highway and include modifications to a roundabout in Hay and site entrance points further south. These proposed road modification areas are referred to throughout this assessment as the Hay Plain Transport Route Activity Areas (Figure 1-3). The site entrance options range from approximately 15 km to 32 km south of the town of Hay. *Table 1-2* details the works required at each of the Transport Route Activity Areas.

**TABLE 1-2 WORKS REQUIRED AT TRANSPORT ROUTE ACTIVITY AREAS**

| Transport Route Activity Area Reference | Location                                                   | Permanent Impact                                                                                                                                                 | Temporary Impact              |
|-----------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Pinch Point 7A                          | Barrier Hwy near Broken Hill Recycling Centre.             | Construction of new intersection and bypass track to Gaffney St (approx. 3.8 km, 22.8m <sup>2</sup> ). (Refer to Amber Strategic design)<br>Removal of one sign. |                               |
| Pinch Point 8A                          | Crystal St to Sturt St.                                    | Construction of new track (Approx 134m, 967m <sup>2</sup> ) (refer to Amber strategic design)                                                                    | Relocate road sign.           |
| Pinch Point 8B                          | Chettle St to Argent St/Barrier Hwy, through Perilya Mine. | Construction of new sealed road (Approx 201m, 1207m <sup>2</sup> ). (Refer to Amber strategic design). Fence replacement and new gate to be installed.           |                               |
| Pinch Point 9 / SU 1                    | Roundabout Cobb Hwy & Sturt Hwy.                           | Removal of 3 light poles.                                                                                                                                        | Several signs made removable. |
| SU 2 – Site entrance                    | Approximately 15 km south of Hay on the Cobb Hwy.          | Approx 740m <sup>2</sup> of hardstand.                                                                                                                           |                               |
| SU 3 – Site entrance                    | Approximately 15.5 km south of Hay on the Cobb Hwy.        | Approx 920m <sup>2</sup> of hardstand.                                                                                                                           |                               |
| SU 4 – Site entrance                    | Approximately 21 km south of Hay on the Cobb Hwy.          | Approx 910m <sup>2</sup> of hardstand.                                                                                                                           |                               |
| SU 5 – Site entrance                    | Approximately 25 km south of Hay on the Cobb Hwy.          | Approx 560m <sup>2</sup> of hardstand.                                                                                                                           |                               |

| Transport Route Activity Area Reference | Location                                                                        | Permanent Impact                                   | Temporary Impact |
|-----------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------|------------------|
| SU 6 – Site entrance                    | Approximately 30 km south of Hay on the Cobb Hwy.                               | Approx 930m <sup>2</sup> of hardstand.             |                  |
| SU 7 – Site entrance                    | Approximately 31 km south of Hay on the Cobb Hwy.                               | Approx 590m <sup>2</sup> of hardstand.             |                  |
| Pinch Point 10 / SU 8 – Site entrance   | Approximately 32 km south of Hay on the Cobb Hwy, turn onto West Burrabogie Rd. | Approx 550m <sup>2</sup> hardstand for swept path. |                  |

### 1.3 OBJECTIVES OF THIS ACHAR

This report aims to:

- Identify Aboriginal heritage resources within the Transport Route Activity Areas, including archaeological and intangible cultural heritage values;
- Present the results of Aboriginal community consultation undertaken during the preparation of this report;
- Review relevant historic and Aboriginal heritage databases;
- Review historical and environmental contextual data;
- Utilise background information from the HA (ERM 2023) to develop predictive models for the presence of Aboriginal sites within the Transport Route Activity Areas;
- Document the results of an Aboriginal heritage survey;
- Assess the significance of identified Aboriginal heritage values;
- Evaluate the impact of the proposed works on any identified Aboriginal heritage resources; and
- Provide recommendations for the mitigation of impacts and management of identified Aboriginal heritage resources.

### 1.4 METHODOLOGY

This ACHAR examines Aboriginal heritage values within the Transport Route Activity Areas. This report has been prepared in accordance with the following guidelines:

- Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010a) (Consultation Requirements);
- Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b) (Code of Practice);
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011) (ACHAR Guide); and
- The Australia International Council on Monuments and Sites, Charter for Places of Cultural Significance (also known as the Burra Charter, Australia ICOMOS 2013).

Preparation of this report included:

- Desktop research and archaeological site database searches;
- Review of the previous HA (ERM 2023) for the Transport Route Activity Areas;
- Consultation with the local Aboriginal community in accordance with the guidelines listed above;
- Field survey of the Transport Route Activity Areas with representatives from the local Aboriginal community;
- Assessment of heritage significance;
- Impact assessment; and
- Preparation of management and mitigation recommendations.

Details of the assessment methodology for this ACHAR are provided in *Section 3*.

## 1.5 AUTHORSHIP

A summary of the ERM staff involved in the preparation of this report and their relevant qualifications is provided in *Table 1-3* below.

**TABLE 1-3 AUTHORSHIP**

| Name            | Title                                    | Role                            | Relevant qualifications and years of experience in cultural heritage management                                                                                                                                                                                                                                                                                                  |
|-----------------|------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lorien Perchard | Managing Consultant - Heritage           | Fieldwork, Data manager, Author | <ul style="list-style-type: none"> <li>• Bachelor of Arts (Archaeology; Ancient History), University of Queensland, 2010</li> <li>• Bachelor of Archaeology Honours, University of Queensland</li> <li>• 14 years' professional experience</li> </ul>                                                                                                                            |
| Charles Barnett | Senior Consultant - Heritage             | Fieldwork, Data manager, Author | <ul style="list-style-type: none"> <li>• Bachelor of Arts (Ancient History), Macquarie University, 2012</li> <li>• Master of Arts (Ancient History), Macquarie University, 2014</li> <li>• Doctor of Philosophy (Archaeology), Macquarie University, 2019</li> <li>• Three years' professional experience</li> </ul>                                                             |
| Erin Finnegan   | Technical Consulting Director - Heritage | Technical Review                | <ul style="list-style-type: none"> <li>• Bachelor of Arts (Cultural Anthropology), Macalester, 1998</li> <li>• Post Graduate Diploma – Museum and Heritage Studies, University of Cape Town 2003</li> <li>• Master of Philosophy (Archaeology), University of Cape Town, 2006</li> <li>• 20 years' professional experience</li> </ul>                                            |
| Mark Davey      | Partner                                  | Quality Assurance Review        | <ul style="list-style-type: none"> <li>• Bachelor of Applied Science (Biology), Central Queensland University, Australia, 1998</li> <li>• Graduate Certificate (Marine Science), University of Queensland, Australia, 2001</li> <li>• Doctor of Philosophy (Marine Ecology), University of Queensland, Australia, 2006</li> <li>• 30 years of professional experience</li> </ul> |

## 1.6 LIMITATIONS

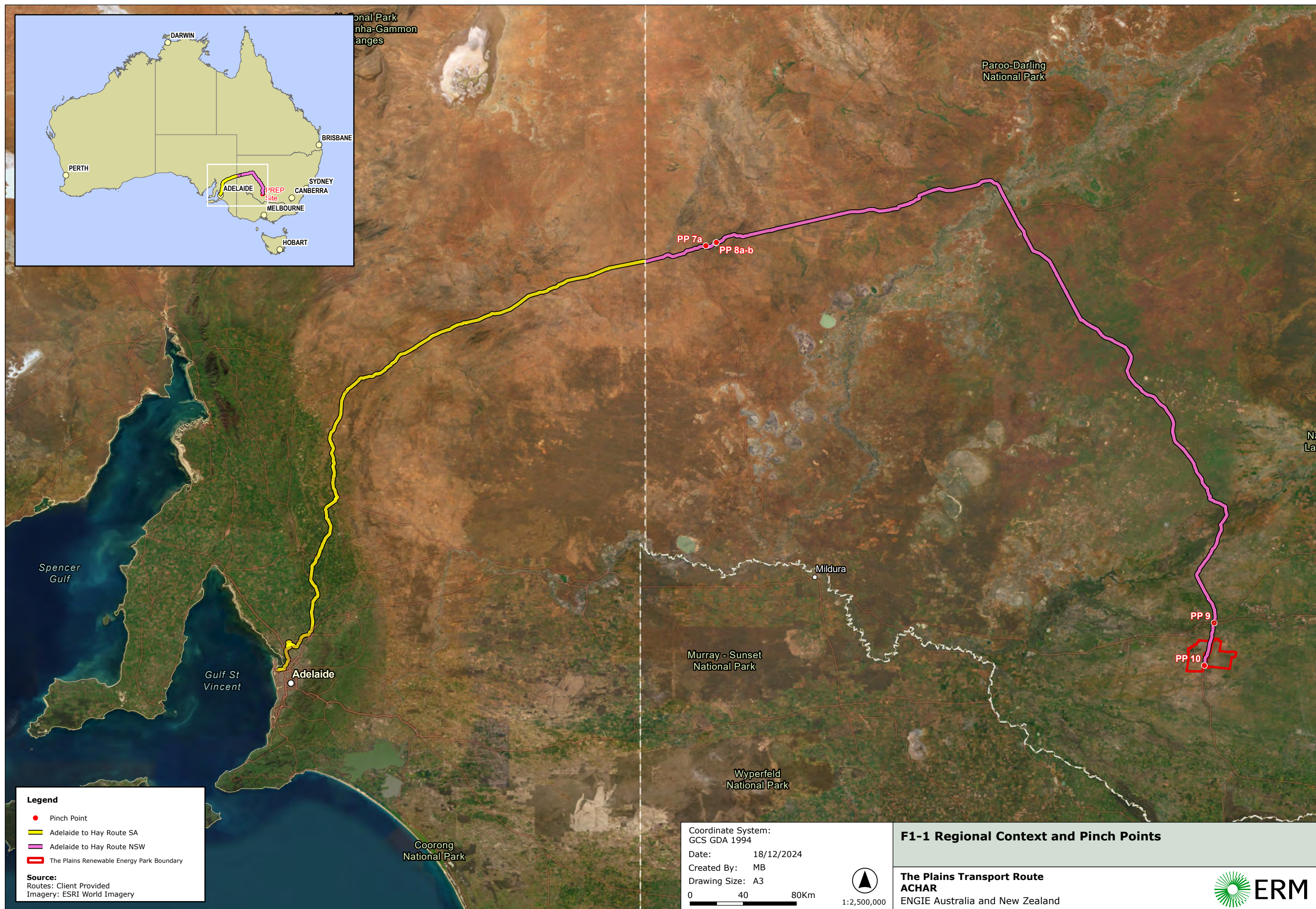
ERM acknowledges that limitations exist within the background research for archaeological reports. No responsibility can be taken by ERM for errors or omissions in primary and secondary source material cited in this report which may include:

- Information from ethnographic sources is often based on limited or localised interaction with Aboriginal people which was recorded through a European lens. It is unlikely that information provided through ethnographic sources accurately reflect the complexity of past Aboriginal occupation, land use and culture; and
- The AHIMS search results presented below are based on previous archaeological work and are therefore limited to specific locations and field conditions (visibility, time constraints, etc.) and therefore, may not necessarily be a true reflection of the archaeological record.

## 1.7 ACKNOWLEDGEMENTS

ERM would like to acknowledge the Aboriginal groups who registered an interest to participate in consultation for the project and gratefully thank them for the information provided throughout the consultation process and for their participation in the site survey.

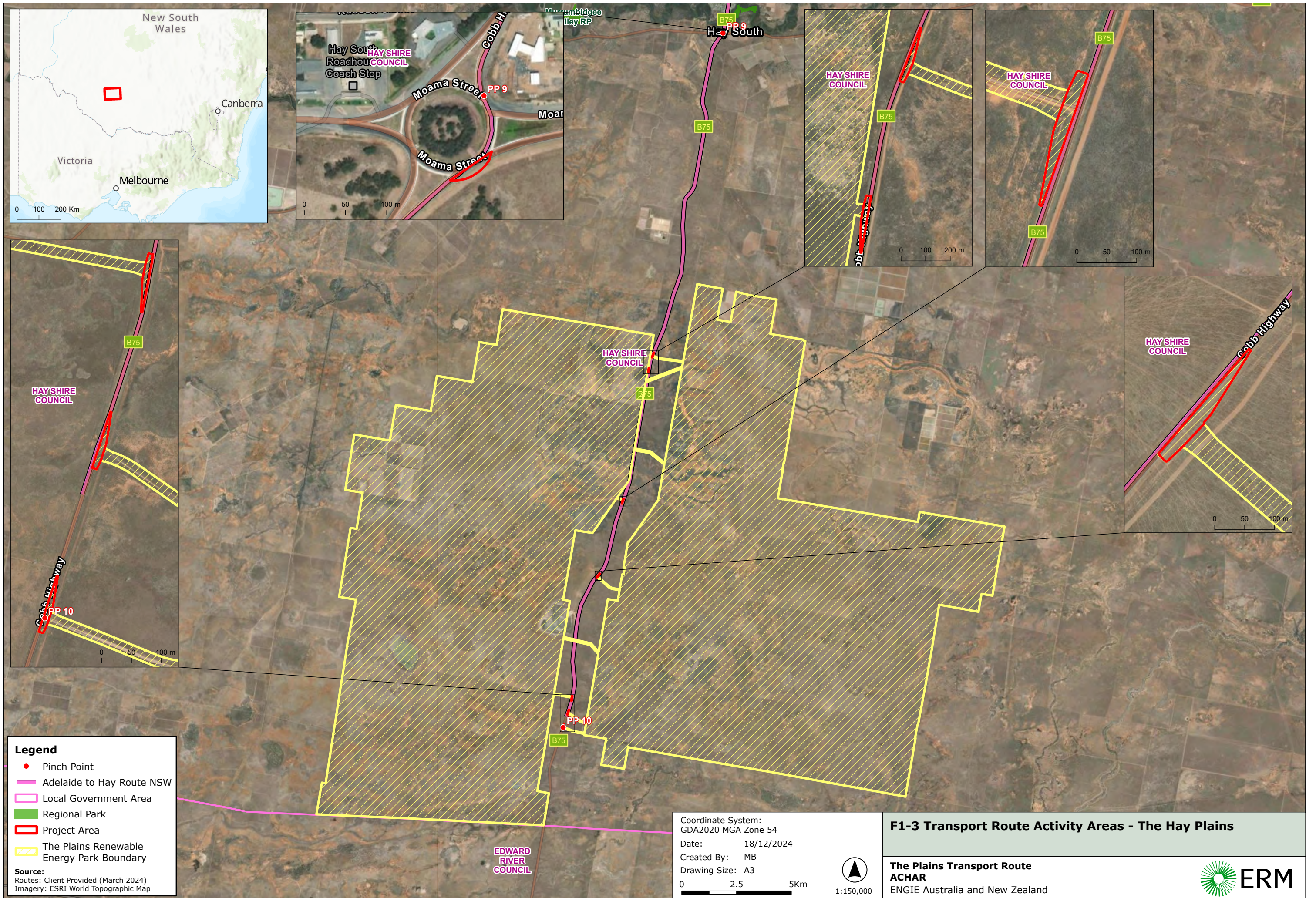














## 2. LEGISLATION AND GUIDELINES

The following section provides an overview of the relevant legislation and guidelines under which this assessment has been prepared.

### 2.1 COMMONWEALTH LEGISLATION

#### 2.1.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; as amended 2004) provides the framework for the Commonwealth Government's environmental legislation. The EPBC Act outlines a legal framework for the protection and management of nationally and internationally important heritage places. Several heritage listings were established under the EPBC Act including the Commonwealth Heritage List (CHL), World Heritage List (WHL); National Heritage List (NHL), and Register of National Estate (RNE) (now repealed).

The Broken Hill Transport Route Activity Areas have been found to be within or intersecting several heritage listings. For ease of reference these listings have been listed in *Table 2-1* below.

**TABLE 2-1 HERITAGE LISTINGS WITHIN THE TRANSPORT ROUTE ACTIVITY AREAS**

| Heritage Register             | Item Name           | Place ID / Item Number |
|-------------------------------|---------------------|------------------------|
| <b>Statutory Listings</b>     |                     |                        |
| NHL                           | City of Broken Hill | 105861                 |
| <b>Non-Statutory Listings</b> |                     |                        |
| RNE                           | Line of Lode        | 101036                 |

There are no sites within the Broken Hill Transport Route Activity Areas listed on the WHL or CHL.

There are no sites within the Hay Plain Transport Route Activity Areas listed on the WHL, NHL, CHL or RNE.

#### 2.1.2 ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE PROTECTION ACT 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act) assists in the protection of places, areas, and objects that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'.

The ATSIHP Act is designed to deal with Aboriginal cultural property (intangible heritage), which are not currently protected under the *NSW National Parks and Wildlife Act 1974* (NPW Act).

The Commonwealth Minister can make declarations to protect these areas and objects from specific threats of injury or desecration. The responsible Minister may make a declaration under Section 10 of the ATSIHP Act in situations where state or territory laws do not provide adequate protection of intangible heritage.

While no formal database of Section 10 applications or declarations is publicly available, this information is registered in gazettal notices within the Federal Register of Legislation. A search of this register did not identify any Section 10 applications or declarations relevant to the Transport Route Activity Areas.

## 2.2 NSW LEGISLATION

### 2.2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) regulates a system of environmental planning and assessment for New South Wales. Land use planning requires that environmental impacts, including those on cultural heritage, must be considered when making decisions about the future of a place.

#### 2.2.1.1 LOCAL ENVIRONMENTAL PLANS

The EP&A Act allows for the preparation of planning instruments to direct development within NSW. This includes LEPs, which are administered by local government, and principally determine land use and the process for development applications. LEPs usually include a schedule of identified heritage items.

The transport route overlaps the Far West, Broken Hill, Central Darling, Carrathool and Hay Local Government Areas (LGAs). As such, it is subject to the provisions of the Broken Hill LEP 2013, Central Darling LEP 2012 (2013 EPI 33), Carrathool LEP 2012 and the Hay LEP 2011. Schedule 5 'Environmental Heritage', Part 1 'Heritage Items' of the LEPs identifies historic objects or places of heritage significance.

A search of the relevant LEPs did not identify any locally listed heritage sites within the Transport Route Activity Areas.

### 2.2.2 NATIONAL PARKS AND WILDLIFE ACT 1974

Part 6 of the *National Parks and Wildlife Act 1974* (NPW Act) provides specific protection for Aboriginal objects and places by making it an offence to destroy, deface, damage, or move them from the land. All Aboriginal objects within NSW are protected under Part 6, and particularly Section 90, of the NPW Act. Under Section 5 of the Act, "Aboriginal Object" means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Indigenous habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.

Under Section 86, a person who, without first obtaining the consent, knowingly harms or desecrates an Aboriginal object or Aboriginal place is guilty of an offence. In most circumstances, it is required that an Aboriginal Heritage Impact Permit (AHIP) be obtained for any impact to an Aboriginal object or place. Heritage NSW is the responsible authority, with the Secretary of that department the consent authority. However, as the Project is assessed as SSD, an AHIP is not required under Part 4.7 clause 4.41 (1)(d) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Instead, Aboriginal cultural heritage will be managed by an Aboriginal Cultural Heritage Management Plan (ACHMP) that will be developed following Project approval.

The ACHMP will contain the recommendations of this ACHAR, as well as an unexpected finds protocol, results of artefact salvage or archaeological excavations, procedures to manage unexpected discoveries or human remains, and any other policies agreed with the Aboriginal community.

Sites of traditional significance that do not necessarily contain archaeological materials may be gazetted as 'Aboriginal places' and are protected under Section 84 of the Act. This protection applies to all sites, regardless of their significance or land tenure.

Under Section 89A of the Act a person who becomes aware of the location of an Aboriginal object must report it to the Secretary within a reasonable timeframe. The mechanism for reporting Aboriginal objects is registering the site on the Aboriginal Heritage Information Management System (AHIMS) database. The results of a search of the AHIMS database for registered Aboriginal objects and places is detailed in *Section 6.2*.

### 2.2.3 HERITAGE ACT 1977

The *Heritage Act 1977* (Heritage Act) protects the cultural and natural history of NSW with emphasis on historic heritage items, including places, buildings, works, relics, moveable objects, precincts, historic shipwrecks and archaeological sites of State or local significance. Protection is provided through protection provisions and the establishment of a Heritage Council and State Heritage Register (SHR).

#### **State Heritage Register**

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. SHR items may include Aboriginal heritage values as part of their listing. The SHR is maintained by Heritage NSW and includes a diverse range of over 1,500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW. Listing on the SHR controls activities such as alteration, damage, demolition and development. When a place is listed on the SHR, the approval of the Heritage Council of NSW is required for any major work.

There are no SHR items within, or in proximity to, the Transport Route Activity Areas.

#### **Section 170 Heritage and Conservation Register (S170 Register)**

Under Section 170 of the Heritage Act, NSW government agencies are required to maintain a register of the heritage assets it owns or controls. Under S170A of the Heritage Act 1977, government agencies are required to notify the Heritage Council about decisions affecting assets on the S170 register including removing the item from the register, transferring ownership of a listed item, or vacating and/or demolishing part or all of the item.

Government agencies are also required to maintain properties on the S170 and SHR with due diligence in accordance with State Owned Heritage Management Principles approved by the Minister on the advice of the Heritage Council.

There are no S170 items within, or in proximity to, the Transport Route Activity Areas.

## 2.2.4 NATIVE TITLE ACT 1994

The *Native Title Act* 1994 was introduced to work in conjunction with the *Commonwealth Native Title Act* 1993. The *Native Title Act* 1994 recognises and protects the traditional and continuing rights and interests of Aboriginal and Torres Strait Island people in NSW. This may include the right to protect places and areas that are important under traditional law where Native Title has been determined.

The Hay Plain Transport Route Activity Areas are not located within the boundaries of a native title claim or determination.

The Broken Hill Transport Route Activity Areas are located within the boundary of the Barkandji Traditional Owners #8 (Part A) native title determination area. This native title was determined on 30 June 2015 (Tribunal No NCD2015/001).

## 2.2.5 ABORIGINAL LAND RIGHTS ACT 1983

The *Aboriginal Land Rights Act* 1983 established Aboriginal Land Councils (at a State and Local Level). In relation to Aboriginal culture and heritage these bodies have a statutory obligation under Section 52 of the *Aboriginal Land Rights Act* 1983 to:

- a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law; and
- b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

The Transport Route Activity Areas are within the boundary of the Hay LALC, Deniliquin LALC and Broken Hill LALC.

Letters containing the details of the Project and proposed transport route were sent to the Office of the Registrar requesting land claim information for Hay and Broken Hill (dated 8 August 2023 and 8 July 2024, respectively). Details are provided in *Section 4.1* and *Appendix C*.

## 2.3 NON-STATUTORY CONSIDERATIONS

### 2.3.1 LEADING PRACTICE PRINCIPLES: FIRST NATIONS AND RENEWABLE ENERGY PROJECTS (CLEAN ENERGY COUNCIL 2024)

The Clean Energy Council's *Leading Practice Principles: First Nations and Renewable Energy Projects* is the first comprehensive national Guide on First Nations engagement, participation and benefit sharing for renewable energy projects. The Guide was co-developed with First Nations peoples and is an important link between community and industry. The Guide established ten principles that are practical and culturally appropriate:

1. Engage respectfully;
2. Prioritise clear, accessible and accurate information;
3. Ensure cultural heritage is preserved and protected;
4. Protect Country and environment;
5. Be a good neighbour;
6. Ensure economic benefits are shared;
7. Provide social benefits for community;
8. Embed land stewardship;
9. Ensure cultural competency; and
10. Implement, monitor and report back.

The purpose of the Guide is to facilitate the adoption and implementation of these principles by industry, through the identification of minimum and leading practice standards, as well as practical information and guidance on how to appropriately and effectively engage with First Nations peoples and communities. This will support the industry to deliver better engagement and outcomes for First Nations peoples.

A copy of the guidelines can be accessed at:

<https://assets.cleanenergycouncil.org.au/documents/resources/reports/Leading-Practice-Principles-First-Nations-and-Renewable-Energy-Projects.pdf>

This ACHAR has been prepared in accordance with the relevant principles of this guidance and to the standard it describes.



### 3. ASSESSMENT METHODOLOGY

The current report has utilised the following methodology to identify and assess impacts to Aboriginal heritage values.

#### 3.1 DESKTOP INVESTIGATION

Desktop investigation included completion of a comprehensive review of existing background information to gain a contextual understanding of the cultural landscape associated with the Transport Route Activity Areas. Review of background information included assessment of environmental information (see *Section 5* of this report), former historic land use, available ethnographic information, as well as existing registered Aboriginal heritage sites, existing AHIP permits and reports.

#### 3.2 ABORIGINAL COMMUNITY CONSULTATION

Aboriginal community consultation was undertaken in accordance with the consultation requirements as is detailed in *Section 4*.

In accordance with the consultation requirements, consultation with Aboriginal people formed an essential part of the heritage assessment process to:

- Determine potential harm on Aboriginal cultural heritage from proposed activities; and
- Inform management and mitigation measures.

#### 3.3 ABORIGINAL HERITAGE SURVEY

Two rounds of Aboriginal heritage survey were undertaken to inform this ACHAR. The survey of the Hay Plain Transport Route Activity Areas was undertaken on 05 August 2024 by ERM Heritage Consultants Mia Linton-Smith and Sophia Hanger. Representatives of Hay LALC also participated in the survey.

The survey of the Broken Hill Transport Route Activity Areas was undertaken on 07 November 2024 by ERM Heritage Consultants Mia Linton-Smith and Charles Barnett. Representatives of Broken Hill LALC and the Barkandji Native Title Group Aboriginal Corporation Registered Native Title Body Corporate (RNTBC) also participated in the survey.

The survey methodology targeted the areas of proposed road modifications, as well as a small buffer to these areas.

GPS-enabled devices were carried by the survey team and used to direct the survey, track log areas covered throughout the survey, and record new sites. A photographic record was kept of all survey units. Photographs were taken to document the existing environment and landform context of each survey unit.

During the survey, no Aboriginal heritage sites were identified within the Transport Route Activity Areas.

#### 3.4 RECORDING AND ASSESSMENT METHODOLOGY

##### 3.4.1 PREVIOUSLY RECORDED ABORIGINAL SITES

No previously recorded Aboriginal heritage sites were located within the vicinity of the Transport Route Activity Areas.

### 3.4.2 NEWLY IDENTIFIED SITES

No new Aboriginal heritage sites were identified during the surveys.

### 3.4.3 CULTURAL HERITAGE VALUES

Aboriginal heritage sites, objects and places hold value for communities in many different ways. The nature of those heritage values is an important consideration when deciding how to manage a heritage site, object or place and balance competing land use options.

Assessment of the Aboriginal cultural heritage significance of the Transport Route Activity Areas has been completed in accordance with the requirements of the ACHAR Guide (OEH 2011). Assessment has included identification of social, historic, scientific and aesthetic values which are discussed below:

- Social or cultural value (assessed only by Traditional Owners/First Nations People) refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them;
- Historic value (assessed by Traditional Owners/First Nations People and/or non-Aboriginal historical specialists) refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Historic places do not always have physical evidence of their historic importance (such as structures, planted vegetation or landscape modifications). They may have 'shared' historic values with other (non-Aboriginal) communities and include places of post-contact Aboriginal history;
- Scientific (archaeological) value (assessed by professional archaeologists) refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information;
- Aesthetic value (assessed by Traditional Owners and/or non-Aboriginal specialists) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use; and
- Scientific values were graded with a basic ranking of high, moderate, or low. The grading is based on the rarity, representativeness and research (educational) potential for each value:
  - High significance is usually attributed to sites, which are so rare or unique that the loss of the site would affect our ability to understand aspects of past Aboriginal use/occupation for an area;
  - Moderate significance can be attributed to sites which provide information on an established research question; and
  - Low significance is attributed to sites which cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to disturbance of the nature of the site's contents.

Cultural heritage values for the Transport Route Activity Areas were identified through a combination of desktop assessment and consultation undertaken during the preparation of the heritage report (see *Section 4*). This information was collected by ERM Managing Consultant Lorien Perchard, Senior Consultant Charles Barnett and Consultant Mia Linton-Smith.

### 3.5 IMPACT ASSESSMENT

Following the identification and assessment of Aboriginal cultural values, an impact assessment has been completed to identify whether any Aboriginal Objects, Places or cultural values have the potential to be harmed by the Project.

The impact assessment for the proposal was guided by the definition of harm under the NPW Act, which is limited to impact which ‘...destroys, defaces, damages an object or place or in relation to an object – moves the object from land on which it has been situated’ (Section 5 of the NPW Act).

‘Direct harm’ may occur as a result of activities which disturb the ground surface or identified cultural values including site preparation activities, and the installation of services and infrastructure.

‘Indirect harm’ for Aboriginal heritage refers to impacts that may affect sites or features which are not located immediately beyond or within the area of the proposed work. Indirect harm may include impacts from vibration, increased visitation, increased erosion, or changing access to resources. The impact assessment evaluates the potential archaeological impacts for the Project. It assessed the type of harm, the degree of harm, and the consequence of harm for any known Aboriginal sites or areas of potential.

The direct and indirect impact associated with the Project is assessed in *Section 10*.



## 4. ABORIGINAL COMMUNITY CONSULTATION

This chapter contains details of the Aboriginal community consultation undertaken regarding the Aboriginal cultural heritage of the Transport Route Activity Areas. In accordance with the Consultation Requirements, consultation with Aboriginal people formed an essential part of the heritage assessment process to:

- Determine potential harm on Aboriginal cultural heritage from proposed activities; and
- Inform decision making for any application for an AHIP where it is determined that harm cannot be avoided.

The consultation requirements set out four stages of the consultation process. Fulfilment of these requirements for this project is outlined below. All correspondence is recorded in the Aboriginal Heritage Consultation Log, included as *Appendix A*.

### 4.1 STAGE 1: NOTIFICATION OF PROJECT PROPOSAL AND REGISTRATION OF INTEREST

The aim of Stage 1 of the consultation process is to identify, notify and register Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

#### 4.1.1 THE PLAINS WIND AND SOLAR FARM AND HAY PLAIN TRANSPORT ROUTE ACTIVITY AREAS CONSULTATION

The Stage 1 consultation undertaken for the Project has been continued for the current Hay Plain Transport Route Activity Areas. However, a new consultation process was undertaken for the Broken Hill Transport Route Activity Areas. The consultation undertaken for the Broken Hill Transport Route Activity Areas is detailed in *Section 4.1.2*.

On behalf of ENGIE, ERM actively sought to fulfil this aim and identify stakeholder groups or people wishing to be consulted about the Project and invite them to register their interest. It was determined that there was no approved determination of Native Title over the Project area (per 4.1.1 of the guidelines).

To identify people with a potential interest in the project (as per 4.1.2 of the Consultation Requirements), a public advert stating the location and nature of the Project and seeking registration of interested Aboriginal parties was run in the Riverine Grazier on 25 January 2023 and Deniliquin Pastoral Times on the 24 January 2023 (*Appendix E*).

In addition, a letter containing these details (dated 12 January 2022, *Appendix B*) was sent to the following agencies:

- Hay LALC;
- Deniliquin LALC;
- Riverina Local Land Services;
- National Native Title Tribunal;
- Native Title Services Corporation (NTS Corp);
- Heritage NSW;
- Office of the Registrar, Aboriginal Land Rights Act 1983;
- Hay Shire Council; and
- Edward River Council.

Responses received from these agencies indicated a total of 32 Aboriginal individuals or organisations may have an interest in the Project (*Appendix C*). An invitation to register letter was sent to each of these identified parties on 24 January 2023 and a period of 14 days was provided for the parties to respond (*Appendix D*).

Ongoing communication with the Hay LALC occurred throughout 2022. ERM initially intended to undertake a preliminary site survey with the Hay LALC in mid to late 2022; however, due to severe weather (including flooding) this survey did not occur. Subsequently, ERM contacted the Deniliquin LALC on 24 January and 6 March 2023 to identify their interests in being involved with the Project.

On 8 March 2023, a Section 4.1.6 notification letter was sent to the Hay LALC, Deniliquin LALC and Heritage NSW to notify them of the interested registered parties for the project (*Appendix G*).

#### 4.1.2 BROKEN HILL TRANSPORT ROUTE ACTIVITY AREAS CONSULTATION

To identify people with a potential interest in the Broken Hill Transport Route Activity Areas (as per 4.1.2 of the Consultation Requirements), public notification stating the location and nature of the proposed transport route and seeking registration of interested Aboriginal parties was placed in the Westside Plaza on 29 August 2024 (*Appendix B*)

In addition, a letter containing the Project details (dated 14 August 2024, *Appendix C*) was sent to the following agencies:

- Broken Hill LALC;
- Office of the Registrar, Aboriginal Land Rights Act 1983;
- Broken Hill City Council;
- Western Local Land Services;
- Heritage NSW;
- National Native Title Tribunal; and
- Native Title Services Corporation Limited.

It was determined that the Broken Hill proposed Transport Route Activity Areas are located within the boundary of the Barkandji Traditional Owners #8 (Part A) native title determination area (Section 2.2.2).

Responses received from these agencies indicated a total of 30 Aboriginal individuals or organisations may have an interest in the Broken Hill Transport Route Activity Areas of the Plains Wind Farm Transport Route (*Appendix C*). An invitation to register letter was sent to each of these identified parties between 21 August 2024 and 27 August 2024 and a period of 14 days was provided for the parties to respond (*Appendix D*).

On 11 November 2024, a Section 4.1.6 notification letter was sent to Broken Hill LALC and Heritage NSW to notify them of the interested registered parties for the Broken Hill component (*Appendix G*).

A full list of the RAPs can be found in Table 4-1, and copies of relevant registrations can be found at *Appendix F*.

TABLE 4-1 REGISTERED ABORIGINAL PARTIES

| Individual/Organisation                                            | Participated in survey |
|--------------------------------------------------------------------|------------------------|
| Bangerang Aboriginal Corporation                                   | No                     |
| ██████████                                                         | No                     |
| Barkandji Native Title Group Aboriginal Corporation RNTBC          | Yes                    |
| Broken Hill LALC                                                   | Yes                    |
| Corroboree Aboriginal Corporation                                  | No                     |
| Deniliquin LALC                                                    | Yes                    |
| Hay LALC                                                           | Yes                    |
| ██████████                                                         | No                     |
| Menindee Aboriginal Elders Council                                 | No                     |
| ██████████                                                         | No                     |
| ██████████ Family Aboriginal Corporation                           | No                     |
| ██████████                                                         | No                     |
| ██████████ Offers ACH value by using 3D Laser and Drone technology | No                     |
| Wakool Indigenous Corporation                                      | No                     |
| Yarkuwa Indigenous Knowledge Centre                                | No                     |

## 4.2 STAGE 2: PRESENTATION OF INFORMATION ABOUT THE PROPOSED PROJECT

The aim of Stage 2 of the consultation process was to provide registered Aboriginal parties with information about the scope of the proposed project and the proposed cultural heritage assessment process.

The proposed survey and assessment methodology was sent to each of the RAPs (dated 3 October 2024) *Appendix H*) with comments requested by 31 October 2024. No comments on the methodology were received.

## 4.3 STAGE 3: GATHERING INFORMATION ABOUT CULTURAL SIGNIFICANCE

Stage 3 of the consultation process involved discussions on cultural values and intangible elements of significance. Feedback on the cultural heritage significance of the Transport Route Activity Areas was requested as part of the assessment methodology. No comments on the cultural heritage significance of the Transport Route Activity Areas were received.

Cultural values, including intangible Aboriginal heritage significance of the Transport Route Activity Areas, were also discussed during completion of the heritage survey which included a site survey and meeting on the 07 November 2024. Two representatives from the Broken Hill LALC and two representatives from the Barkandji Native Title Group were invited to participate in the site survey.



#### 4.4 STAGE 4: REVIEW OF DRAFT CULTURAL HERITAGE ASSESSMENT REPORT

The Draft ACHAR was provided to RAPs on 20 December 2024, via email. Each of the RAPs was provided 28 days to provide comments on the report and any recommended management and mitigation measures, prior to finalization (*Appendix J*).

During the 28-day waiting period no comments were received from RAPs on the report, including the mitigation measures and recommendations.

## 5. ENVIRONMENTAL BACKGROUND

Interactions between people and their surroundings are of integral importance in both the initial formation and the subsequent preservation of the archaeological record. The nature and availability of resources, including water, flora, fauna, and stone materials had (and continues to have) a significant influence over the way in which people utilise the landscape.

Alterations to the natural environment also impact upon the preservation and integrity of cultural materials within that environment. Current vegetation and erosional regimes also affect the visibility and detectability of archaeological evidence.

The nature and distribution of Aboriginal and non-Aboriginal cultural materials in a landscape are strongly influenced by environmental factors such as topography, geology, landforms, climate, hydrology and the associated soils and vegetation (Hughes and Sullivan 1984). These factors influence the availability of plants, animals, water, raw materials, and therefore the location of suitable habitation places. As site locations may differ between landforms due to differing environmental constraints that result in the physical manifestation of different spatial distributions and forms of archaeological evidence, these environmental factors are used in constructing predictive models for site locations.

Environmental factors also affect the degree to which cultural materials have survived in the face of both natural and human influences and affect the likelihood of sites being detected during ground surface survey. Site detection is dependent on several environmental factors including surface visibility (which is determined by the nature and extent of ground cover including grass and leaf litter), and the survival of the original land surface and associated cultural materials. It is also dependent on the exposure of the original landscape and associated cultural materials (by water, sheet and gully erosion, ploughing, vehicle tracks etc.) (Hughes and Sullivan 1984). Combined, these processes and activities are used to determine the likelihood of both surface and subsurface cultural materials being deposited, surviving, and being detected during archaeological surveys.

### 5.1 BIOREGION

Interim Biogeographic Regionalisation for Australia (IBRA) represents a landscape-based approach to classifying the land surface of Australia. Eighty-nine biogeographic regions and 419 sub-regions have been delineated, each reflecting a unifying set of major environmental influences which shape the occurrence of flora and fauna and their interaction with the physical environment across Australia and its external territories (excluding Antarctica).

#### 5.1.1 BROKEN HILL

The Broken Hill Transport Route Activity Areas are located within the Barrier Range Subregion of the Broken Hill Complex Bioregion. The Broken Hill Complex Bioregion lies in the far west of NSW, spanning the NSW-SA border. The bioregion is bounded by the Murray-Darlin Depression and Darline Riverine Plains bioregions in the south, and the Simpson-Strezlecki Dunefields and Mulga Lands bioregions in the north and east respectively. In SA it is bounded by another four bioregions (NPWS, 2003: 41).

Broken Hill is the largest city in the bioregion. The eastern part of the Broken Hill Complex Bioregion falls in the Murray-Darling Basin while the Darling River flows just outside the southeastern boundary of the bioregion. The bioregion includes parts of the Lake Frome, Lake Victoria, Lake Bancannia, Paroo and Darling River catchments (NPWS, 2003: 41).

### 5.1.2 THE HAY PLAIN

The Hay Plain Transport Route Activity Areas are located within the Riverina Plain of the Murrumbidgee Province, Riverina Bioregion (NPWS, 2003: 91). The Riverina Bioregion lies in southwest NSW, extending into central-north Victoria. The Riverina Bioregion extends from Ivanhoe in the Murray Darling Depression Bioregion south to Bendigo, and from Narrandera in the east to Balranald in the west. Within its boundaries lie the towns of Hay, Coleambally, Deniliquin, Leeton, Mossgiel, Hillston, Booligal, and Wentworth, while Griffith, Ivanhoe, Narrandera, and Albury lie just outside its boundary in neighbouring bioregions. The bioregion also includes outlying remnants of the Murray Darling Depression Bioregion in its western boundary, and the Victorian Midlands Bioregion in the south.

The Murray and Murrumbidgee Rivers, and their major tributaries, the Lachlan and Goulburn Rivers, flow from the highlands in the east, westward across the Riverina Plain (NPWS, 2003: 91). The Murrumbidgee Province is generally comprised of a naturally flat landscape largely consisting of clays, silts, and sands which historically have been subject to a consistent cycle of annual flooding. The Murrumbidgee Province is characterised by extensive coarse deposits, low lying source bordering dunes, and occasional sand dunes created by ancient rivers (Pardoe 2001: 14).

The Riverina Bioregion has a semi-arid climate, with low winter rainfall and relatively hot summers. The temporally averaged median rainfall from 1890–2005, is 272 mm per annum.

## 5.2 GEOLOGY AND GEOMORPHOLOGY

### 5.2.1 BROKEN HILL

The Barrier Ranges are a triangular block of metamorphic and deformed sedimentary rocks forming a series of northeast and northwest trending ridges rising up to 300 m above the surrounding plains. The geomorphology of the ranges is controlled by the different rock types and their structure. Faults up to 60 km long form prominent scarps between hill country and plains. Hard rocks outcrop as strike ridges and remnant pinnacles standing above long shallow slopes, with thin soils developed on the softer rocks. Streams have cut steep-sided gorges containing sheltered waterholes through the ranges. Beyond the footslopes the streams expand as alluvial fans, distributing sediment into sandy floodouts and clay playas. Much of the drainage from the Barrier, Mootwingee and Wonnaminta ranges ends in the Bancannia trough, where shallow lakes and swamps have formed and alluvial sand has been blown into sandplains and dune fields (NPWS, 2003: 42).

The Broken Hill region is a regolith-dominated terrain. The Transport Route Activity Areas cut across a series of landforms, including alluvial sediments - alluvial plains (Aap1) and drainage depressions (Aed1) - as well as a section of exposed bedrock (SSer1) and colluvial sediments within erosional rises (CHer2). The areas of proposed disturbance within the City of Broken Hill are contained within urban fill (Fm1) (Hill, 2001).



The Nine Mile Land System is noted as the lower slopes and outwash areas of the Barrier Range. The geomorphology of the system is defined as low ridges of Proterozoic Thorndale Gneiss with colluvial and alluvial outwash slopes, partially contour banded, and plains; relief to 30 m; drainage narrow to major creeks (Walker, 1991).

### 5.2.2 THE HAY PLAIN

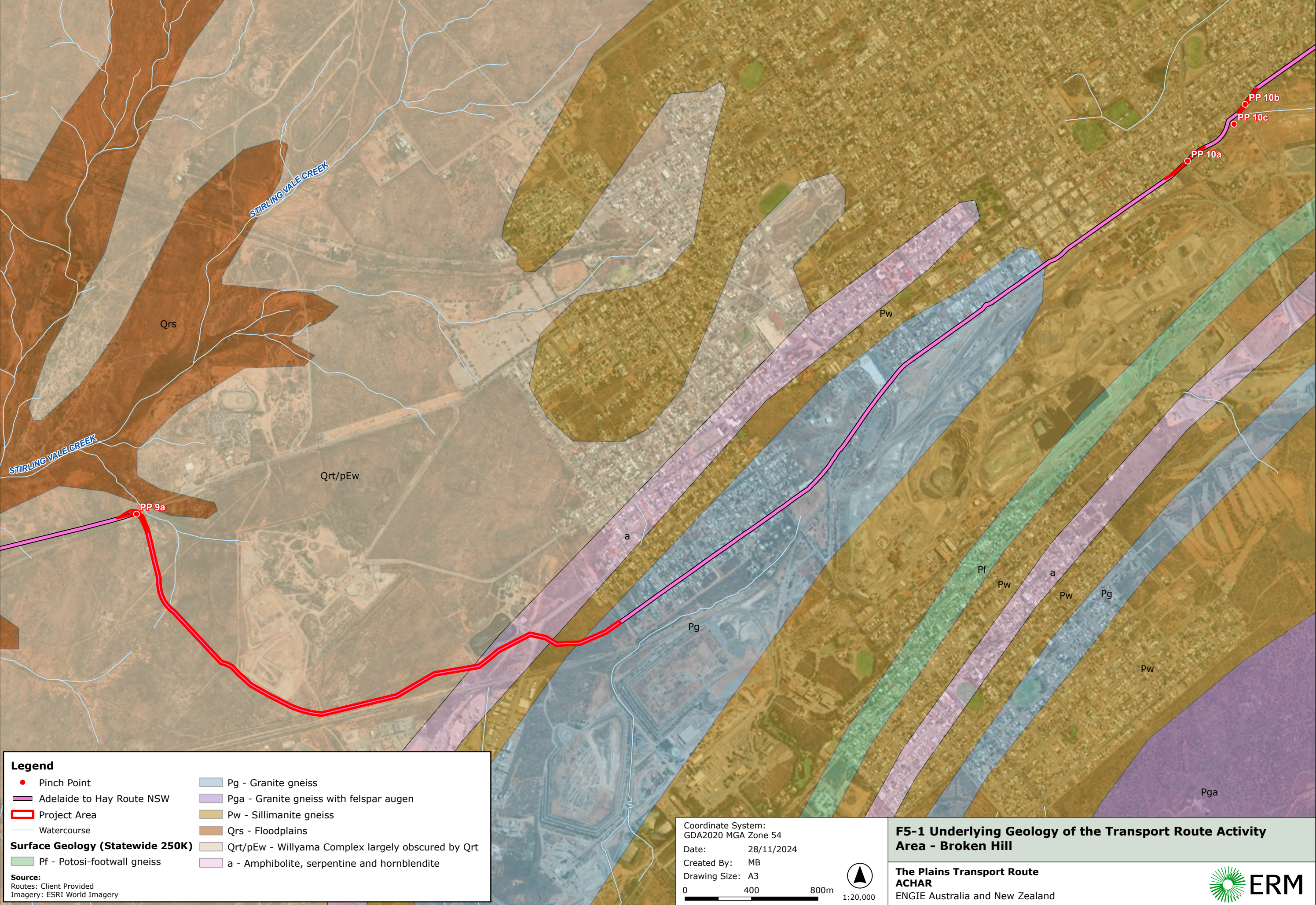
This Riverina Bioregion is dominated by river channels, floodplains, swamps, lakes, and lunettes that are all of Quaternary age (NPWS, 2003: 92). The evolutionary story of these channels and plains is one of change through time. Prior and ancestral stream patterns are characterised by different form and different bed loads. Between 15-30,000 years ago (kya), streams carried sand far onto the clay plains in wide channels with long meanders. Ancestral streams are more like the modern channels, with tighter meanders and carrying only clay. Alluvial sediments become deeper and older in the western half of the basin, reaching a maximum thickness of about 500 m. Basement rocks are the early Palaeozoic sediments and granites of the Lachlan Fold belt, but almost no outcrops exist in the Riverina (NPWS, 2003: 91).

The Riverina Plain consists of flat-lying fluvio-lacustrine and aeolian sediments, and much of the surface consists of Pliocene to recent Shepparton Formation (Aap), and the younger incised ancestral rivers of the Coonambidgal Formation (Aam). Pisolitic ferruginous soils (ironstone) identified within the older parts of the Shepparton Formation are equivalent to the Karoonda Surface (Kotsonis and Joyce 2003).

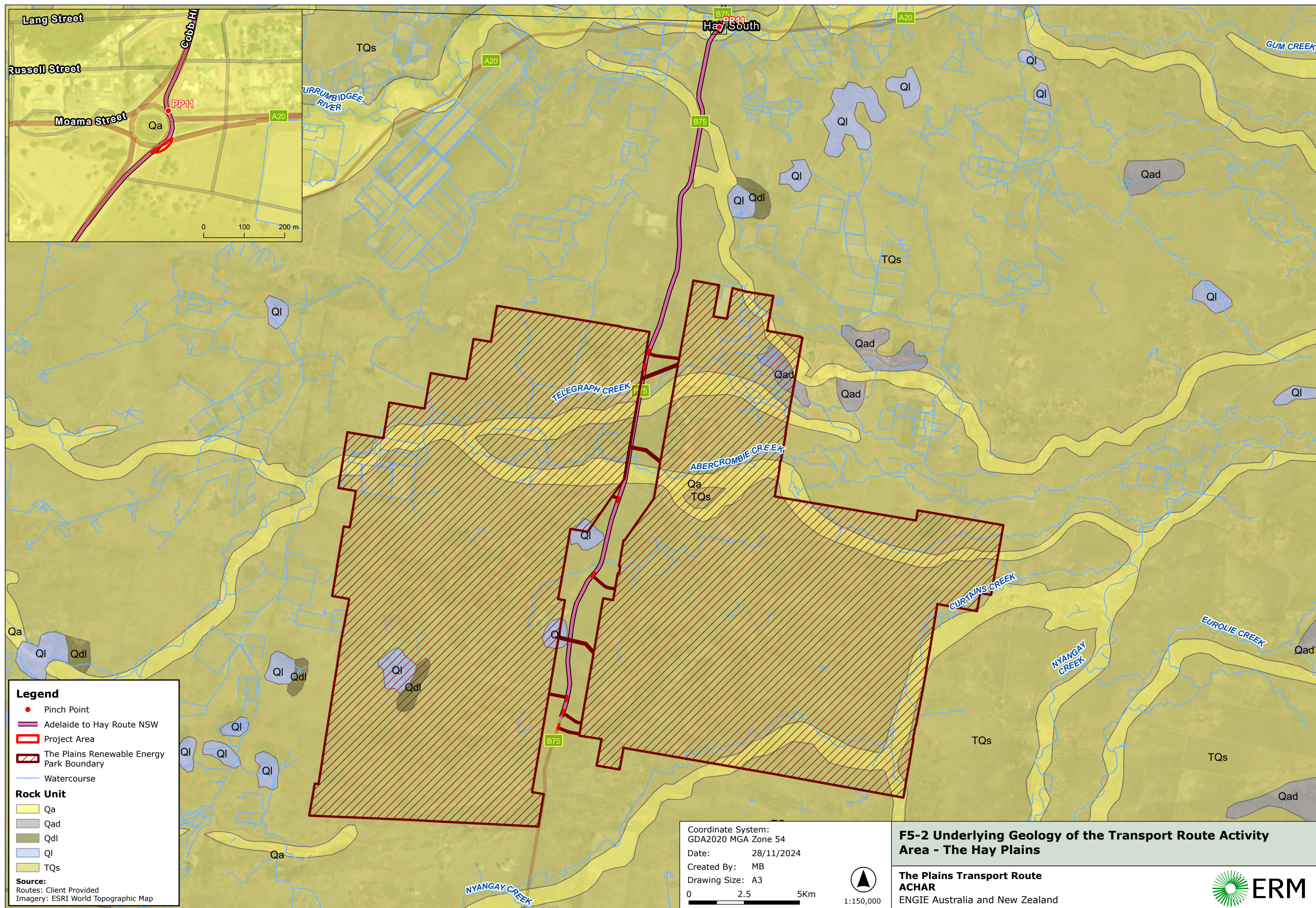
Geologically, the Transport Route Activity Areas are part of this extensive alluvial plain, known as the Hay Plain, which developed following a period of land subsidence in the tertiary period. Following the period of subsidence, sediments began to be deposited across the alluvial plain through a series of prior stream systems (palaeochannels) which are present within the Project area. The alluvial deposit (Shepparton Formation - Aap) varies in depth between 50-125 m and covers a series of significantly older alluvial and marine sediments. The Shepparton Formation has a variable presentation which includes areas of surface ironstone, unconsolidated to poorly consolidated mottled clays, silty clays, coarse to fine sand and gravels, as well as intercalated red-brown palaeosols. Carbon dating of the Shepparton Formation indicates that the upper and most recent deposits of the formation date to between 20-30 kya (Australian Stratigraphic Units Database 2019).

Following the deposition associated with the Shepparton Formation, a period of stream incision occurred. These incised areas were filled with coarser sediments which form the late quaternary Coonambidgal Formation.











## 5.3 GEOMORPHOLOGY AND LANDFORM

### 5.3.1 BROKEN HILL

The Transport Route Activity Areas are situated within the Nine Mile (LSNm) Land System which is defined as lower slopes and outwash areas of the Barrier Range with relief to 30 m. Low ridges of Proterozoic Thorndale Gneiss with colluvial and alluvial outwash slopes, partially contour banded, and plains, as well as narrow drainage to major creeks (Walker 1991).

The landscape of the Broken Hill region is dominated by regolith – unconsolidated, heterogenous deposits of dust, broken rocks and soil on top of bedrock. Regolith types from the region are described in Table 5-1.

**TABLE 5-1 SUMMARY OF KEY REGOLITH TYPES WITHIN THE BROKEN HILL REGION**

| Type                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alluvial Sediments   | These materials can be categorised into two main types: 1. alluvial sediments associated with the contemporary drainage systems (contemporary alluvial sediments); and 2. alluvial sediments isolated from the contemporary drainage systems either through topographic elevation or deep burial (ancient alluvial sediments). The contemporary alluvial sediments mostly consist of a mixture of lithic and quartzose sands and gravels with minor silts and clays. Their landform expressions are within: alluvial plains (Aap1-4); alluvial swamps (Aaw1&2); drainage depressions (Aed1); alluvial fans (Afa1&2); depositional plains (Apd1-5); and alluvial channels (ACa1-3). These Regolith Landform Units (RLUs) mostly occur in low-lying areas flanking the Barrier Ranges and within major valley systems that extend through the ranges. The ancient alluvial sediments mostly consist of quartzose sands and gravels with minor kaolinitic silts and clays. They are mostly exposed on erosional rises and may be indurated dominantly by micro-crystalline silica (Aer1) or ferruginous cement (Aer2). The mapped ancient alluvial sediments mostly represent topographically inverted, indurated palaeovalley systems and are mostly exposed on the margins of the Barrier Ranges and the flanking basins. |
| Aeolian Sediments    | These mostly consist of well-sorted, deep red-brown and light red-brown sands with minor silt and clay. Aeolian materials are a widespread component of RLUs in the area, however, they are only dominant and mappable features in association with aeolian landforms such as sand plains that include hummocky, degraded longitudinal dunes (ISps1). They have only been extensive enough to map at this scale in the far north-west of the area on the margins of the Strzelecki Desert and as patches within the fans of the Mundi Mundi Plain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Colluvial Sediments  | Sheet-flow deposits that mostly include mixtures of quartzose and lithic gravels, sands, silts and clays, expressed within drainage depressions (CHed1); erosional rises (CHer1-2); sheetflow fans (CHfs1-3); and depositional plains (CHpd1-6). Many of these RLUs have distinctive surficial patterns of alternating bands of surface lag gravels and shrub covered red-brown fine sands that broadly conform to elevation contours. These sediments mostly occur flanking hills and rises, particularly as large, lobed sheetflow fans along the southern and eastern margins of the Barrier Ranges, and as depositional lobes within the fans of the Mundi Mundi Plain in the west of the area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Lacustrine Sediments | The areas of lacustrine sediments mappable at this scale are found within the Stephens Creek and Umberumberka Reservoirs. They mostly consist of red-brown silts and clays, although they are often covered by standing water. Other lacustrine sediments are buried beneath some of the colluvial and alluvial sediments, particularly near the southern margins of the Barrier Ranges (Hill 2000).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Fill                 | This unit includes the urban area of the city of Broken Hill, and the Broken Hill airport, where the original regolith-landform features have been obscured by anthropogenic modification such as construction and landscaping.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Type      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Saprolith | These RLUs include areas dominated by exposures of weathered bedrock that range from slightly to highly weathered. Highly weathered bedrock consists mostly of friable kaolinitic saprolite, typically with ferruginous mottles, exposed within erosional rises (SHer1), mostly along the margins of the Barrier Ranges and flanking sedimentary lowlands (e.g. in the northwest of the mapping area along the Kantappa Escarpment). Much of the primary mineralogy in moderately weathered bedrock is replaced, or is beginning to be replaced, by secondary minerals. It is typically ferruginised and exposed within erosional rises (SMer1) mostly in the south of the area along the margins of the Barrier Ranges and Murray Basin. Slightly weathered bedrock corresponds mostly with areas of bedrock exposure that are shown on most geological maps. The slight weathering grade is typically expressed by a surficial ferruginous staining and the opening of joint sets. It may be exposed within erosional mountains (SSem1), hills (SSeh1), and rises (SSer1), mostly within the Barrier Ranges, and progressively less so towards the flanking lowlands (Hill 2001). |

The Transport Route Activity Areas near the Perilya Mine in Broken Hill is made up of the Fill regolith type. This area has a low archaeological sensitivity due to historical disturbance. The alluvial and colluvial sediments present in the western Transport Route Activity Area, near the Broken Hill Recycling Centre and Barkandji Native Title area, have a moderate sensitivity, but historical disturbance here is evidenced through road embankments and cuttings and the presence of significant amounts of dilapidated metal, glass and ceramic items scattered throughout the landscape.

State level landscape mapping completed by Peter Mitchell in 2002 ('Mitchell Landscapes') delineated the Broken Hill Transport Route Activity Areas into one broad landscape. The Transport Route Activity Areas are encompassed within the Barrier Downs (Bds). The Mitchell Landscapes were based on geological, geomorphic, and pedologic criteria to describe spatially distinct ecosystems. A summary of the Mitchell Landscape within and surrounding the Transport Route Activity Areas is provided in Table 5-2 and shown in Table 5-3.

**TABLE 5-2 MITCHELL LANDSCAPES WITHIN THE TRANSPORT ROUTE ACTIVITY AREAS**

| Landscape         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Located                               |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| The Barrier Downs | A complex landscape of the low strike ridges of rock outcrop, slopes and outwash areas of the Barrier Ranges. Steeply rolling lowlands on pre-Cambrian dolomite and calcareous shale and steeply dipping Devonian sandstone and conglomerate, with dense incised drainage, relief to 30m. Lithosols or shallow calcareous sandy loams on ridges, contour banded slopes of alternating stony red desert loams and stone-free red clays or solonized brown soils on long slopes. Dunes of deep clayey sand. Stony reddish-brown calcareous sandy loams, along drainage tracts, alluvial flats with brown self-mulching cracking clays. (Mitchell 2002:17). | Within Transport Route Activity Areas |

### 5.3.2 THE HAY PLAIN

The Hay Plain Transport Route Activity Areas are located within the Riverina and Hay Plain which is one of the world's flattest places. Landforms in the region are identifiable on a micro level only with landform development associated directly with former and current distributary channels and the effect of flooding.

Key landforms across the Riverina and Hay Plain include the Murrumbidgee River Floodplain, palaeochannels, alluvial plains, and lakes. These landform types are described in Table 5-3 below.

**TABLE 5-3 SUMMARY OF KEY LANDFORMS WITHIN THE RIVERINA AND HAY PLAIN**

| Landform                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Murrumbidgee River floodplain | The modern Murrumbidgee River is characterised by its narrow and incised nature. Water within the river is notable for its suspended load of clay and silt. The modern stream channel is located within a belt of alluvium which extends between 1-5 km wide. The alluvium is located slightly below the height of the surrounding plain. In proximity to the Transport Route Activity Areas there is a general lack of source bordering dunes surrounding the Murrumbidgee River with sand in this region limited to palaeochannels.                                                                                                                                                                               |
| Palaeochannels                | Palaeochannels are former streams which carried water during the last glacial period. In the present they are delineated by wide channels of sand which are often slightly raised above the average level of the plain. Palaeochannels are associated with source bordering dunes and shallow channels which carry modern floodwaters. Several palaeochannels in the Murrumbidgee have been dated with their development extending as far back as 105 ka. Palaeochannels within and surrounding the Transport Route Activity Areas include the Gum Creek System and the Yanco System which have been associated with the Yanco system which had enhanced fluvial activities between 41 -18 ka (Mueller et al 2018). |
| Alluvial Plains               | The majority of the Murrumbidgee province is comprised of broad alluvial plains which developed as palaeofloodplains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Lakes                         | Lakes develop in areas where surface water accumulates on existing flood plains. Surface water accumulations are pushed by wind scour the underlying surface resulting in deeper water basin. Lakes are associated with lunette landforms which form from wind action across the lake surface.                                                                                                                                                                                                                                                                                                                                                                                                                      |

Palaeochannel landforms are identified as demonstrating archaeological sensitivity based on several factors including:

- Their raised nature is more suitable for occupation particularly during flood events;
- Modern ephemeral lakes and water sources are often associated with palaeochannel landforms; and
- The coarser nature of the soil deposits supports a wider variety of land uses and the conservation of a wider range of archaeological deposits including AAR, hearths, and PAD sites.

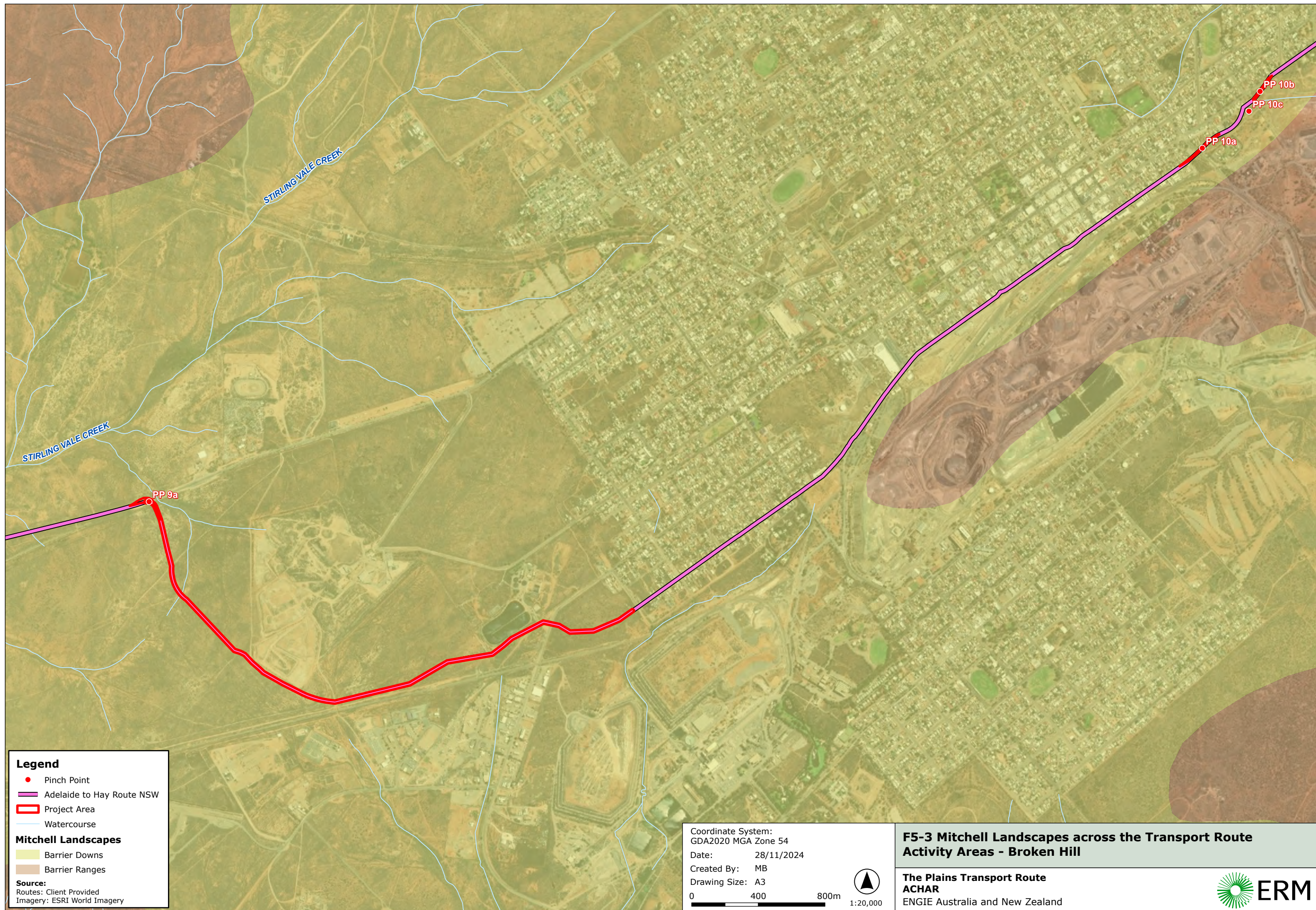
State level landscape mapping completed by Peter Mitchell in 2002 ('Mitchell Landscapes') delineated the Hay Plain Transport Route Activity Areas into three broad landscapes. The majority of the Transport Route Activity Areas are comprised of the Murrumbidgee Scalded Plains (Mbd). These Mitchell Landscapes were based on geological, geomorphic, and pedologic criteria to describe spatially distinct ecosystems. A summary of the Mitchell Landscapes within and surrounding the Transport Route Activity Areas is provided in Table 5-4 and shown in Figure 5-4.



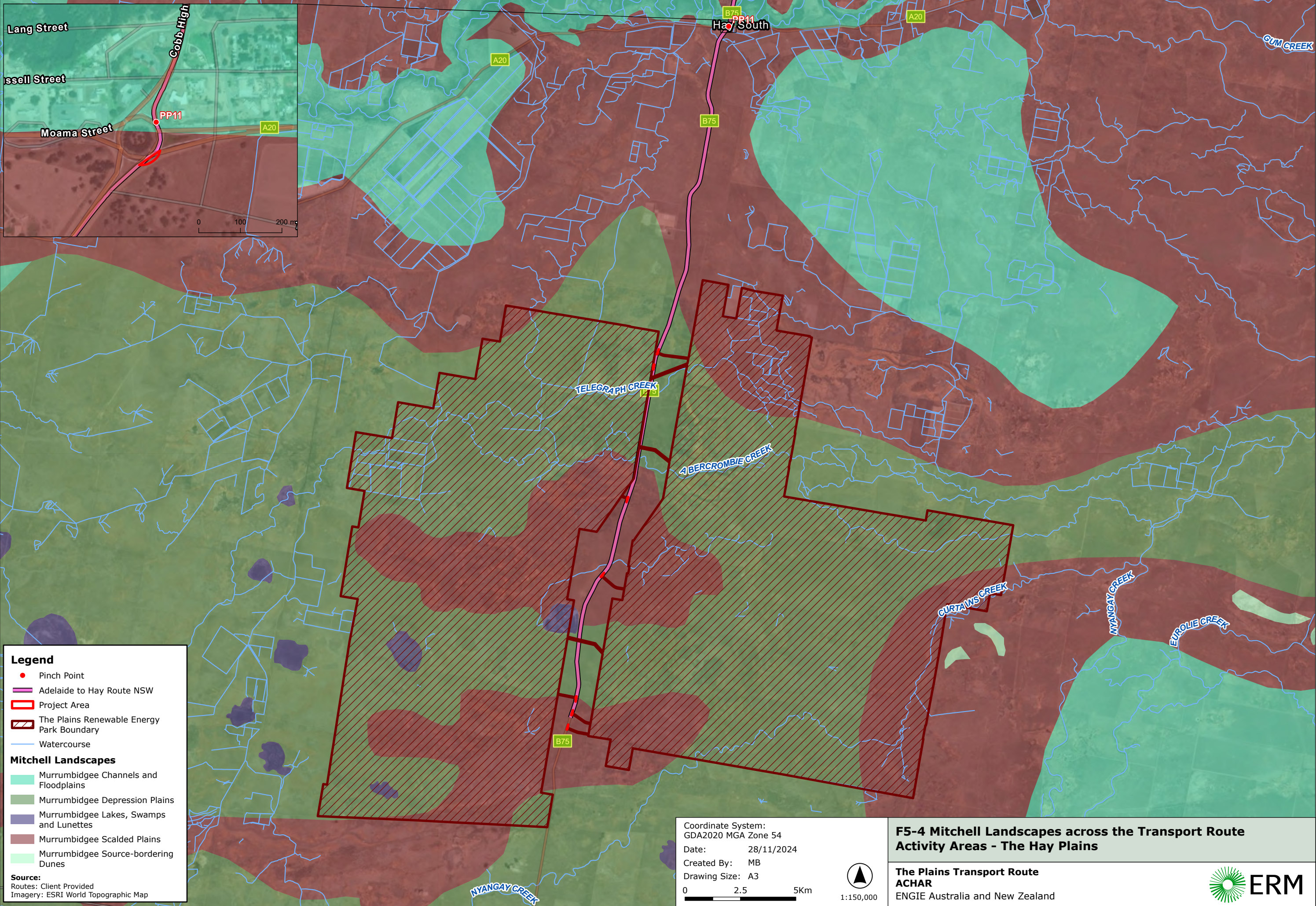
**TABLE 5-4 MITCHELL LANDSCAPES ACROSS THE TRANSPORT ROUTE ACTIVITY AREAS**

| <b>Landscape</b>                                | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Located</b>                        |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| The Murrumbidgee Scalded Plains (Mbd)           | The Murrumbidgee Scalded Plains are quaternary alluvial plains with extensive scalding interpreted as relic floodplains or terraces with little relief, often generally <1 m and up to 5 m on associated pans, swamps, and lunettes (Mitchell 2002:105).                                                                                                                                                                                                                 | Within Transport Route Activity Areas |
| The Murrumbidgee Channels and Floodplains (Mbc) | The Murrumbidgee Channels and Floodplains are quaternary alluvium on seasonally inundated floodplains, active and inactive channels, billabongs, levees, and swamps of the Murrumbidgee River and its effluent streams with relief up to 10 m. Includes scalded alluvial flats, broad elevated floodplains and associated relict channels; isolated sandy rises, with relief up to 5 m. Grey and brown clay with occasional areas of low sandy rise (Mitchell 2002:104). | Within Transport Route Activity Areas |
| The Murrumbidgee Depression Plains (Mud)        | The Murrumbidgee Depression Plains present as numerous circular depressions interpreted as high floodplains or low terraces beyond the reach of average floodwaters. Elsewhere sandy rises and levees trace ancestral streams standing above the general plain, with relief ranging 1 to 10 m (Mitchell 2002:104).                                                                                                                                                       | Within Transport Route Activity Areas |











## 5.4 SOILS

### 5.4.1 BROKEN HILL

State level land system mapping of the region (Walker, 1991) shows that the Transport Route Activity Areas are located within the Nine Mile Land System (Nm). This system is largely made up of red texture-contrast soils, areas of solonized brown soils, lithosols and sands; scattered mulga, prickly wattle and dead finish; dense to scattered black bluebush and other edible bushes; copperburrs, bottlewashers, variable speargrass, mulka, other grasses and forbs.

Soil mapping of the region shows the Transport Route Activity Areas are made up of Sodosols (SO). These are defined as soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 m of the B2t horizon (or the major part of the entire B2t horizon if it is less than 0.2 m thick) is sodic and not strongly acid. Hydrosols and soils with strongly subplastic upper B2t horizons are excluded (Soil Science Australia 2022).

The soil landscapes from the region are described in Table 5-5 below.

**TABLE 5-5 SOIL LANDSCAPES - BROKEN HILL**

| Soils                             | Landform                                            | Soils                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aap1<br>(Alluvial<br>sediments)   | Transported<br>Regolith /<br>Alluvial Plain         | Lithic and quartzose sands and gravels with abundant clays on low relief areas flanking channel systems associated with valleys. Surface lag is dominated by red-brown sands with occasional lithic gravels. Colonised by chenopod shrublands dominated by <i>Atriplex vesicaria</i> with minor <i>Maireana</i> spp. and minor <i>Alectryon oleifolius</i> trees. |
| Aed1<br>(Alluvial<br>sediments)   | Transported<br>Regolith /<br>Drainage<br>Depression | Quartzose and lithic gravels and sands with minor red-brown sands within open elongate depressions grading into drainage depressions. Surface lags consist of quartzose and lithic pebbles with red-brown sands. Colonised by chenopod shrublands dominated by <i>Atriplex vesicaria</i> and <i>Maireana</i> spp..                                                |
| CHer2<br>(Colluvial<br>sediments) | Transported<br>Regolith /<br>Erosional Rises        | Lithic and quartzose gravels and sands in areas with slight topographic relief. Surface lags are dominated by quartzose and lithic pebbles and red-brown sands with fragments of regolith carbonate accumulations. Colonised by chenopod shrublands dominated by <i>Maireana</i> spp. and <i>Atriplex vesicaria</i> .                                             |
| Fm1 (Fill)                        | Urban Fill                                          | Urban area with paved and landscaped areas, and the immediate surround of major mines. Surface lags are highly variable. Vegetation is highly variable and includes an abundance of exotic species.                                                                                                                                                               |

### 5.4.2 THE HAY PLAIN

State level soil mapping of the region (DPIE, 2021) shows that the Transport Route Activity Areas are largely made up of chromosols vertosols, and rudosols which comprise grey, brown, and red clays; siliceous sands; and red and brown earths. Soils are closely related to the current and previous hydrological regimes, with areas of lower relief typically comprised of grey cracking clays associated with flood environments. The majority of the Wind Farm is comprised of level plains of Quaternary alluvium of sands and clays.

Broad soil mapping for the region completed at a scale of 1:500 000 is available from the Department of Natural Resources which identifies four broad soil landscapes within and surrounding the Transport Route Activity Areas.

These soils with their associated landscape are described in Table 5-6 below.

**TABLE 5-6 SOIL LANDSCAPES - THE HAY PLAIN**

| Soils                         | Landform                                                                                                                                                                              | Soils                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain Zone C (PZC)            | Level plains of Cainozoic/ Quaternary alluvium of the Riverine Plains                                                                                                                 | Soils related to the prior stream network. In general levee landscapes and localised high points are comprised of red and brown earths. Further into the plain landscape soils are comprised of red brown earths and brown podzolic soils. Soils developed from parent material of clays, silts, and sands from past flow regimes.<br><br>Moderate to severe scalding occurs on Red Sodic soils, which usually occur near the levees of prior streams. Topsoils are fragile and overgrazing often damages the surface crust |
| Prior Stream Variant B (PSB)  | Landform is comprised of prior stream sand ridges. In general, the sand ridges exhibit narrow and sinuous characteristics. Landscape is characterised by shrublands and low rainfall. | Siliceous Sands on higher sandy ridges–60%, Red Earths on some less distinct rises–20%, Red Brown Earths with sandy topsoils on levees–20%.<br><br>Soils are dominated by non-cohesive sands, so wind and sheet erosion are potential problems especially on crest and upper slopes.                                                                                                                                                                                                                                        |
| Western Edge Complex (WX)     | Level to gently undulating plains.                                                                                                                                                    | Higher undulating rises are dominated by red earths which grade into red/brown earths which are often scalded. Lower lying plains are often comprised of grey cracking clay deposits.                                                                                                                                                                                                                                                                                                                                       |
| Sandy Prior Stream Ridge (PS) | Linear prior stream sand ridges blown out of coarse sand deposits of relict palaeochannels. Mostly cleared but previously dominated by pine forest and sand-hill shrub species.       | Unit is dominated by siliceous sands which occasionally grade to red earths. Adjacent levees/ lower slopes commonly support scalded red earths.                                                                                                                                                                                                                                                                                                                                                                             |

In general, soil development in the region is largely reported to be associated with former stream landforms with soils comprised of a finer substrate with increasing distance from the prior stream deposits (see *Figure 5-5*). This transition is significant archaeologically with clay-based soils in conjunction with flood deposits demonstrating limited potential to support the development of archaeological deposits. It is noted that the effect of flooding may either preserve or disturb archaeological deposits depending on the velocity of flood and the underlying soil types. Clay based soils are considered less likely to support artefact deposition and archaeological site development due to the general impermeable nature of clay soils. Red earth and sandy soils by comparison are considered more likely to support the development of in-situ archaeological deposits. It is however noted that both the PZC and PSB soil profile are reported to be fragile and subject to impact through grazing and wind and sheet erosion, which are a common occurrence within the region.

Vertisols (*Figure 5-7*) are found across most of the Transport Route Activity Areas and are the predominant soil matrix, characterised by shrink-swell and cracking clay soils. Water can accumulate seasonally in depressions, and they can form deep cracks from the surface downwards when they dry out. Chromosol soil is present within the east of the Transport Route Activity Areas and is comprised of bright red and brown earths.



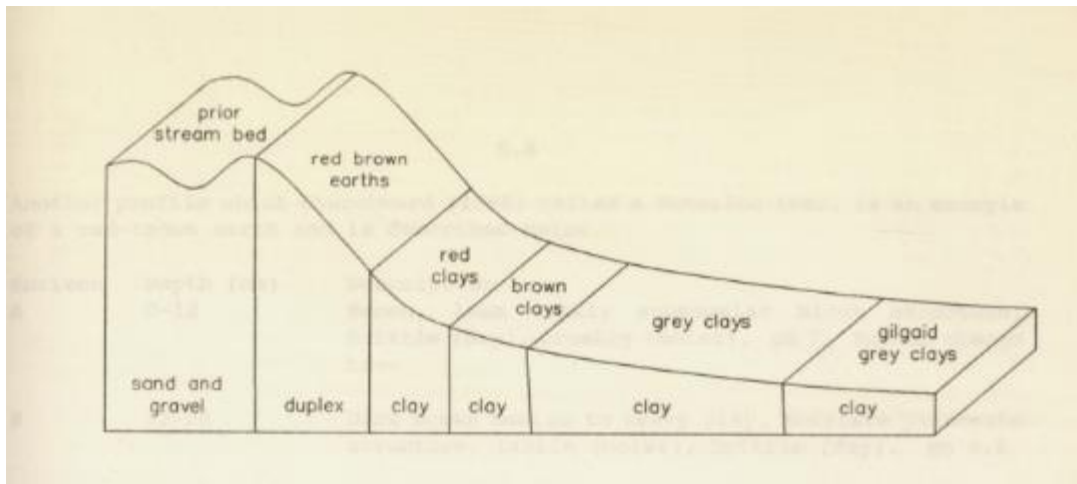
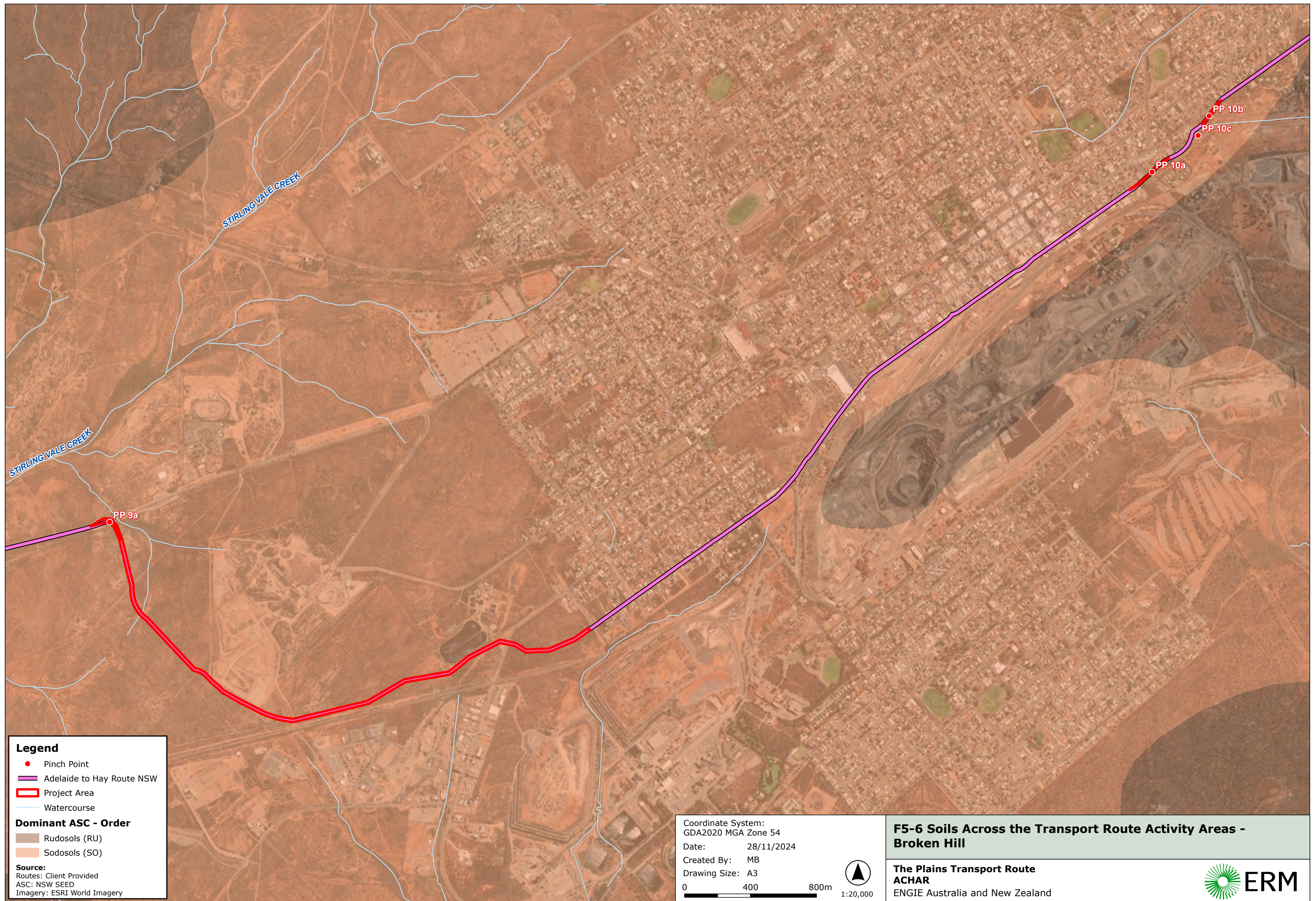


FIGURE 5-5 ILLUSTRATION OF SOIL DEVELOPMENT WITH INCREASING DISTANCE FROM PALAEOCHANNEL LANDFORMS (SOIL CONSERVATION SERVICES OF NSW 1990: 64)





**Legend**

- Pinch Point
- Adelaide to Hay Route NSW
- ▭ Project Area
- Watercourse

**Dominant ASC - Order**

- Rudosols (RU)
- Sodosols (SO)

**Source:**  
Routes: Client Provided  
ASC: NSW SEED  
Imagery: ESRI World Imagery

Coordinate System:  
GDA2020 MGA Zone 54  
Date: 28/11/2024  
Created By: MB  
Drawing Size: A3

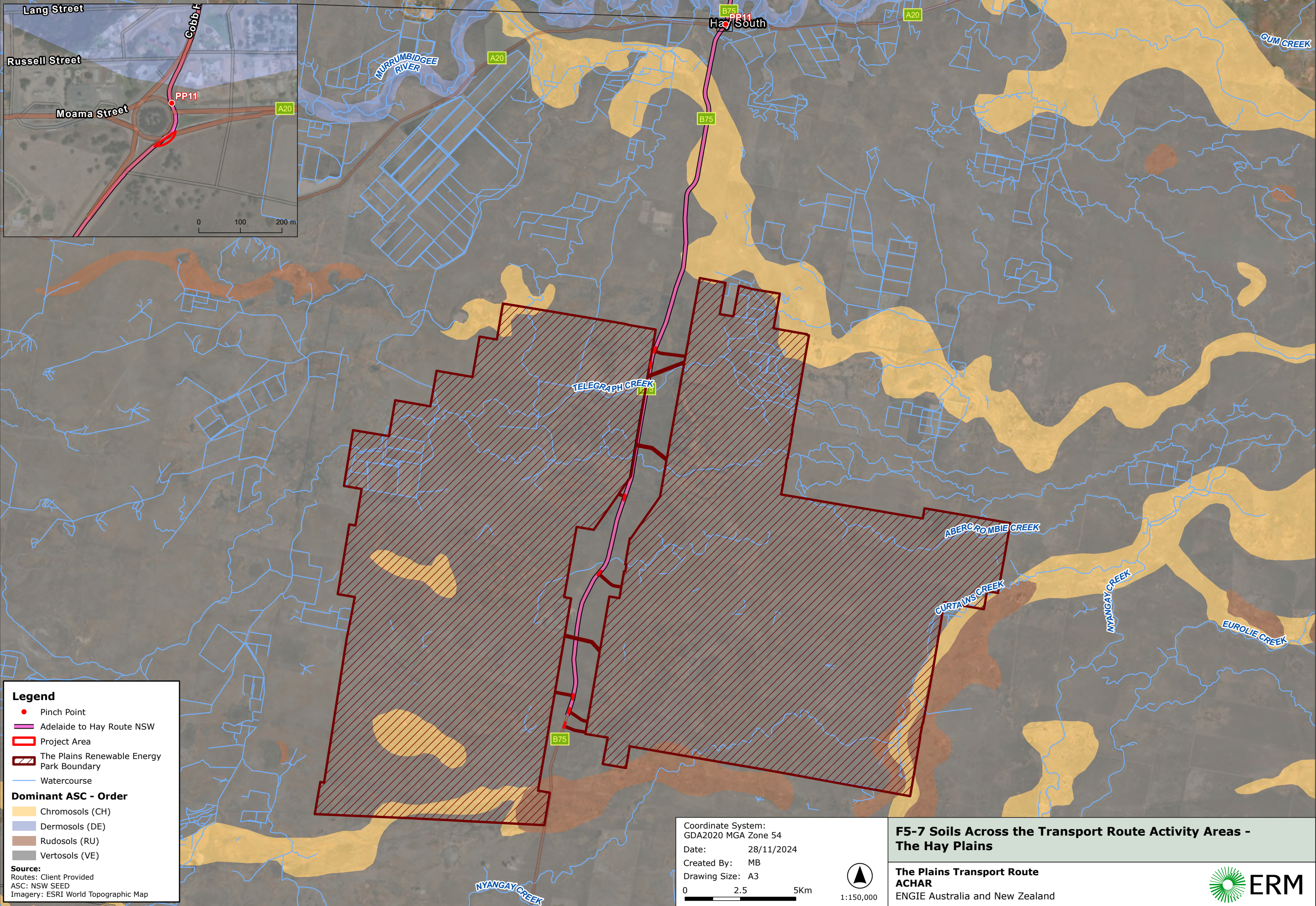
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**F5-6 Soils Across the Transport Route Activity Areas - Broken Hill**

**The Plains Transport Route**  
**ACHAR**  
ENGIE Australia and New Zealand









## 5.5 HYDROLOGY

Today the Murray-Darling Basin comprises a network of rivers forming Australia's largest river system. The Transport Route Activity Areas are located within part of the vast Murray-Darling Basin which extends across 14% of Australia's land mass (MDBA 2022). The Murray-Darling Basin is split into two catchment areas (the Northern and Southern basin catchments). The Southern Murray Darling Basin is generally associated with two large geomorphic forms – the Mallee Plains in the West and the Riverina Plain in the east.

### 5.5.1 BROKEN HILL

Rivers have carved channels and anabranches over ancestral channels and troughs of the Mallee Plains. Extensive sequences of sand ridges characterize the Mallee, which lacks a tributary stream junction besides that of the Murray and Darling (Williams 2011: 8). Westerly winds formed the east-west dune patterns that define the region. Long, low-gradient rivers here have highly variable flow regimes and are sourced from small upland regions (Williams 2011: 14).

The Broken Hill region is located in the western portion of the Barwon-Darling catchment, a 142,000 square km subcatchment of the Murray-Darling Basin. The Darlin River and Barwon River, as well as their associated anabranches, flow within the catchment. The arid landscape and localized topography impact the hydrological regime of the Broken Hill region, which is interpreted as follows:

*In-channel episodic moderate to high energy water flow – During moderate to heavy rainfall associated with localised storms events, fast flowing waters enter the upstream portion of ephemeral channels and are quickly borne downstream through the study area. These waters (a) disperse the sandy clay matrix of the channel banks such that localised erosion results (b) transport and deposit entrained upstream sediments away from their source zones; and (c) cause overbanking of channels with outwash on to adjoining alluvial fans. This outwash, being no longer entrained within the channel, flows much less rapidly across the landscape, and is entrapped within shallow clay pan areas until it evaporates.*

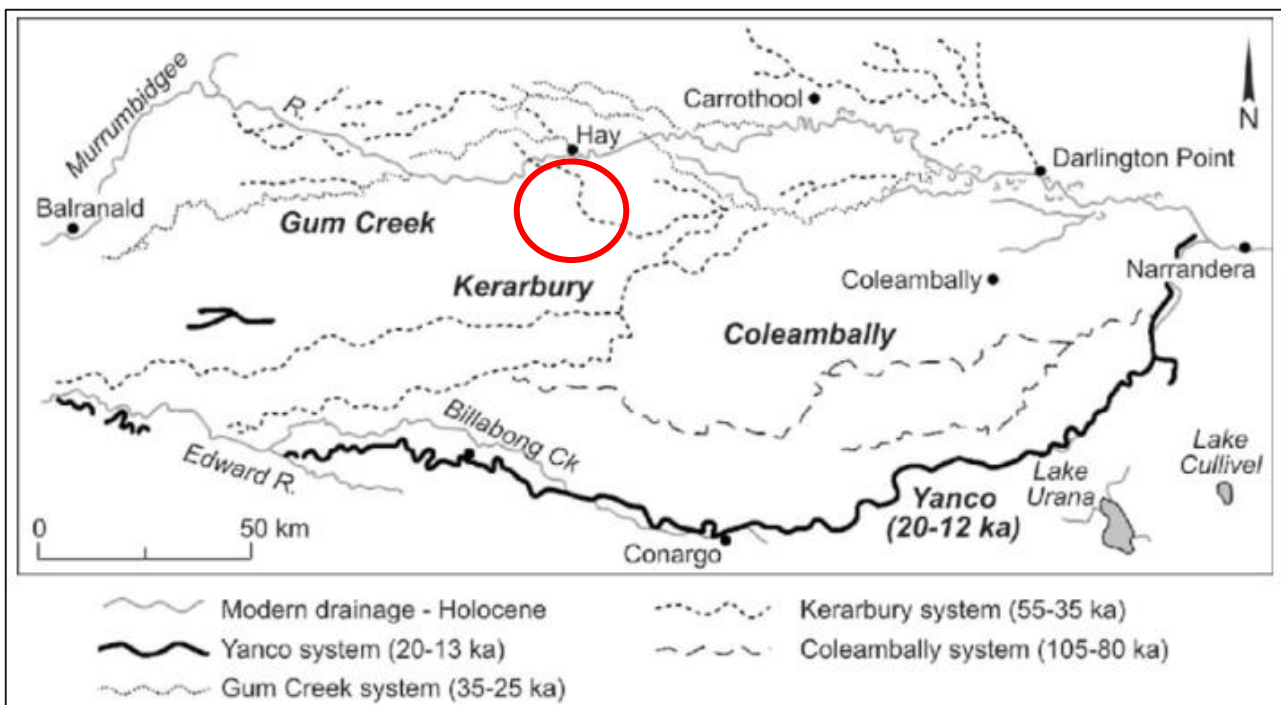
*Sheetwash on stony hill slopes – In the mid-to-upslope areas of exposed bedrock and/or bedrock colluvium with limited to no soil development all rainfall is expected to be dispersed downslope as sheetwash (OzArk, 2012: 16-17).*

### 5.5.2 THE HAY PLAIN

The Riverina Plain is encompassed in the Southern Murray Darling Basin and comprised of a complex network of river channels and floodplains which overlay ancient river systems (see Section 5.2.2). The streams in the Riverina are characterised by low gradients with significant variability in river flow (Williams 2011: 9).

The oldest of the ancient river systems in the Riverina Plain are currently comprised of deeply buried channels which have been filled by sand and gravels and date to 15-30 kya (NSW NPW 2003). These 'prior streams' are identified by their slightly raised nature above the existing floodplain (Williams 2011 :9). More recent 'ancestral rivers' are more closely associated with current drainage networks which are found as winding depressions across the landscape.





**FIGURE 5-8 PHASES OF PALAEOCHANNELS ACROSS THE RIVERINA, APPROXIMATE LOCATION OF THE TRANSPORT ROUTE ACTIVITY AREAS SHOWN IN RED (PAGE ET AL 2009: 22)**

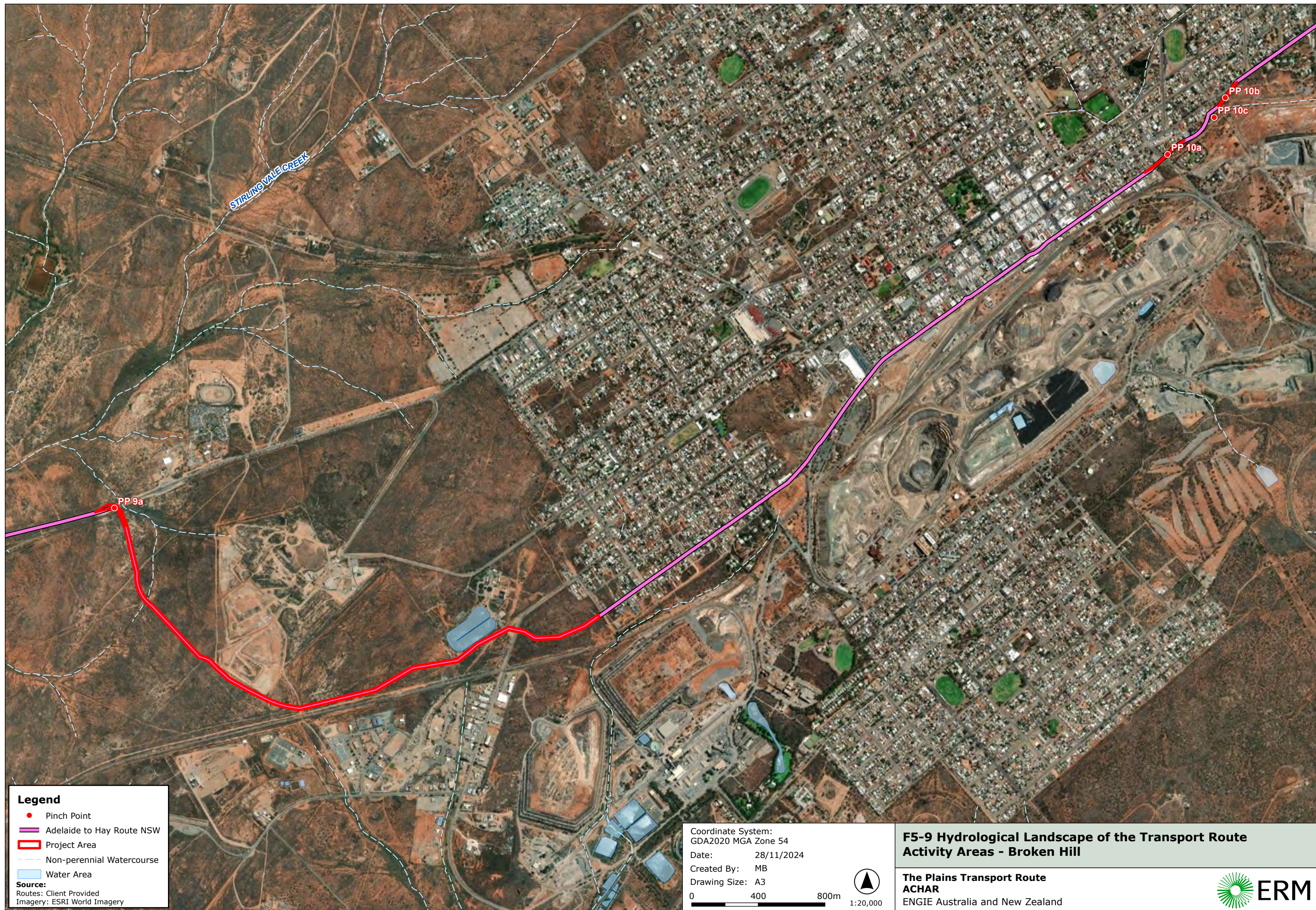
Significant changes to the hydrological landscape occurred between the Pleistocene and Holocene periods which coincided with a period of increased aridity. This increased aridity restricted the flow of palaeochannels with the modern drainage regime for the Riverina Plain estimated to have developed between 15 to 10 kya.

Past Aboriginal occupation is likely to have focused on resources associated with these palaeochannels. This indicates that archaeological evidence is likely to be based in the areas surrounding these palaeochannel resources. Impacts of recent flooding in 2022 and stream activity are noted to have impeded the potential to identify earlier phases of Aboriginal occupation through cycles of erosion, sedimentation and accretion as described by Klaver (1998: 71). It is noted that the high level of clay soils within the Project area limits drainage across the landscape resulting in large areas of standing water following rain events such as those that occurred in 2022.

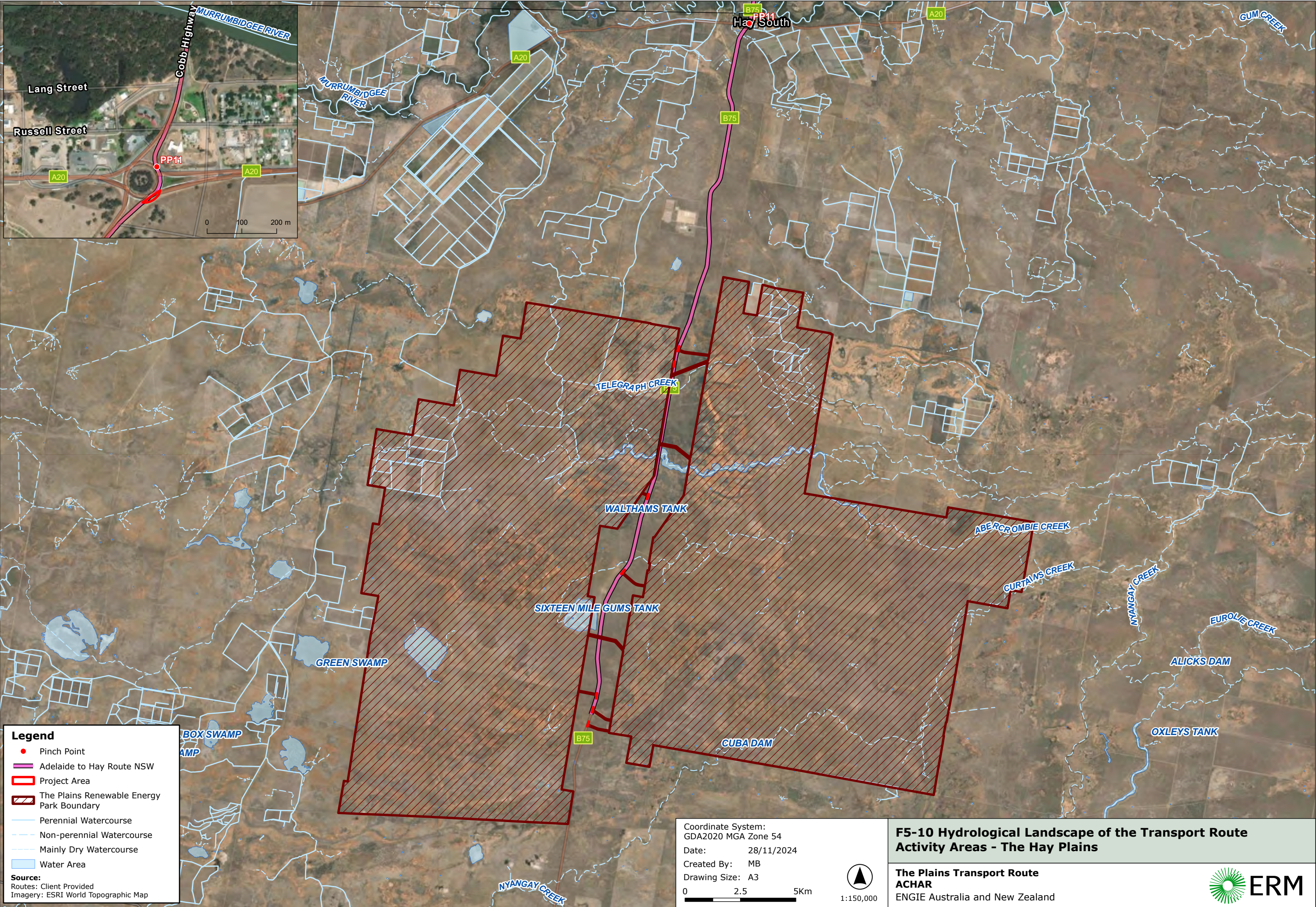
At its closest, the Murrumbidgee River is located about approximately 500 m north of one of the Transport Route Activity Areas. The Murrumbidgee River has a catchment of approximately 84,000 km<sup>2</sup>. Rising in the Snowy Mountains, the river flows generally westwards to its confluence with the Murray River, 1,600 km from the river source. The catchment includes 14 dams plus eight large weirs, with its downstream irrigation areas containing over 10,000 km of irrigation canals (Watts 2010: 199). Water flow along the rivers and creeks in the region have been regulated by these major structures constructed from 1912 through to 1968. The river changes form along its path with the area downstream (west) of Hay, described as the Lower Murrumbidgee floodplain, exhibiting the most extensive wetland area of the catchment.

The natural flow regime of the Murrumbidgee River prior to regulation was characterised by low average flows in summer and autumn, and higher average flows in winter and spring (Page et al. 2005, in Watts 2010: 200). Flows would have naturally been variable, with rainfall events in the upper and mid catchment creating flow pulses that would have travelled down the river, potentially as far as the downstream reaches of the river. River regulation has substantially altered these characteristics as a result of upstream off-takes for irrigation purposes. River regulation has significantly reduced the magnitude of relatively frequent flooding events in the Murrumbidgee floodplains, with impacts to vegetation and fauna diversity and development.











## 5.6 FLORA AND FAUNA

### 5.6.1 BROKEN HILL

The availability of flora and fauna resources are primary factors influencing patterns of past Aboriginal land use and occupation. Flora resources have been used by Aboriginal peoples as food, medicine, ceremony, as well as in the construction of tools, shelter and fire.

The Mallee species known as *Eucalyptus gillii* is only found in NSW within the Barrier Range subregion near Broken Hill (Benson 1999). The Broken Hill Complex Bioregion is home to several at risk species, including the vulnerable purple-wood wattle, *Acaia carnei*, winged pepper-cress (*Lepidium monoplacoides*), spike-rush (*Eleocharis obicis*) and acanthaceae (*Rhaphidospora bonneyana*). Uncommon flora are also found within the bioregion, including the *Gahnia lanigera*, *Paspalidium clementii*, *Ixiolamys nana*, *Pluchea baccharoides*, *Vittadinia arida*, *Atriplex lobativalvis*, *A. morrisii*, *Euphorbia sarcostemmoides* and *Goodenia berardiana* (NPWS 2003: 43).

Numerous fauna species are found across the Broken Hill Complex Bioregion, including 195 bird, 58 reptile, 5 amphibian and 37 mammal species. The yellow-footed rock-wallaby (*Petrogale xanthopus*) is found in the Bynguano and Coturaundee Ranges north of Broken Hill. The endangered Bolam's mouse (*Pseudomys bolami*), a native nocturnal rodent found in the Mallee shrublands, is found in burrows during the day, while feeds on seeds, fruits, blossoms, grasses, herbs and insects. The at-risk letter-winged kites (*Elanus scriptus*), black-breasted buzzards (*Hamirostra melanosternon*), Australian bustards (*Ardeotis kori*), bush thick-knees (or bush stone-curlew) (*Burhinus grallarius*) and Bourke's parrots (*Neophema bourkii*) are known from within the bioregion (NPWS 2003: 43).

Within the Barrier Downs (Bds) Mitchell Landscape scattered mulga (*Acacia aneura*), prickly wattle (*Acacia victoriae*), low bluebush (*Maireana astrotricha*), scattered black bluebush (*Maireana pyramidata*), dead finish (*Acacia tetragonophylla*), some pearl bluebush (*Maireana sedifolia*) and isolated harlequin fuchsia (*Eremophila duttonii*) are found along ridges. On slopes are located isolated mulga and needlewood (*Hakea leucoptera*) with scattered shrubs; local stands of dense low bluebush, contour banded bladder saltbush (*Atriplex vesicaria*), cabbage-tree wattle (*Acacia cana*), belah (*Casuarina cristata*), and pearl bluebush (*Maireana sedifolia*), with local clumps of moderately dense belah (*Casuarina cristata*) and mulga, abundant bottlewashers (*Enneapogon* sp.) and copperburr (*Sclerolaena* sp.). Along the flats are found copperburr, thorny saltbush (*Rhagodia spinescens*) and grasses and drainage lines with prickly wattle, western boobialla (*Myoporum montanum*), sandalwood (*Santalum lanceolatum*), rosewood (*Alectryon oleifolium*), belah (*Casuarina cristata*), white cypress pine (*Callitris glaucophylla*) and black box (*Eucalyptus largiflorens*), with river red gum (*Eucalyptus camaldulensis*) along larger streams (DECCW 2002: 17).

### 5.6.2 THE HAY PLAIN

The availability of flora and fauna resources are primary factors influencing patterns of past Aboriginal land use and occupation. Flora resources have been utilised by Aboriginal peoples as food, medicine, ceremony, as well as in the construction of tools, shelter and fire.

While the current landscape has been heavily influenced by clearing related to historic farming uses, the Wind Farm Project area does contain several flora species which demonstrate Aboriginal cultural values.

River red gum (*Eucalyptus camaldulensis*) and river cooba (*Acacia stenophylla*) communities can be found along the river channels in sandy soils. Herbaceous perennial, annual, and post-flooding ephemeral species make up the understorey in these areas. River cooba was used by Aboriginal people as a source of food (the seeds ground for bread), as well as utilitarian uses (the bark was used as a poison for fishing, and the hard wood, *Yumang*, was used for boomerangs) (Williams and Sides 2008:18). Wood and resin from cooba were used by Aboriginal people to make and repair tools, whilst the tree was also considered medicinal with known uses being a mouth wash and body cleansing (Williams and Sides 2008:10).

The riverine forest communities of the Riverina Bioregion (IBRA 5.1) provide habitat for significant fauna including the superb parrot (*Polytelis swainsonii*), sugar glider (*Petaurus breviceps*), feathertail glider (*Acrobates pygmaeus*), squirrel glider (*Petaurus norfolcensis*), brush-tailed phascogale (*Phascogale tapoatafa*), koala (*Phascolarctos cinereus*), carpet python (*Morelia spilota*), freckled duck (*Stictonetta naevosa*) and peregrine falcon (*Falco peregrinus*) (Eardley 1999 in NPWS 2003:93).

Black box (*Eucalyptus largiflorens*) dominated woodlands with an accompanying understorey consisting of salt-tolerant grasses, saltbushes, and daisies and can be found in the grey and black clays on higher land. On land above the flood level, yellow box (*Eucalyptus melliodora*) communities can be found with both cypress pine and grey box (*Eucalyptus microcarpa*) in evidence. The bark of Black box, or Pulty, was used by Aboriginal people in making coolamons and canoes, whilst hollowed branches were fashioned into didgeridoos. Other parts of the tree were used for toolmaking, including the suckers which were used for spear making. Leaves and flowers were commonly used as adornments, especially during ceremonies (Williams and Sides 2008:30).

Stands of Black box offer habitat to a diversity of bird species including the bush thickknee (*Burhinus magnirostris*) and the superb parrot, which rely on box woodland and selected nest trees, typically river red gum. The shrublands and grasslands provide habitat to species such as the plains-wanderer (*Pedionomus torquatus*), bush thickknee, striped legless-lizard (*Delmar impar*) and fat-tailed dunnart (*Sminthopsis crassicaudata*).

Moving away from the rivers and streams the plain country is relatively treeless, supporting saltbush scrubland with old man saltbush (*Atriplex nummularia*), bladder saltbush (*Atriplex vesicaria*), ruby saltbush (*Enchylaena tomentosa*), nardoo (*Marsilea drummondii*) and cotton bush (*Maireana aphylla*) interspersed among the native grasslands (*Danthonia* spp. and *Stipa* spp.) (Williams and Sides 2008: 57) (Figure 5-11). Old man saltbush is used for medicinal purposes and in areas lacking wood supplies, old man saltbush can also be used as a source of wood for fires (per comms. with RAPs during ERM consultation 2023). This species was present across most of the Plains Wind Farm. Several native animals were sited during the survey of the Plains Wind Farm, which included emu, kangaroo, quail, eagles, goannas, several species of snakes and other small reptiles, and a range of small insects.



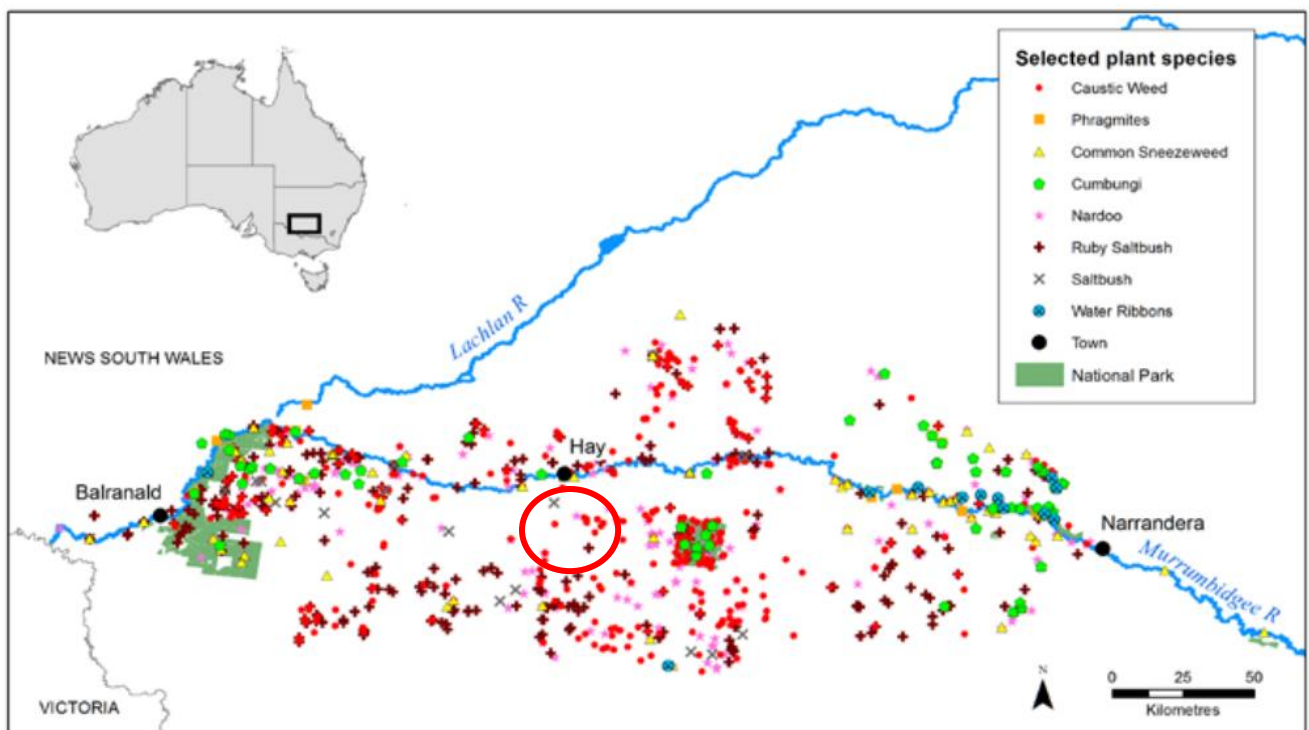


FIGURE 5-11 DISTRIBUTION OF SELECTED CULTURALLY IMPORTANT WETLAND SPECIES (DUFFY 2016 IN CHARLES STURT UNIVERSITY 2016) WITH APPROXIMATE LOCATION OF THE TRANSPORT ROUTE ACTIVITY AREAS CIRCLED IN RED

## 5.7 HISTORIC LAND USES AND DISTURBANCES

### 5.7.1 BROKEN HILL

The Barrier Range was described by Charles Sturt during his expedition to central Australia in 1844, when he coined the name Mount Gibbs (Sturt 1849). The Transport Route Activity Areas are located within the Mount Gipps South pastoral run. Mount Gipps station was taken up c. 1863 by Barrier Range Company. In 1865, the station was transferred to George Urquhart and Mount Gipps South was taken over by James McCulloch and R. Sellars. The original homestead of the Mount Gipps station was located on Stephens Creek, upstream from the Stephens Creek Reservoir. A new homestead was constructed further north in 1871 (Hope 2006: 66-68).

Broken Hill was included in the historic Parish of Picton, within the County of Yancowinna and Land District of Wilcannia. The eastern Transport Route Activity Area, near Menindee Road and Sturt Street, was originally part of sections 39 and 40 of the town's subdivision (NLA MAP RM 5159). The western Transport Route Activity Area was included partially in the Parishes of Alma and Naradin.

In 1883, Charles Rasp discovered the at the time world's richest silver-lead-zinc deposit on Mount Gipps station (Aplin, 1987: 224). Following Charles Rasp's discovery of mineral-ore at Broken Hill, a mining lease was pegged out on an area of 40 acres. Rasp formed the 'Syndicate of Seven' with six sheep station employees, who took out a further six 40-acre leases. The first seven mining leases at Broken Hill were numbered Blocks 10-16 and were in the central part of the Line of Lode (*Figure 5-12*). In its original form, the Line of Lode was the main body of metallic ore (lead-silver-zinc) at Broken Hill, comprising a series of contiguous leases that together formed an arched band approximately 150 m wide and 9 km long, running in a southwest-northwest direction (*Figure 5-13*) (University of SA, 2005: 6).

The extent and nature of the Line of Lode was established by early 1885; it was in this year that the Syndicate of Seven formed the Broken Hill Proprietary Company Limited (BHP) (GML, 2007: 9).

By 1885, Broken Hill had become a major township; it was originally known as 'Willyama', believed to be a local Aboriginal term meaning 'Leaping Crest'. The layout of the town was in a grid-pattern to the north of the Line of Lode (PocketOz, 2023; NHL Citation Broken Hill). Another grid was established to the south of the Line of Lode, known as 'Alma' (Figure 5-13). Both towns became known collectively as Broken Hill. In 1884 a railway was constructed to serve the Silverton and Broken Hill mining districts, further aiding the growth of the town. In 1907 Broken Hill was declared a city and was the second largest in NSW after Sydney, with its maximum population reaching 35,000 in 1915 (PocketOz, 2023). By the 1930s the rail network has developed to provide access to all the mines and ultimately linked to the South Australian Railways and to Sydney (GML, 2007: 18).

Historical imagery indicates much of the Transport Route Activity Areas have remained vacant since at least the 1960s. The area has since been occupied by native shrubs and scattered trees, though significant disturbance to the landscape has occurred due to pastoral and mining practices. Pastoralists moved beyond the margins of the Darling River searching for new grazing lands in the 1860s. Following the development of leasehold tenure in the Western Division as a result of the Crown Lands Act 1884, numbers of stock in the area increased dramatically, and native vegetation suffered from intensive grazing. Native vegetation resources were also deteriorated due to the introduction of rabbits and extraction of water from bores for stocks, which pastoralists were increasingly reliant on by the 1890s (OzArk 2012: 17).

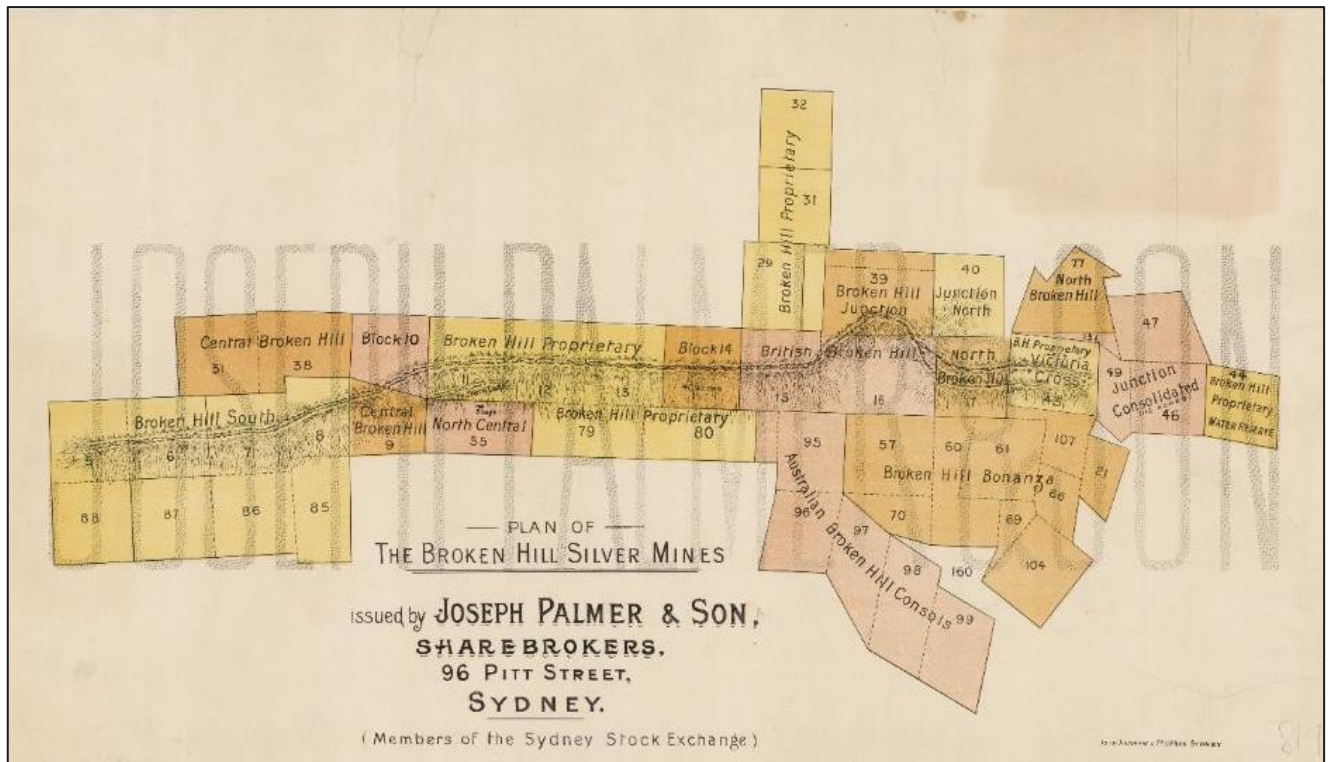


FIGURE 5-12 DETAIL OF 'PLAN OF THE BROKEN HILL SILVER MINES' (C.1901-1911) (STATE LIBRARY OF NSW, RECORD ID: 74VKWXMV3POY)



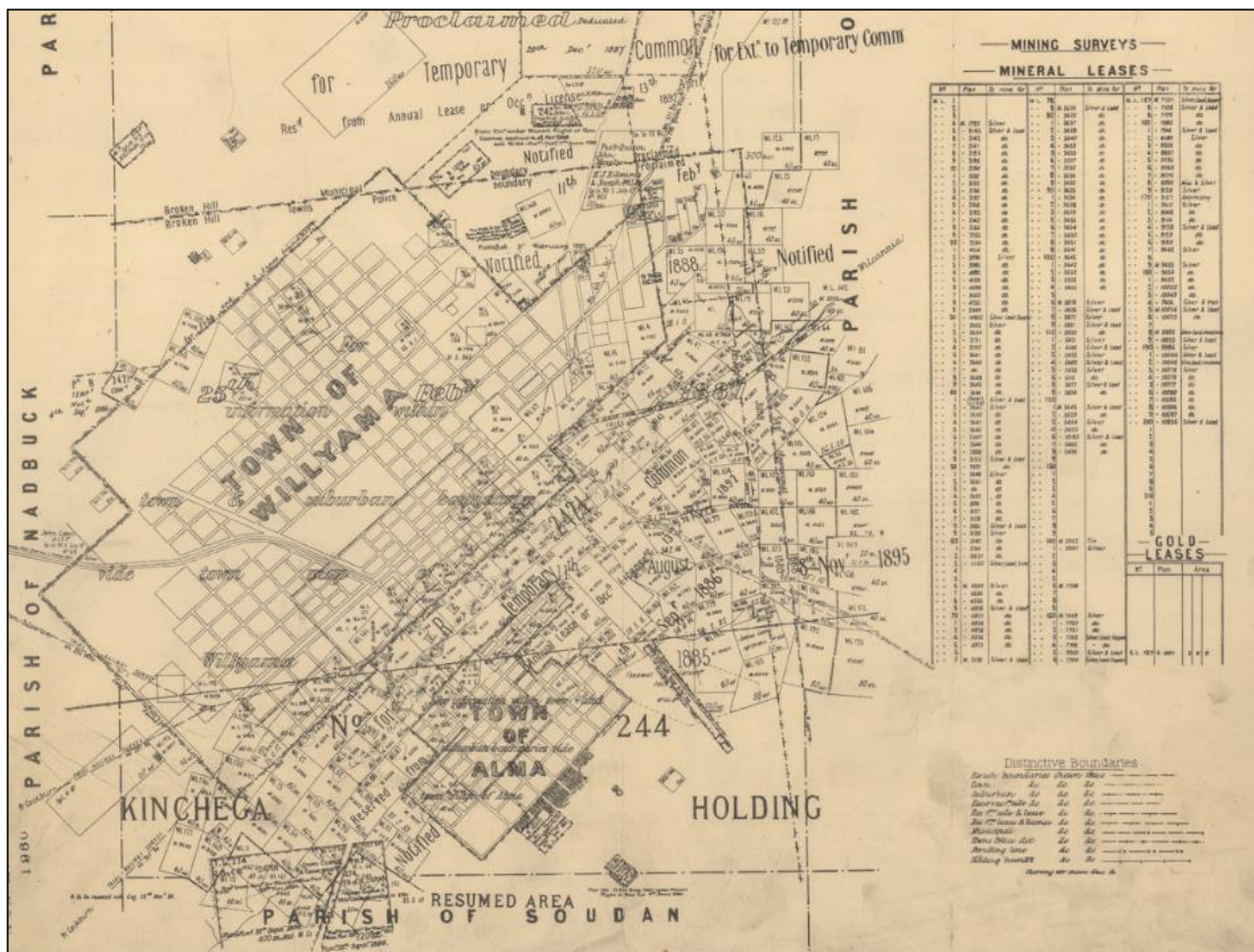


FIGURE 5-13 DETAIL OF PICTON PARISH MAP (1899), SHOWING THE TOWNS OF WILLYAMA AND ALMA, AS WELL AS THE LINE OF LODE MINING LEASES (STATE LIBRARY OF NSW, RECORD ID: 74VV3REAPK7A)

### 5.7.2 THE HAY PLAIN

The historical development of the Project area is detailed in *The Plains Renewable Energy Park – Wind Farm Aboriginal Cultural Heritage Report* (ERM 2024). The following has been taken from that report.

Early European exploration of the Murrumbidgee Region occurred from the 1820's with expeditions originally focused along the Murrumbidgee River. Charles Sturt's accounts, from his explorations of the the Murrumbidgee and lower Murray Rivers between 1828-31, describing the treeless plains and good water sources lured graziers to the region. Pastoral stations focused on cattle grazing were established in the lower Murrumbidgee region from the 1820s. By 1841, the Murrumbidgee District contained 147 stations, and by 1845 an average pastoral property stocked mainly with cattle around the Murray-Murrumbidgee junction, comprised eighty thousand hectares (Eardley, 1999).

Development of towns within the region soon followed. The locality of the Hay township was originally known as Lang's Crossing; it was named after the three Lang brothers (Thomas, William and Gideon Lang) who were leaseholders of the Mungadingadal, Eli Elwah, and Nyangay Runs (encompassing the Transport Route Activity Areas).

The Lang Brothers pioneered a stock route to their pastoral run from the early 1850s when they began to transport cattle across the Murrumbidgee from Queensland, to their property in the south; the route was known as 'Lang's Wool Road'. The location of the stock route at Lang's Crossing was regularly used and the 'Great North Road' also crossed the Murrumbidgee at this location, for supply to the Victorian market in the wake of the gold rushes (Beissel, 2008). In 1858-59 a store, inn and punt service were built at Lang's Crossing; the place became an important port for steam-boat navigation of the Murrumbidgee (Hay Shire Council, 2023).

The town was gazetted in 1858 and surveyed the following year; it was named after Sir John Hay, a local pastoralist and Member of parliament. In 1859 the first Post office was opened and in 1860 the original courthouse was built (now present location of the Post Office). Cobb & Co Coaches made Hay the headquarters of their Victoria and Riverine operations from 1862 to 1896, setting up a coach factory on the corner of Lachlan and Randall Streets; this became the largest coach factory in Australia outside of Sydney (Hay Shire Council, 2023). As it developed, Hay became a service hub for the large pastoral district. The Municipal Council of Hay was proclaimed in 1872 and the town was connected by rail to Narrandera in 1882 (Historical Encounters, 2023).

The Transport Route Activity Areas within the Hay Plain region are located along the Cobb Hwy. According to a 1901 Plan produced by the NSW Department of Public Works, the pinch point located at the roundabout in the town of Hay was part of a temporary common, notified on 16<sup>th</sup> June 1868, while the Project entry points were located along a reserve (*Figure 5-15*). The western portion of the Project area is largely within the historic parishes of Abercrombie, Twynam, Melrose, Beresford, Midgecleugh, and Paradise of Waradgery County. The eastern portion of the Project area is largely within the historic parishes of Narrawidgery, Beresford, Rankin, Paradise East, Cuba, Wirkenberjal, Killendoo and Bedarbidgak of Waradgery County (*Figure 5-15*). The Project area encompasses the Crown lands within the boundaries of several large pastoral holdings; Mungadingadal Run (76,1000 acres), Mungadingadal Back Run (55,300 acres), Eli Elwah Run (86, 200 acres), Eli Elwah Block A Run (30,000 acres), Eli Elwah Block B Run (30,000 acres), Burrabogie Block A Run (54,200 acres), and Bald Hill Run (21,000 acres); these runs were within the 'Old Man Plain' (*Figure 5-14*) (Historic Lands Record Viewer, accessed 3 May 2023).

The Mungadingadal Run was held originally by John Tooth and was acquired by the three Lang brothers (whom Lang's Crossing was later named after) in c.1845. The main homestead of the property was near the locality of Lang's Crossing on Murrumbidgee River (north of the Project area) (Beissel, 2008). The Mungadingadal Run was later acquired in c.1865 by Colin William Simson who predominantly focused on sheep farming and wool production (New South Wales Government Gazette, 1874: 3474; The Australasian, 1914: 8). The Run became known as 'Mungadal' and by 1893 several pastoral improvements and structures had been constructed across the run. Noted structures included fencing, station buildings and working plant. It was stated that *there was no ring-barking or scrubbing improvements; the land was all hard plains without a tree. The country consisted of saltbush plains, without water. The country had suffered from the rabbit pest since the beginning of 1883* (The Riverine Grazier, 1894: 4). Mungadal Stud was established in 1902 and continues to operate under the same name today (The Australasian, 1914: 8). Anthony Hordern purchased Mungadal Station in 1923 for £250,000. At the time, and at 111,710 acres, Mungadal was one of the largest freehold stations in the Murrumbidgee region.



The Eli Elwah Run was acquired in the mid-1850s by the Lang brothers and later by James and George Russell (Beissel, 2008). Parish Maps of Eli Elwah Holding illustrate several structures and features, including five tanks, a well and a dam within the eastern portion of the Project area. However, the homestead for the property was adjacent to the Murrumbidgee River (north of the Project area) (Historic Lands Record Viewer, accessed 3 May 2023).

The Cobb Highway, along which the transport route runs, was gazetted in c.1928 and was named the 'Cobb' in 1947 in honour of Cobb & Co Coaches.

Little has changed in the use of these properties, as pastoral grazing of sheep and cattle is still the principal industry of the region. Recently, following the purchase of the original Mungadal property by Paraway Pastoral Company in 2010, Mungadal Station expanded through the acquisition of the Pevensey, Ulonga, and Rosevale properties, and now covers a total area of 116,994 hectares (Paraway Pastoral Co. 2021). Mungadal Station consists mostly of native saltbush plains which are utilised for sheep grazing. It also contains numerous bores, areas of irrigated cropping, an extensive pipe and trough system, and a frontage onto the Murrumbidgee River at the northern end of the original property. Today, Mungadal Station and its surrounds consists mostly of native saltbush plains which are utilised for sheep grazing. It also contains numerous bores, areas of irrigated cropping, an extensive pipe and trough system, and a frontage onto the Murrumbidgee River at the northern end of the original property.

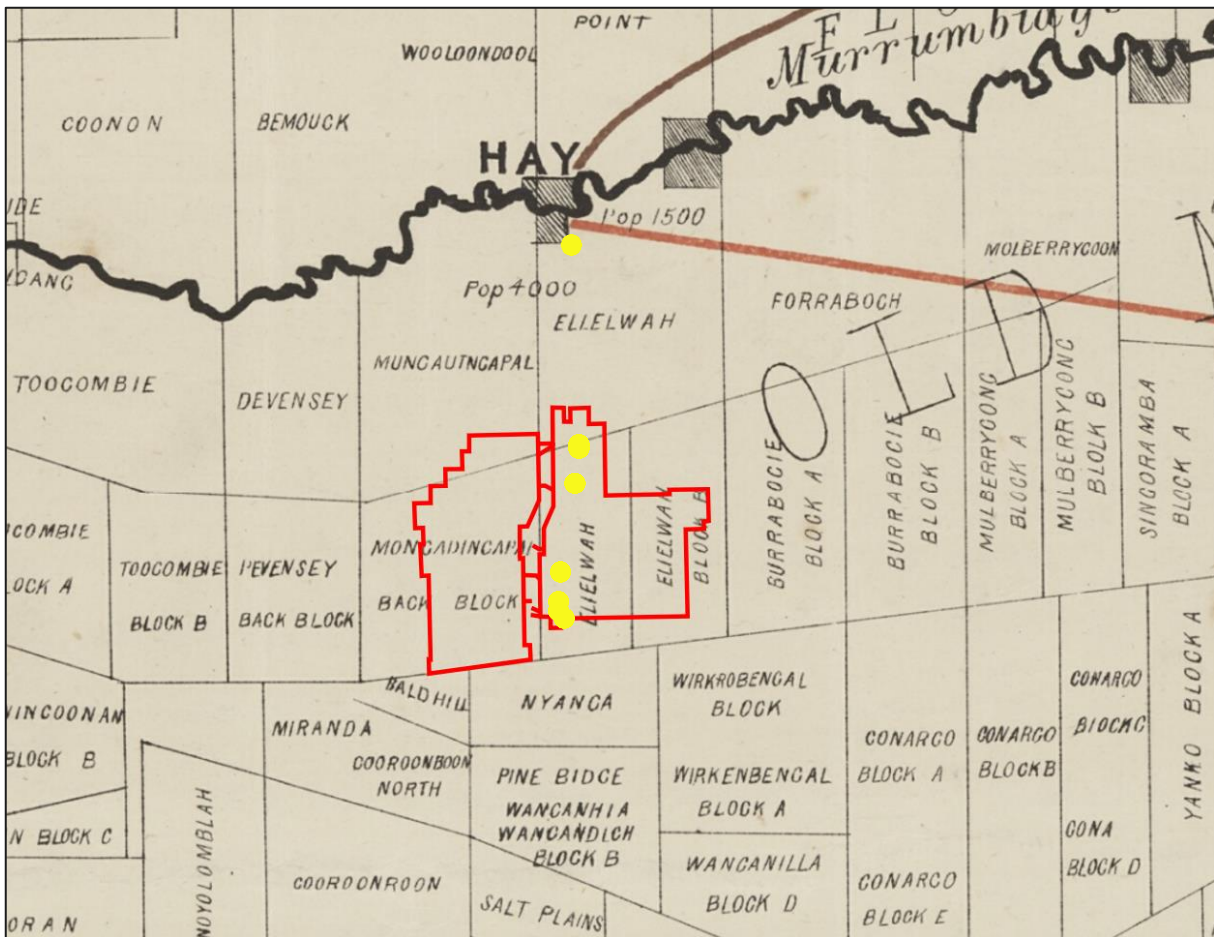


FIGURE 5-14 DETAIL OF 'DIRECT ROUTE TO HAY FROM WAGGA WAGGA' (C.1881) SHOWING APPROXIMATE LOCATION OF TRANSPORT ROUTE ACTIVITY AREAS (YELLOW) AND WIND FARM PROJECT AREA (RED) WITHIN SEVERAL PASTORAL RUNS (STATE LIBRARY NSW, M2 814.2/1881/1).



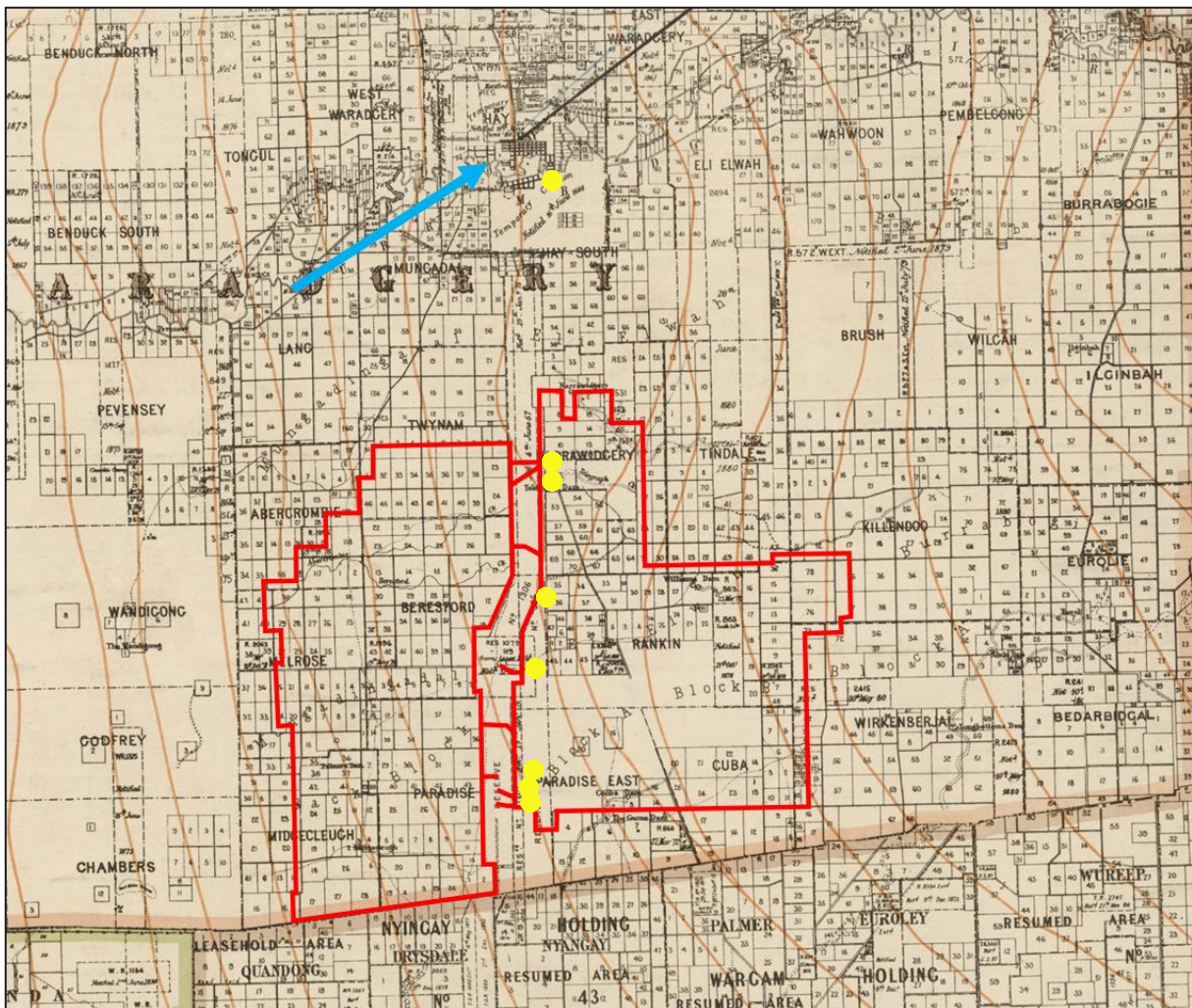


FIGURE 5-15 DETAIL OF 'PLAN SHOWING MURRUMBIDGEE RIVER DISTRICT' (1901), SHOWING APPROXIMATE LOCATION OF WIND FARM PROJECT AREA (RED) AND TRANSPORT ROUTE ACTIVITY AREAS (YELLOW) (STATE LIBRARY NSW, Z/M3 814/1901/1).

## 6. ABORIGINAL ARCHAEOLOGICAL BACKGROUND

### 6.1 ETHNOGRAPHIC HISTORY

#### 6.1.1 BROKEN HILL

Aboriginal people have occupied the Australian continent for at least 60-65,000 years. There have been no dated excavations in the Transport Route Activity Areas, however it is located around 250 km north-west of Lake Mungo, one of the most famous archaeological sites in Australia that has been dated back as far as 40,000 years (Hiscock 2000:21-22).

A fair amount of archaeological research has been conducted in western NSW, primarily around the ephemeral lakes and art sites in the region. A hearth site at Lake Yantara (approximately 250 km north of Broken Hill) was dated to 26,200±1,110 BP. Along the Darling River (approximately 100km east of Broken Hill), sites have been dated from 27,000BP to the present (OzArk 2012: 21). Holdway *et al* studied the occupation of the arid margins of southeastern Australia, dating 28 hearths found in the Sturt National Park (far north-western NSW) to use within the last 1700 years. However, the researchers identified a gap in occupation of around 200-400 years between 820±50 and 1170±130 years BP, arguing this was possibly due to palaeo-environmental fluctuations (Holdway 2002). Shiner (2006) found a similar gap in occupation when dating hearth sites located from Pine Point and Langwell Stations, approximately 40 km south of the Transport Route Activity Areas. Sixteen hearths at these sites indicated occupation over the last 2000 years, but with significant periods with little evidence.

Witter (2004) defined the area surrounding Broken Hill as the Barrier Ranges archaeological region, which is lacking in archaeological research. The semi-arid nature of the environment, far from rivers or lakes, would appear to make this region unfavorable for occupation, but Witter indicates open camp sites are found in significant numbers within all landscapes. Witter also suggests that occupation was likely dynamic and fluctuating with seasonal and longer-term climatic conditions.

Site types found in the Barrier Ranges include camp sites comprising of stone artefacts, hearths commonly found along streams, clay pans and near water holes in the ranges, stone quarries and rock art sites. Artefact types from the region include grinding stones, milling stones, flaked stone (mostly quartz), some retouched artefacts including Pirri points, geometric backed blades, Bondi points and Talus (Dibden, 2008: 36).

#### 6.1.2 THE HAY PLAIN

The Project is located around 170 km south-east of Lake Mungo, one of the most famous archaeological sites in Australia that has been dated back as far as 45,000 years (Hiscock, 2000: 21-22). According to Pardoe & Martin (2001) in their Murrumbidgee Province Aboriginal Cultural Heritage Study, the Project area is within the boundaries of the Kulin language group of the Western Murrumbidgee, encompassing the Nari Nari, Mathi Mathi, Wathi Wathi, and Wemba Wemba language groups, the boundaries of which are difficult to define and often overlap. Anthropologist Norman Tindale's 1940's map which shows the distribution and diversity of Aboriginal tribes and language groups across Australia maps the Wind Farm Project area within the Nari Nari and Berapa Berapa group (*Figure 6-1*).



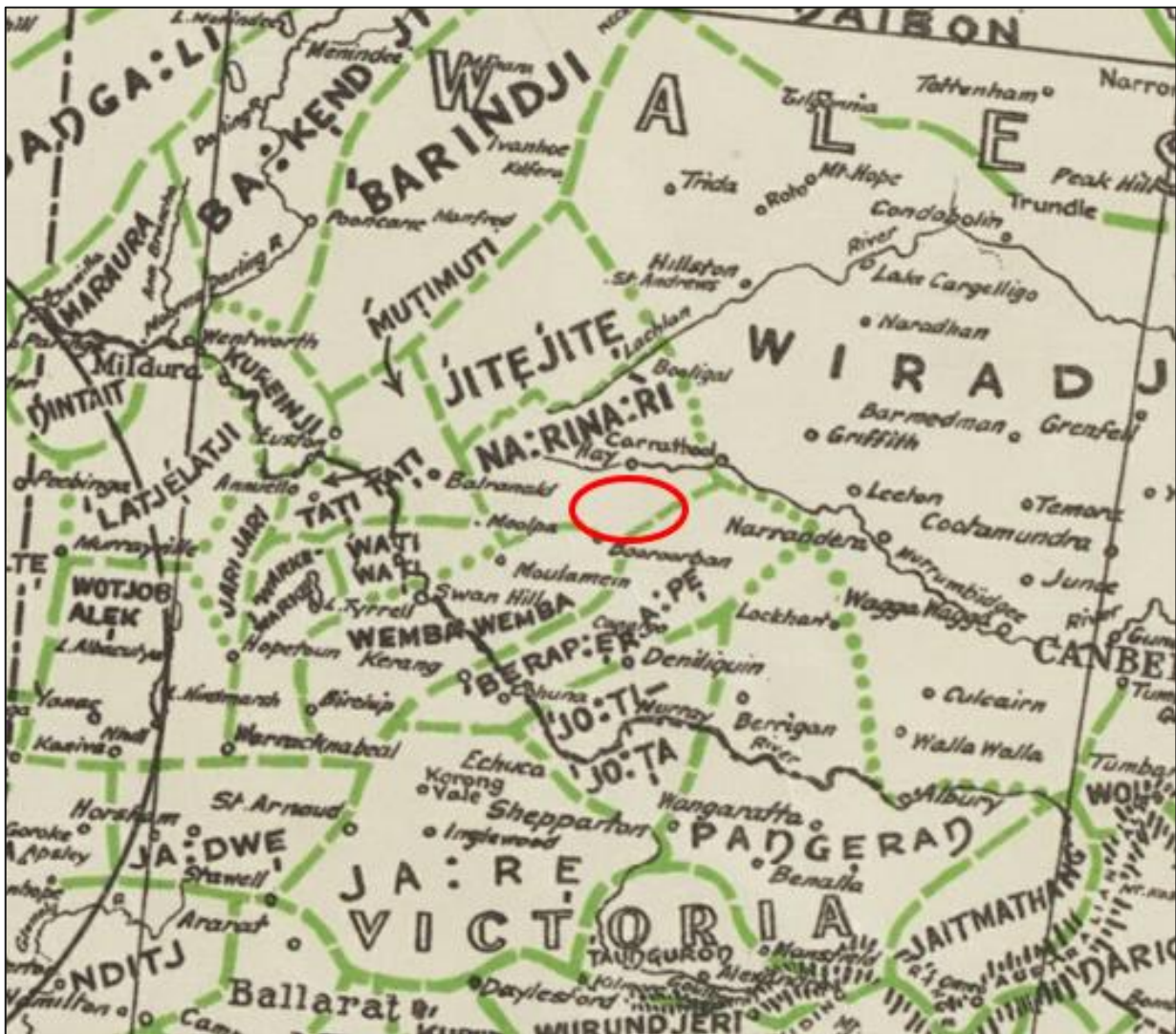


FIGURE 6-1 TINDALE 1940 MAP OF ABORIGINAL TRIBES AND LANGUAGE GROUPS. RED CIRCLE SHOWING THE APPROXIMATE LOCATION OF THE WIND FARM PROJECT AREA (SL.NSW.GOV.AU)

The first encounter that many of the Nari Nari and Berapa Berapa people would have had with Europeans was in the early 1800s when explorers first entered the Riverine Plain and surveyed land within the Murray, Murrumbidgee, Lachlan and Darling River catchments. The accounts of these early explorers provide valuable insight into the customs and culture of some of the Aboriginal groups of these areas. John Oxley surveyed the Riverina in 1817, accompanied by botanist Charles Cunningham. He followed the Lachlan River downstream below Booligal, but dense swamps prevented progress further west (Eardley, 1999).

Between 1828 and 1831, Charles Sturt explored the Murrumbidgee and lower Murray Rivers. Sturt noted that as he travelled downstream along the Murrumbidgee, the population increased. He stated that near the Murrumbidgee-Lachlan junction there was a large tribe of natives...one hundred and twenty in number (Sturt, 1833, in Pardoe & Martin, 2001).

Sir Thomas Livingstone Mitchell (1792-1855) explored the Lower Murrumbidgee region in 1836. Mitchell kept journals of his expeditions, detailing observations of Aboriginal people in the region prior to European settlement of the area. Mitchell noted that the staple food crop, bulrush root or balyan was often roasted in features now known as earth mounds or hearths (Mitchell, 1839: 134). In reference to these mounds, he stated;

*One artificial feature, not observed by me in other places, distinguishes the localities principally frequented by the natives, and consists in the lofty mounds of burnt clay, or ashes used by them in cooking. The common process of natives in dressing their provisions, is to lay the food between layers of heated stones; but here, where there are no stones, the calcined clay seems to answer the same purpose, and becomes better or harder, the more it is used. Hence the accumulation of heaps resembling small hills (Mitchell, 1839: 80-81).*

Beveridge in his 1884 ethnography described the communities of the Murray, Murrumbidgee, Lachlan and Darling areas as being family oriented. The mounds of the plains across the landscape represented territorial markers; the communities were patriarchal, led by elders (Beveridge, 1884; Pardoe, 1988; Martin, 2006). Daily life often consisted of hunting or gathering, cooking or preparing food, preparing tools such as canoes, and telling stories or playing games.

The rivers were central to the Aboriginal way of life, providing a rich concentration of food resources; Pardoe (1988) suggested that communities living along the rivers would have controlled access to the water and its resources, the rights to this occupation handed down from ancestors (Eardley, 1999). For some eight months of the year, resources in the region were available in abundance; however, for the remaining four months of the year, it was substantially more difficult to forage for food. For this reason, the Aboriginal communities participated in a semi-sedentary lifestyle, moving periodically based on the availability of local resources, setting up temporary villages along the way. During the summer when the river systems were abundant, Aboriginal communities would remain in the vicinity for weeks or months (Beveridge, 1884). Diet was largely determined by the seasonal availability of resources; the food that sustained them consisted primarily of fish, and of other animals including kangaroo, emu and possum. Fish traps and weirs were used extensively in the Murrumbidgee region, built across the mouths of swamps and reed beds; these systems were likely used to store fish for months after the floods had passed (Pardoe & Martin, 2001).

There is less detail about how Aboriginal people lived on the plains, more than 20 km from a main river channel. The plains were predominantly used in winter when there was usually more surface water resulting from winter rainfall and/or floodwaters pushed out from the rivers along the normally dry creeks. The Aboriginals within the plains to the west of the lower Murrumbidgee (encompassing the Project area) were said to retire to the Murrumbidgee and Lachlan Rivers as soon as the water on the plains dried up (Pardoe & Martin, 2001).

One of the prominent physical features of the Aboriginal campsites were the ovens and/or mounds that were left behind. These features often formed central components within the campsite, most likely to have been used to cook (ovens) and potentially grow food (mounds) (Beveridge, 1884; Pardoe & Martin, 2001).



Beveridge noted that some mounds discovered in the area contained several and even dozens of burials within; he noted:

*Aboriginal skeletons are frequently found in the cooking mounds...the reason for the position of these skeletons, however, can easily be explained...as grave-digging is very arduous when hands are few and the implements merely yam sticks, the easiest method...is simply enough done by scraping a hole in the friable soil of the mound (Beveridge, 1884: 21-22).*

Even before European settlement in the region, diseases had spread from their handful of colonial holdings along the coastline. By the time explorers had reached the region, disease had ravaged the population. Beveridge described being involved in exhuming twenty-eight skeletons from a mound; when consulting the elders, he discovered that they were the remains of small-pox victims (Beveridge, 1884: 22).

The groups within the Murray, Murrumbidgee, Lachlan and Darling region were commercially connected. Trade for certain items would have been vital, as some resources, such as that used for stone tool production, was difficult or impossible to source locally. It also would have been an important method to access food during times of drought or hardship. Beveridge described the importance of certain members of society, the Ngalla Wattow, in facilitating trade links between Aboriginal communities; these men were able to communicate in the languages of the surrounding communities and provided the means to transport goods between these communities. These men were the lifeblood of their respective communities, and no harm was inflicted upon them from rival communities (Beveridge, 1884).

## 6.2 ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM REGISTER SEARCH

### 6.2.1 BROKEN HILL

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 10 September 2024 using a shape file of the Broken Hill Transport Route Activity Areas with a 1000 m buffer included. A total of 14 sites are located within 1 km of the proposed Transport Route Activity Areas with the closest site approximately 400 m away from the Transport Route Activity Areas boundary. The results are provided in Table 6-1 and shown in Figure 8-1

**TABLE 6-1 AHIMS DATABASE SEARCH DETAILS – BROKEN HILL**

| Item                         | Detail |
|------------------------------|--------|
| Client Service ID            | 928978 |
| Buffer                       | 1000 m |
| Number of Sites <sup>1</sup> | 14     |

A total of 14 sites were identified during the search. Of the 14 sites listed on the AHIMS register, Artefacts were the most common site type, while other sites registered include Stone Quarries, Hearth and Aboriginal Resource and Gathering sites. Some of the registered sites contain multiple site types in one location (e.g., Stone Quarry and Artefact). Cultural heritage and landform sensitivity mapping demonstrate that areas of low to moderate potential exist within the Transport Route Activity Areas.

<sup>1</sup> Number of sites registered following data download on 10 September 2024.

The results of the AHIMS search are summarised in Table 6-2.

**TABLE 6-2 AHIMS REGISTERED SITE TYPES – BROKEN HILL**

| Site Type                         | Total Number            |
|-----------------------------------|-------------------------|
| Artefact                          | 10* (4 sites destroyed) |
| Stone Quarry, Artefact            | 2* (1 site destroyed)   |
| Artefact, Hearth                  | 1                       |
| Aboriginal Resource and Gathering | 1                       |
| Total                             | 14                      |

\* Includes destroyed sites.

### 6.2.2 THE HAY PLAIN

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 10 September 2024 using a shape file of the Hay Plain Transport Route Activity Areas with a 1,000 m buffer included. A total of 19 sites are located within 1 km of the proposed ground disturbance locations, with the closest sites approximately 500 m away from the Transport Route Activity Areas boundary. The results are provided in Table 6-3 and shown in Figure 8-2.

**TABLE 6-3 AHIMS DATABASE SEARCH DETAILS - THE HAY PLAIN**

| Item                         | Detail |
|------------------------------|--------|
| Client Service ID            | 928937 |
| Buffer                       | 1000 m |
| Number of Sites <sup>2</sup> | 19     |

A total of 19 sites were identified during the search. Of the 19 sites listed on the AHIMS register the most common site feature included Culturally Modified Trees (CMTs). Other site features included Hearth, Aboriginal Resource and Gathering, Conflict, Habitation Structure, Shell and Potential Archaeological Deposits (PAD) sites. Cultural heritage and landform sensitivity mapping demonstrate that areas of low potential exist within the Project area.

The results of the AHIMS search are summarised in Table 6-4.

**TABLE 6-4 AHIMS REGISTERED SITES TYPES - THE HAY PLAIN**

| Site Type                                                               | Total Number |
|-------------------------------------------------------------------------|--------------|
| Hearth                                                                  | 5            |
| Culturally Modified Tree (CMT), Aboriginal Resource Gathering, Artefact | 1            |
| Conflict, Habitation Structure, Shell                                   | 1            |

<sup>2</sup> Number of sites registered following data download on 17 July 2024.



| Site Type     | Total Number |
|---------------|--------------|
| CMT           | 9            |
| Shell         | 2            |
| Artefact, PAD | 1            |
| <b>Total</b>  | <b>19</b>    |

### 6.3 AHIP REGISTER

A review of the following public AHIP registers was undertaken during the preparation of this report:

- AHIP public register 2023-2024 (as accessed on 10 September 2024); and
- AHIP public register archive 2010-2023 (as accessed 10 September 2024).

No AHIPs have been registered within the Transport Route Activity Areas.

### 6.4 REGIONAL ARCHAEOLOGICAL BACKGROUND – BROKEN HILL

#### 6.4.1 EXISTING REGIONAL PREDICTIVE MODELS

The Transport Route Activity Areas are located within the Barrier Range Subregion of the Broken Hill Complex Bioregion. The Barrier Range Subregion includes steep, low rocky ranges oriented to bedrock structures, prominent fault scarps and eroded foot slopes. There is a high proportion of rock outcrop with shallow stony soil on the crests. Soils become deeper and finer downslope. Texture contrast profiles are common, and quality differs according to rock type (NPWS, 2004: 45). Occupation of the Barrier Ranges was likely highly variable from the period of the Pleistocene to present day. Seasonal as well as longer term climatic conditions likely had significant effects on occupation trends. These trends provide complexity to an assessment of archaeological sensitivity within the Broken Hill region that may not be identified through the predictive features of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Code of Practice) (DECCW, 2010b).

Johnston & Witter (1996) developed a predictive model for site locations in western New South Wales, analysing sites across landscapes and undertaking in-field testing, with the following conclusions:

- Occupation can be expected near to water; and the abundance of archaeological evidence should be proportional to the quality of the water source, considering factors such as reliability, salinity and production of vegetation;
- Occupation can be expected to focus on ecotonal boundary areas; people prefer to occupy certain environmental types which need to be ranked with regard to factors such as the presence of ephemeral water, food resource abundance and food resource diversity;
- Varying effective visibility should be taken into account for each environmental type so that potential biases can be avoided. Then the information derived would relate to the archaeology and Aboriginal heritage present in an area, rather than only that which can be detected;
- Where stone sources are known to exist artefacts can be expected in extreme abundance within a radius of two kilometres and in increased numbers within a radius of twenty kilometres; and

- Other factors such as areas of known population focus, zones of exceptional productivity and food abundance could have been such a centre of activity in the landscape that a halo effect may have resulted. Within localised study areas more small-scale influencing factors that are difficult to consider within a regional model may be of use (Johnston & Witter, 1996).

Martin undertook two studies (1995 and 1998) based in the Living Desert State Park area immediately north of Broken Hill. The results of these studies concluded the following:

- Intensive exploitation of quartz reefs occurred throughout the Hills especially where Rock Outcrops dominated the landform;
- Large complex campsites occur in the Upper Creeks containing heat retainer ovens, seed grinding material, flaking areas, and a range of flaked artefacts dominated by quartz but including on average <5% silcrete/chert;
- Less abundant, less varied archaeological material occurs on Low Ridges and the Undulating Uplands landforms; and
- Rare but well-delineated quartz blade workshops and artefact scatters occur on some ridges, perhaps indicating areas that were used as day camps and 'lookouts' overlooking valleys or waterholes.

Martin (1998a) conducted a survey of 'The Pinnacles' area, approximately 5 km south-west of the Broken Hill Transport Route Activity Areas. Martin found site distribution was strongly tied to the geomorphic and topographic nature of the area, providing the following predictive model:

- Pine Creek and Stirling Vale Creek: In the vicinity of 'The Pinnacles' campsite material was found to be concentrated in two areas along Pine Creek and in one area on Stirling Vale Creek. All three areas contained ovens and food processing equipment including grinding dishes and mortar/pestle type artefacts. Apart from these three areas there was a consistent low to medium density scatter of material along both creeks with only occasional ovens and rare grinding equipment;
- Rolling Lowlands: The lowland hills adjacent to 'The Pinnacles' contained significant campsite material especially where these lowlands occurred adjacent to the main Stirling Vale and Pine Creeks; and
- Conical peaks of the South, Middle and North Pinnacles: No archaeological material occurred on the conical peaks of 'The Pinnacles' although a very low-density background scatter was identified on the lower colluvial slopes of these peaks.

Dibden (2008) provided a predictive model for site type and location within the Barrier Ranges region that is summarised below:

- Stone artefacts will be widely distributed across the landscape in a virtual continuum, with significant variations in density in relation to different environmental factors;
- Artefact density and site complexity is expected to be greater near water courses and the confluence of a number of different resource zones;
- Grinding grooves are found in rock surfaces and result from the manufacture and maintenance of ground edge tools. Grinding grooves are only found on sedimentary rocks such as sandstone. Given the absence of suitable rock exposures in the study area grinding groove sites are unlikely to be present;



- Burial sites have been recorded within the wider region and are commonly found in riverine or lacustrine contexts. Although it is not of the question this site type is not expected to be present within the proposed impact areas given the geological and geomorphic context;
- Rock shelters sites are unlikely to be present in the study area given the absence of large vertical stone outcrops;
- The likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires;
- Quartz quarries are often recorded during surveys in the Broken Hill area and represent intensive exploitation of the good quality quartz and less intensive exploitation of poorer quality quartz material;
- Hearths are commonly recorded along valley floors and in upper valley/basin contexts. There is high potential for this site type to be recorded in the lower landforms of the proposal area; and
- Providing suitable rock surfaces are present in the Transport Route Activity Areas, there is potential for rock art sites to be present (Dibden, 2008: 51).

Archaeological Surveys & Reports Pty Ltd 2003 developed the following predictive model for the occurrence of sites within the Willyama Common surrounding Broken Hill:

- Isolated artifacts may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines;
- Artifact scatters and hearths may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines;
- There will be no art sites;
- There may be rock surfaces exhibiting pecked engravings;
- There will be no scarred or carved trees;
- There will be no evidence of burials;
- There will be no Bora rings;
- It is unlikely there will be any stone arrangements;
- There will be no shell middens;
- There are no known mythological sites directly associated with the Common; and
- There are unlikely to be quartz reef quarries and associated workshop waste, specifically in the north-western section of the Transport Route Activity Areas (Corkery & Co. 2003: c-25).

Preliminary cultural heritage sensitivity mapping is provided in Figure 8-1. Further assessment is required to identify additional environmental or landscape features (including palaeochannels) which may also be archaeologically sensitive, as well as historic land uses which may have disturbed or otherwise modified the archaeological sensitivity of an area. Detailed environmental modelling and ground-truthing will be required to adequately categorise the archaeological and cultural sensitivity of the Transport Route Activity Areas.

### 6.4.2 LOCAL ARCHAEOLOGICAL CONTEXT

#### **Silverton Wind Farm NSW Stage 1 Aboriginal Heritage and Non-Indigenous Heritage Assessment Vol. 1 (New South Wales Archaeology Pty Limited 2008)**

This assessment related to the proposed development of the Silverton Wind Farm near the town of Silverton, approximately 25 km north-west of Broken Hill. The Stage 1 proposed involved the construction, operation and decommissioning of a wind farm with up to 400MW capacity, including up to 150 WTGs, onsite substation and control room, and 25 km of transmission lines linking the site to a substation at Broken Hill.

Surveying as part of the assessment included approximately 822.4 ha, including approximately 267.8 ha of archaeological visibility. Stone artefacts were recorded across most landforms, with quartz outcrops utilized as stone procurement areas, hearths and a possible stone arrangement also recorded across the survey area. A total of 262 sites were located, including 166 artefact scatters, 78 quartz outcrops with evidence of exploitation and 14 hearths with stone artefacts. A site with two small circular stone arrangements was identified as of Aboriginal origin due to its similarity to other sites similarly assessed within the wider region.

Results of the survey led to the conclusion that low density distributions of primarily quartz artefacts were located on ridge crests and hill slopes. Most artefacts were unretouched flakes and cores, though some retouched tools and mortar dishes were recorded. The artefact assemblages suggest the ridges were utilized by men and women for hunting, gathering and some food processing.

Drainage depression landforms and flats contained the greatest density of artefacts, rarer artefact types, a higher percentage of foreign stone and a greater proportion of hearths. These finds reflect these lower landforms being used for camping.

#### **Aboriginal Archaeological Assessment, Proposed Solar Project in Broken Hill (OzArk Environmental & Heritage Management Pty Ltd 2012)**

OzArk undertook archaeological surveying relating to the proposed AGL solar farm located on the Barrier Highway just south-west of Broken Hill, and an associated transmission line easement. Surveying undertaken as part of the assessment included approximately 19.5% of the total 170 has of the study area, with a focus being given to ephemeral channels/alluvial fans across the survey area.

A total of 13 Aboriginal archaeological sites were recorded within the study area, as well as another adjacent to the transmission line easement. Most sites were located within bare alluvial fan areas associated with the ephemeral drainage channels. Sites included artefact scatters and isolated finds. Materials found included mostly silcrete, along with chert and quartz. The finds and sites were consistent with the broader archaeological record of the Broken Hill Complex Bioregion, in which isolated finds and low-density artefact scatters are often located nearby main ephemeral channels.

Recommendations of this archaeological assessment included the formulation of an Aboriginal Heritage Management Plan (AHMP), if the project were to proceed. An AHMP includes measures for site conservation, management and community consultation.



### **Broken Hill North Mine, Historic and Aboriginal Heritage Assessment and Statement of Heritage Impact (OzArk Environmental & Heritage Management Pty Ltd 2017)**

This report was prepared to identify impacts of the proposed recommencement of mining of the Cosmopolitan decline. The study area was located approximately 600 m east of the eastern Broken Hill section of the current Project area.

The authors noted that the study area did not contain previously listed Aboriginal sites. Surveying confirmed that the area had experienced high levels of ground surface disturbance. No Aboriginal sites or objects were located, and no landforms were assessed as having archaeological potential. The authors concluded that Aboriginal cultural heritage values were unlikely to be present across the study area. As such, no further archaeological assessment was required, though an Unexpected Finds Protocol was recommended.

#### **6.4.3 PRELIMINARY PREDICTIVE MODEL**

There are several factors which have the potential to bias the results and interpretations of former archaeological studies. These factors include elements such as:

- The landform on which a site is observed is not necessarily the site's origin. Post-depositional processes including impacts from flooding and bioturbation are likely to have resulted in the movement of archaeological deposits;
- Biases in landforms investigated are limited by proposed development locations or areas of interest to the archaeologist. Further variation in type, accuracy and level of reporting exist; and
- Site interpretation can be skewed by level of ground surface visibility and fragmentation of the archaeological record.

The following statements provide a summary of identified archaeological site patterning in the Transport Route Activity Areas:

- Stone artefact sites are likely to be located across a variety of soil and geomorphological areas within the Transport Route Activity Areas;
- Aboriginal occupation sites are likely to be concentrated in proximity to current or former watercourses (palaeochannels);
- Aboriginal sites within the Transport Route Activity Areas are likely to include instances of mounds, hearth, artefact, burial, and PAD features;
- Mound, hearth, burial, and PAD features are likely to be concentrated in areas associated with palaeochannel landforms and in areas of ephemeral lakes and swamps;
- AAR sites are likely to be located within raised sandy landforms found in association with palaeochannel features as well as within mound features;
- Archaeological remains associated with low lying clay-based environments within the Transport Route Activity Areas are likely to be limited to surface artefact sites;
- Due to the limited presence of tree species and mature vegetation across the Transport Route Activity Areas, CMTs are likely to be rare within the Transport Route Activity Areas;

- Disturbance to Aboriginal sites across the Transport Route Activity Areas is likely to be associated with the impact of road construction and use, clearing for mining activities, stock grazing (refer to *Section 5.7* for description of historical land use), flooding, erosion, and wind. These post-depositional forces are considered likely to have had a significant impact on the geographic distribution and intactness of archaeological material; and
- The location of much of the transport route along existing tracks and transport corridors and within areas with significant historical disturbance to the landscape means a significant amount of disturbance is likely through most of the Transport Route Activity Areas.

The Transport Route Activity Areas are considered to demonstrate a low to moderate potential to contain Aboriginal sites.

## 6.5 REGIONAL ARCHAEOLOGICAL BACKGROUND – THE HAY PLAIN

### 6.5.1 EXISTING REGIONAL PREDICTIVE MODELS

A localised landscape based predictive model was developed by Colin Pardoe for the 'Murrumbidgee Province' as part of the Murrumbidgee Province Aboriginal Cultural Heritage Study (Pardoe and Martin 2011). This predictive model has focused on the localised landform features and their relationship to site identification and includes assessment of the Transport Route Activity Areas and broader Project area. Pardoe's assessments considered the relationship between several landform features and the location of sites making the following conclusions:

- Water – The pattern of site distribution was identified as having its greatest concentration within proximity to watercourses. Some variation in site distribution based on water source type was also noted:
  - Major Streams – No site was located more than 12 km from a major river channel with most sites found within a short distance of this channel (75% of sites were within 3.3 km of a major stream). For the purposes of predictive modelling all land within 5 km of a major stream was considered moderately sensitive, all lands within 3 km of a major river were considered highly sensitive;
  - Minor Streams – No site was located more than 12 km from a minor stream (75% were within 2.2 km). For the purposes of predictive modelling all land within 5 km of a minor stream was considered moderately sensitive, all lands within 2 km of a minor stream were considered highly sensitive;
  - Lakes – More than 82% of sites are found within 8 km of a lake. For the purposes of predictive modelling all land within 8 km of a lake was considered highly sensitive; and
  - Swamps – No obvious pattern of distribution was identified which was attributed to variations in the way swamps are described in official mapping data.
- Landforms – Plains made up 93% of the Murrumbidgee Province, and as such minor variations in landform were noted to be significant as an impetus to the flow of water and location of resources. While sites were identified across most landform patterns; channelled plain and confined trace landforms were identified as containing a disproportionate number of sites. These landforms were most often associated with the modern active floodplain. Comparatively, burials were most often associated with scalded, channelled, and depressed plains associated with palaeo environments. Based on the Mitchell landform mapping, most of the Transport Route Activity Areas are located within the Murrumbidgee Depression Plains and Murrumbidgee Scalded Plains. This landform would be considered likely to include most sites within the Transport Route Activity Areas (Figure 5-2); and



- Soils – Soil type was noted for its association with water resources and vegetation communities. Based on this association, varying soil types were identified to be associated more closely with site features (hearths, mounds etc.) rather than overall site distribution.

The Hay Plain is generally located south of Hay and north of Deniliquin and sits within the Murrumbidgee Province. Additional large-scale reviews of archaeological site types were completed by Martin in her review of the Hay Plain (Martin 2007 and Martin 2010). Martin noted several patterns in site distribution related to environmental features:

- The narrow floodplains or confined traces of the Murrumbidgee and Lachlan, the Lowbidgee distributary system, the Gum Creek palaeochannel, and the Abercrombie Creek system in the Hay Plain have the highest density of sites. Large open water lakes also have a high density of sites;
- Sites are widely spread over different geomorphic categories across the Hay Plain with certain site types most likely to be identified in specific soil types. Confined traces (including the Murrumbidgee River), plains with channels, plains with depressions, and channelled plains contained a higher density of sites. Localised landforms including lunettes and lakes were also identified to have a higher-than-average site density;
- Mounds were identified to be located to parts of the Hay Plain and not directly related to geomorphology. Mounds were noted however to be particularly dense along confined traces, the Lowbidgee and Hay Plain Southeast;
- Middens were identified to be largely located along the confined traces of the major rivers and on large water lakes and lunettes;
- Open sites were more commonly found away from riverine grey cracking clays;
- Burials appeared to cluster in the western portion of the Hay Plain in similar locations to mounds. These sites were not identified to be connected to geomorphology;
- Artefact sites and ground ovens were recorded to have been spread widely across the Hay Plain; and
- All archaeological site types are considered likely to occur on slightly raised sandier palaeochannel features.

Martin noted that on a wider scale that the gently west sloped topography of the Hay Plain was identified to have an influence on the overall presence of sites. Martin suggested this may have been related to earlier water retention environments. Prior to modern water control systems, it was noted that the western half of the Hay Plain would have acted as a sump which collected seasonal floodwater and excess rainfall and would have provided appropriate resources for the growth of a number of plant and animal resources. Mound sites in the area surrounding Gum Creek and the Abercrombie Creek System were noted to be focused on palaeochannel features and around ephemeral lakes and swamps (Martin 2007: 199).

Most of the Transport Route Activity Areas are comprised of landform types which were identified by Pardoe and Martin as having the potential to contain Aboriginal sites.

## 6.5.2 LOCAL ARCHAEOLOGICAL CONTEXT

### 6.5.2.1 WITHIN THE VICINITY OF THE TRANSPORT ROUTE ACTIVITY AREAS

#### **Project EnergyConnect (NSW Eastern Section), Buronga to Wagga Wagga NSW (Navin Officer Heritage Consultants, 2022)**

Navin Officer Heritage Consultants prepared an ACHAR to support the EIS and Submissions Report for Project EnergyConnect, a new High Voltage interconnector between NSW and SA.

Project EnergyConnect comprises several sections, the NSW Eastern Section was the subject of the ACHAR reviewed and would involve the installation of transmission lines between Buronga and Wagga Wagga. The Aboriginal heritage study area was generally a one kilometre wide corridor (500 m either side of the proposed alignment) between the Buronga substation and the Wagga Wagga substation, totalling approximately 540 kms and traversing nine LGAs being Wentworth Shire, Balranald Shire, Murray River, Edward River, Hay Shire, Murrumbidgee, Federation, Lockhart Shire and Wagga Wagga LGAs. The proposed 330 kilovolt (kV) transmission line traverses the southern portion of the Wind Farm Project area.

Survey commenced in 2021 and by 2022 survey was completed for approximately 97% of the proposed alignment. During the surveys, 105 new Aboriginal sites and 45 areas of PAD were identified. In 2022 test excavations were completed for the PADs that were proposed to be impacted. The most common new site types identified were isolated finds (n=45) and artefact scatters (n=23). The transmission line intersects part of the transport route that is the subject of this report, crossing the Cobb Hwy approximately 200 m north of the southern-most site entrance (approximately 31 km south of Hay).

#### **Keri Keri Wind Farm (ERM 2023)**

From 2022 to 2023, ERM prepared an ACHAR for the site of the proposed Keri Keri Wind Farm (KKWF), a component of the Keri Keri Renewable Energy Project. The Keri Keri Wind Farm is proposed to be located approximately 31 km east of Balranald, and about 65 km west of the Transport Route Activity Areas. The Keri Keri Renewable Energy Project encompasses approximately 19,403 ha of land, with 18,081 ha covered by the KKWF. The proposed KKWF will include up to 159 wind turbine generators and associated infrastructure. Field surveys undertaken for the Keri Keri ACHAR included a preliminary survey as well as two supplementary surveys, the final of which was done in conjunction with a forensic survey of the recorded AAR. The field surveys identified 209 new sites within the KKWF Project area. Artefact sites were the most common to be recorded, totaling 142 sites.

A total of 61 burials (AARs) at 23 locations were recorded, in addition to seven burials recorded from an earlier survey and registered on AHIMS. Burials generally appeared to be part of residential places in red sandy dunes adjacent to clay pans, ephemeral lakes, and small ponds. They were usually located at the edges of these places but were sometimes observed in the centre when associated with ground disturbance from digging animals. These observations indicate that burials are likely to occur across the entirety of the residential place but are more visible at the eroding extremities.

The KKWF Project area is comprised of a landscape which is predominantly flat with small rises generally adjacent to clay pans, ephemeral lakes, and small ponds. Some of these rises are natural dunes formed along palaeochannels or lake lunettes, and others are culturally created earth mounds, or a combination of both.



The distribution of recorded sites was consistent with the predictive model for the KKWF Project area:

- Five previously recorded and 121 newly recorded sites (artefacts, hearths, and most of the burials/earth mounds) were located in the red brown alluvial loams and aeolian sand associated with the bordering dunes and lunettes of palaeochannels (prior streams) and ancient lakes (very high sensitivity);
- Three previously recorded and 67 newly recorded sites (isolated artefacts, hearths, and eight burials/earth mounds) in the red-brown clays, clay loam alluvial plains, grey-brown cracking clays, or sandy clay soils associated with palaeochannel rangelands, bordering aeolian dunefields, and blackbox woodland (moderate sensitivity);
- One previously recorded and 20 newly recorded sites (isolated artefacts and three earth mounds) in the black, brown and grey cracking clays and depressions associated with ancient lake beds and former swamps (low sensitivity); and
- One newly recorded site (CMT) in the small area of red-brown clays and red sandy rises associated with the Murray Pine on an elevated plain (high sensitivity).

### **Burial and Occupation at Dry Lake and Tchelery, Via Hay (Littleton and Johnston 1993)**

Littleton and Johnston prepared a heritage report to summarise two burial sites located as part of the Burial Conservation Program undertaken in conjunction with Hay LALC. The report details the identification of two burial sites located at Dry Lake and Tchelery located approximately 35 km west of the Transport Route Activity Areas.

Dry Lake west was described as containing a series of nine mounds with burial and hearth features comprised of mound and hearth features. The site was identified at the western side of Dry Lake which is notable for scalds of coarse red sands. Notably several of the burials in this location were associated with hearth or clay ball features. Mound features were reported to be spaced approximately 200 m apart with the mounds exhibiting evidence of different land uses including stone artefact production and shellfish consumption. Littleton observed that burials were most often identified in the western half of a mound feature and noted that this may reflect primarily a pattern of erosion.

Littleton and Johnson concluded that the sites support a pattern being identified across the Hay Plain associated burials with occupation mound sites. Burials were noted to be common and sometimes numerous in mounds were often associated with campfire debris. Littleton further notes that burials in the Hay Plain have been identified to demonstrate several unique features including a variability of burial position and posture, the inclusion of children's remains and the density of burials.

### **Abercrombie Water Efficiency Project Balranald, Murrumbidgee River and Hay LGAs (OzArk, 2017)**

Between 2014 and 2016, OzArk Environmental & Heritage Management Pty Ltd (OzArk) conducted surveys and assessments of the Abercrombie Water Efficiency Project (AWEP), which consisted of a 10 m wide corridor along approximately 276 km of pipeline as well as small areas of ancillary water infrastructure. The AWEP study area is approximately 85 km west of the Transport Route Activity Areas. Initial investigation by OzArk had identified seven sites, three of which being open campsites. An Aboriginal Heritage Impact Permit (AHIP)

application was recommended for two isolated finds (WAIF1, a grinding stone fragment; and WA-IF3, a flaked piece of silcrete), but was refused based on lack of survey coverage. Re-assessment was undertaken including pedestrian transects and an AHIP application was subsequently approved by the OEH, allowing for the harm (removal) to the two previously mentioned objects and the management of a further 42 Aboriginal objects or 'no harm' areas. The 42 'no harm' sites within the Project area contained a variety of different features including PADs, modified trees, isolated artefacts, artefact scatters, and oven artefacts.

The variety in site types found throughout the Keri Keri area suggests that the region was seasonally inhabited by Aboriginal people.

### **Darlington Point Solar Farm Aboriginal Cultural Heritage Assessment (Kelleher Nightingale Consulting Pty Ltd, 2018)**

In 2017, Kelleher Nightingale Consulting (KNC) surveyed 1,050 ha of land for the Darlington Point Solar Farm (DPSF) located approximately 7.5 km south-east of the Darlington Point township (approximately 100 km east of the Project area). There were four previously registered sites within the study area (culturally modified trees, earth mounds and one hearth). The survey identified five new Aboriginal sites (four CMTs, and one artefact scatter), as well as one potential culturally modified tree. The archaeological evidence indicated that a range of activities were undertaken within the study area; the nature of the scars on the culturally modified trees indicated that the bark was being acquired for several different purposes. The sites were located on flat landforms, with the majority being located within one kilometre of an unnamed drainage line. The survey identified that most of the study area contained no potential for subsurface archaeology due to the unfavourable location, tree clearance and the presence of vertosols across the area.

### **6.5.3 PRELIMINARY PREDICTIVE MODEL**

There are several factors which have the potential to bias the results and interpretations of former archaeological studies. These factors include elements such as:

- The landform on which a site is observed is not necessarily the site's origin. Post-depositional processes including impacts from flooding and bioturbation are likely to have resulted in the movement of archaeological deposits;
- Biases in landforms investigated are limited by proposed development locations or areas of interest to the archaeologist. Further variation in type, accuracy and level of reporting exists; and
- Site interpretation can be skewed by level of ground surface visibility and fragmentation of the archaeological record.

The following statements provide a summary of identified archaeological site patterning within the Transport Route Activity Areas:

- Stone artefact sites are likely to be located across a variety of soil and geomorphological areas within the Transport Route Activity Areas;
- Aboriginal occupation sites are likely to be concentrated in proximity to current or former watercourses (palaeochannels);
- Aboriginal sites within the Transport Route Activity Areas are likely to include instances of hearth or artefact features;



- Mound, hearth, burial, and PAD features are likely to be concentrated in areas associated with palaeochannel landforms and in areas of ephemeral lakes and swamps;
- AAR sites are likely to be located within raised sandy landforms found in association with palaeochannel features as well as within mound features;
- Archaeological remains associated with low lying clay-based environments within the Transport Route Activity Areas are likely to be limited to surface artefact sites;
- Due to the limited presence of tree species and mature vegetation across the Transport Route Activity Areas, CMTs are likely to be rare within the Transport Route Activity Areas;
- Disturbance to Aboriginal sites across the Transport Route Activity Areas is likely to be associated with the impact of road construction and use, stock grazing (refer to *Section 5.7* for description of historical land use), flooding, erosion, and wind. These post-depositional forces are considered likely to have had a significant impact on the geographic distribution and intactness of archaeological material; and
- The location of much of the transport route along existing tracks and transport corridors means a significant amount of disturbance is likely through most of the Transport Route Activity Areas.

The Transport Route Activity Areas are considered to demonstrate low to moderate potential to contain Aboriginal sites.

## 7. SURVEY METHODOLOGY

### 7.1 AIMS

The aims of the cultural heritage survey were to:

- Cover the Transport Route Activity Areas of the proposed transport route;
- To consult with RAPs over the course of the project life and provide the RAPs an opportunity to provide feedback on the cultural values and elements of cultural heritage significance within the Transport Route Activity Areas; and
- Record all Aboriginal objects or sites identified during survey.

### 7.2 TIMING AND PERSONNEL

The first survey across the Transport Route Activity Areas was undertaken on 05 August 2024 and included The Hay Plain section. The second survey across the Transport Route Activity Areas was undertaken on 07 November 2024 and included the Broken Hill section. Good survey conditions meant that the field program did not have any delays or cancellations.

Participants in each survey day are shown in *Table 7-1*.

**TABLE 7-1 SURVEY ATTENDANCE**

| Name                                | Organisation                       | Role              | Date       |
|-------------------------------------|------------------------------------|-------------------|------------|
| <b>5<sup>th</sup> August 2024</b>   |                                    |                   |            |
| Mia Linton-Smith                    | ERM                                | Survey supervisor | 05/08/2024 |
| Sophia Hanger                       | ERM                                | Field support     | 05/08/2024 |
| Jamie Woods                         | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Damien Kennedy                      | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Samantha Woods                      | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Jermaine Dixon                      | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Tara Dixon                          | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Dion Watt                           | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Josephine Goulding                  | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| Brian Gash                          | Hay LALC/ Nari Nari Tribal Council | RAP site officer  | 05/08/2024 |
| <b>7<sup>th</sup> November 2024</b> |                                    |                   |            |
| Mia Linton-Smith                    | ERM                                | Survey supervisor | 07/11/2024 |
| Charles Barnett                     | ERM                                | Field support     | 07/11/2024 |
| Raymond O'Donnell (Jnr)             | Broken Hill LALC                   | RAP site officer  | 07/11/2024 |
| Regan O'Donnell                     | Broken Hill LALC                   | RAP site officer  | 07/11/2024 |
| Tahlia Ward                         | Barkandji Native Title Group       | RAP site officer  | 07/11/2024 |
| Vaine Upokopaki                     | Barkandji Native Title Group       | RAP site officer  | 07/11/2024 |
| Justin Cochrane-Adolfson            | Perilya                            | Escort            | 07/11/2024 |



### 7.3 METHODOLOGY AND COVERAGE

Survey comprised following the footprint of the proposed pinch points and associated access tracks via foot and vehicle. Survey covered 100% of the Transport Route Activity Areas. The Transport Route Activity Areas were defined as several survey units across the two regions – Broken Hill area (Figure 7-1) and The Hay Plain (Figure 7-2). Each track and pinch point was surveyed using a combined method of pedestrian and driving survey. Survey was complete following the survey points and tracks with the survey team spaced approximately 10 m apart. Where areas of exposure or visible potential archaeological features were identified members of the transect team temporarily deviated from their assigned transect to inspect in closer detail.

Sites were defined in accordance with the methodology defined in *Sections 3.4.2 and 3.4.3*.

A GPS track log was used to track the path of the members of the survey team, record the coordinates of survey transects as well as the location of Aboriginal sites.

A photographic record was kept during the survey. Photographs were taken to record aspects of each survey unit including landform, surface exposures, vegetation, areas of disturbance, and any identified Aboriginal site or area of archaeological potential. Scales were used for photographs where required, as specified in the *Code of Practice*.

### 7.4 SURVEY COVERAGE

An assessment of survey coverage was completed to quantitatively assess the effectiveness of the survey at identifying Aboriginal objects. The assessment of effective survey coverage provides a measure of whether Aboriginal objects are readily visible, buried or otherwise obscured. The conditions which effect the detection of Aboriginal objects are referred to as exposure and visibility.

**Visibility** is the amount of bare ground that is present across a survey area. Visibility is lowered by elements which conceal the ground surface such as leaf litter, vegetation, stony ground of introduced materials.

**Exposure** estimates the percentage of land for which erosional processes and exposure was sufficient to reveal archaeological evidence on the ground.

In accordance with the Code of Practice, a summary of the survey coverage as delineated into SUs and landform is provided in *Table 7-2* and *Table 7-3*. The below survey coverage information relates to the current layout of the Transport Route Activity Areas.

**TABLE 7-2 SURVEY COVERAGE SUMMARY - SURVEY UNITS - BROKEN HILL**

| Survey Unit           | Survey Unit Area (m <sup>2</sup> ) | Landform                     | Visibility (%) | Exposure (%) | Effective Coverage (m <sup>2</sup> ) | Effective Coverage (%) |
|-----------------------|------------------------------------|------------------------------|----------------|--------------|--------------------------------------|------------------------|
| SU 1 – Perilya Mine   | 3,618.5                            | Open Plain                   | 25%            | 35%          | 316.61                               | 8.75                   |
| SU 2 – Wilyama Common | 20,709.5                           | Open Plain, Undulating Plain | 20%            | 20%          | 828.38                               | 4                      |

**TABLE 7-3 SURVEY COVERAGE SUMMARY - SURVEY UNITS – THE HAY PLAIN**

| <b>Survey Unit</b>    | <b>Survey Unit Area (m<sup>2</sup>)</b> | <b>Landform</b>            | <b>Visibility (%)</b> | <b>Exposure (%)</b> | <b>Effective Coverage (m<sup>2</sup>)</b> | <b>Effective Coverage (%)</b> |
|-----------------------|-----------------------------------------|----------------------------|-----------------------|---------------------|-------------------------------------------|-------------------------------|
| SU 1 - Hay Roundabout | 484.9                                   | Transport Corridor / Plain | 0-10%                 | 0-10%               | 4.85                                      | 1                             |
| SU 2 – Site entrance  | 4,230.2                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 42.30                                     | 1                             |
| SU 3 – Site entrance  | 4,182.4                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 41.82                                     | 1                             |
| SU 4 – Site entrance  | 4,191.1                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 41.91                                     | 1                             |
| SU 5 – Site entrance  | 4,213.3                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 42.13                                     | 1                             |
| SU 6 – Site entrance  | 4,166.0                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 41.66                                     | 1                             |
| SU 7 – Site entrance  | 4,197.4                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 41.97                                     | 1                             |
| SU 8 – Site entrance  | 4,190.2                                 | Transport Corridor / Plain | 0-10%                 | 0-10%               | 41.90                                     | 1                             |

## 7.5 SURVEY UNITS

A summary of the survey unit is provided in *Table 7-3*. and shown in Figure 7-1 and Figure 7-2.







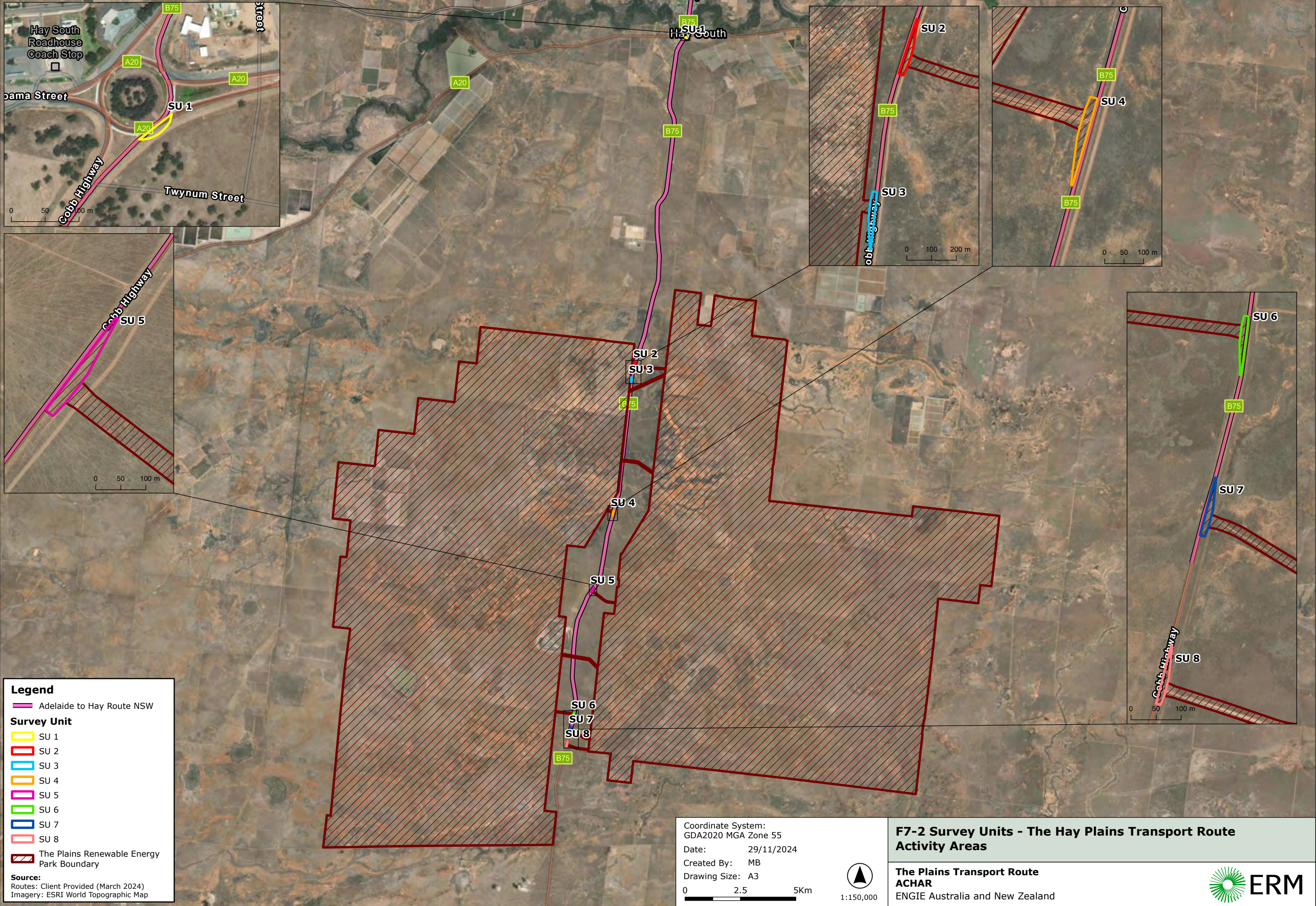




TABLE 7-4 SURVEY UNITS – BROKEN HILL TRANSPORT ACTIVITY AREAS

| Survey Unit                                                                                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Identified cultural features | Photograph                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Survey Unit 1 (SU 1)- Perilya Mine</b><br><br><b>Landform features:</b><br>Open Plain<br><b>Size:</b><br><b>Visibility:</b><br>25%<br><b>Exposure:</b><br>35% | <p>SU 1 is located adjacent to the Perilya Mine site, as well as along and adjacent to Crystal Street, Menindee Road, Chettle Street and Sturt Street, Broken Hill. Three potential routes and areas of ground disturbance are considered for this SU, and all were surveyed for their entire extent – pinch points 8A, 8B and previously considered 10c.</p> <p>Pinch point 8A runs from Crystal Street, crossing Menindee Road and passing through a Crown Land area that is south of and adjacent to Sturt Street for approximately 120 m before joining Sturt Street. This area is a mostly flat but heavily disturbed open plain area with many areas of uneven ground, dense shrubs and scattered trees. Areas of exposed red sands are found present throughout, with dense scatters of quartz and other stone. No artefactual features were identified.</p> <p>A drainage line runs north-east/south-west along the southern edge of this open area.</p> <p>Pinch point 8B, after following Sturt Street and then Chettle Street from the south-west, crosses an unnamed road and passes along the Perilya Mine land for approximately 150 m before turning onto Argent Street. This area was also clearly disturbed, with Perilya Mine escort Justin Cochrane-Adolfson commenting that the area was possibly subject to prospecting and exploration in the past. The area previously was subject to rehabilitation which was unsuccessful and is now being rehabilitated again, with new shrubs and tree plantings visible.</p> | N/A                          |  <p>PHOTOGRAPH 7-1 LANDSCAPE AT PINCH POINT 10A, VIEW TO SOUTH-EAST (ERM 2024)</p> |

| Survey Unit | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Identified cultural features | Photograph                                                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>An alternative route, previously referred to as Pinch Point 10c, no longer considered as a route option but included in the survey area, veers off Sturt Street and passes through a similar disturbed open plain area of the Crown Land for approximately 220 m. This pinch point passes through the open area before crossing Chettle Street and joining an unnamed road before turning right onto Argent Street/the Barrier Highway.</p> <p>No heritage sites were identified in SU 1.</p> |                              | <div></div> <p>PHOTOGRAPH 7-2 PINCH POINT 10C, VIEW TO SOUTH-WEST (ERM 2024)</p> |



| Survey Unit                                                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Identified cultural features | Photograph                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Survey Unit 2 (SU 2)– Wilyama Common</b></p> <p><b>Landform features:</b><br/>Open Plain, Undulating Plain</p> <p><b>Size:</b></p> <p><b>Visibility:</b> 20%</p> <p><b>Exposure:</b> 20%</p> | <p>SU 2 included Pinch Point 7A, a new intersection to be constructed on Barrier Hwy, approximately 2.5 km west of Broken Hill. The route follows existing dirt tracks for most of the transport route alignment, heading south wards, passing the Broken Hill Recycling Centre before turning east. The first ~100 m of the alignment following its turning off from the Barrier Hwy has no existing dirt track, nor does the furthest eastern portion through the Barkandji native title area.</p> <p>Much of SU 2 is covered in thick shrubs, with scattered areas of exposed red soil and a dense covering of stone, particularly quartz. Pieces of rusted metal, sherds of glass, ceramic and building material were present scattered through much of the survey area adjacent to the road corridor and within the Barkandji native title area.</p> <p>The landscape is heavily disturbed, with uneven ground and evidence of redeposited soil and gravel throughout the SU. Various services, including a gas pipeline, are present through parts of the SU. Raymond O'Donnell Jnr, site officer from the Broken Hill LALC, suggested the area shows evidence of redeposited soil and gravel from road works and possibly historical prospecting.</p> <p>The landscape in the Barkandji native title area, including approximately 1 km of the route west of Gaffney Street, is less disturbed, though evidence of metal, glass and ceramic are found throughout. A significant amount of quartz material, of low quality, was located in this area. An asbestos pipeline was noted along the proposed alignment in this location.</p> |                              |  <p>PHOTOGRAPH 7-3 QUARTZ LOCATED IN BARKANDJI NATIVE TITLE AREA, WEST OF GAFFNEY STREET (ERM 2024)</p> |

| Survey Unit | Description                                                                                                                                | Identified cultural features | Photograph                                                                                                                                                                                             |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>SU 2 is mostly flat, with a gentle incline in the most eastern 1 km of the route.</p> <p>No heritage sites were identified in SU 2.</p> |                              | <div></div> <p>PHOTOGRAPH 7-4 EXISTING TRACK THE TRANSPORT ROUTE FOLLOWS THROUGH SU 2, VIEW TO NORTH (ERM 2024)</p> |



TABLE 7-5 SURVEY UNITS - HAY PLAIN TRANSPORT ACTIVITY AREAS

| Survey Unit                                                                                                                                                                       | Description                                                                                                                                                                                                                                                        | Identified cultural features | Photograph                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Survey Unit 1 (SU 1) – Hay Roundabout</b></p> <p><b>Landform features:</b> Open Plain</p> <p><b>Size:</b></p> <p><b>Visibility:</b> 0-10%</p> <p><b>Exposure:</b> 0-10%</p> | <p>SU 1 consists of a roundabout located on the Cobb Highway and Sturt Highway. Planted trees stand at the centre of the roundabout with several road signs, light poles present throughout the survey unit.</p> <p>No heritage sites were identified in SU 1.</p> | N/A                          |  <p>PHOTOGRAPH 7-5 HAY ROUNDABOUT, VIEW TO NORTH (ERM 2024)</p> |

| Survey Unit                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Identified cultural features | Photograph                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Survey Unit 2 (SU 2) – Site entrance, Cobb Hwy</b><br><br><b>Landform features:</b> Open Plain<br><b>Size:</b> 4,230.2<br><b>Visibility:</b> 0-10%<br><b>Exposure:</b> 0-10% | <p>SU 2 consists of a potential entrance point into the Project area from the Cobb Hwy. The entrance is approximately 15 km south of the town of Hay. SU 2 is a left-hand turn, turning east from the Cobb Hwy. The road is built up slightly, and no existing intersection is present. The SU has low visibility, with the area immediately surrounding the road corridor covered in grass and thick low-lying shrubs.</p> <p>No heritage sites were identified in SU 2.</p> | N/A                          |  <p>PHOTOGRAPH 7-6 SU 2, APPROXIMATELY 15 KM SOUTH OF HAY (ERM 2024)</p>  <p>PHOTOGRAPH 7-7 SU 2 SITE ENTRANCE, LOOKING EAST TOWARDS WIND FARM (ERM 2024)</p> |



| Survey Unit                                                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Identified cultural features | Photograph                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Survey Unit 3 (SU 2) – Site entrance, Cobb Hwy</b></p> <p><b>Landform features:</b> Open Plain</p> <p><b>Size:</b> 4,182.4</p> <p><b>Visibility:</b> 0-10%</p> <p><b>Exposure:</b> 0-10%</p> | <p>SU 3 is approximately 500 m south of SU 2. SU 3 consists of a site entrance and right-hand turn, turning west from the Cobb Hwy. The road is built up slightly, and no existing intersection is present. The SU has low visibility, with the area immediately surrounding the road corridor covered in grass and thick low-lying shrubs.</p> <p>A concrete culvert is located at the site of SU 3, passing underneath the Cobb Hwy (</p>  <p>PHOTOGRAPH 7-9).</p> | N/A                          |  <p>PHOTOGRAPH 7-8 SU 3 LOCATION, APPROXIMATELY 15.5 KM SOUTH OF HAY (ERM 2024)</p>  <p>PHOTOGRAPH 7-9 CONCRETE CULVERT AT SU 3 (ERM 2024)</p> |

| Survey Unit                                                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Identified cultural features | Photograph                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Survey Unit 4 (SU 2) – Site entrance, Cobb Hwy</b></p> <p><b>Landform features:</b> Open Plain</p> <p><b>Size:</b> 4,191.1</p> <p><b>Visibility:</b> 0-10%</p> <p><b>Exposure:</b> 0-10%</p> | <p>SU 4 is approximately 21 km south of Hay. SU 4 consists of a site entrance, a right-hand turn, turning west from the Cobb Hwy. The road is built up around the SU, and the site entrance follows an existing dirt track heading into the Wind Farm Project area. The SU has low visibility, with the area immediately surrounding the road corridor covered in grass and thick low-lying shrubs.</p> <p>A concrete culvert is located at the site of SU 3, passing underneath the Cobb Hwy (</p>  <p>PHOTOGRAPH 7-11).</p> | N/A                          |  <p>PHOTOGRAPH 7-10 SU 4 LOCATION, WITH VIEW (WEST) OF DIRT TRACK HEADING INTO THE WIND FARM PROJECT AREA (ERM 2024)</p> |



| Survey Unit                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Identified cultural features | Photograph                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |  <p>PHOTOGRAPH 7-11 CONCRETE CULVERT AT SU 4 (ERM 2024)</p>                        |
| <b>Survey Unit 5 (SU 2) – Site entrance, Cobb Hwy</b><br><br><b>Landform features:</b> Open Plain<br><b>Size:</b> 4,213.3<br><b>Visibility:</b> 0-10%<br><b>Exposure:</b> 0-10% | <p>SU 5 is approximately 25 km south of Hay. SU 5 consists of a site entrance, a left-hand turn, turning east from the Cobb Hwy. The road is built up around the SU, and no existing intersection is present. The SU has low visibility, with the area immediately surrounding the road corridor mostly covered in grass and thick low-lying shrubs.</p> <p>An existing dirt track is present approximately 40 m east of and following adjacent to the Cobb Hwy at SU 5. This track is not the proposed site entrance track.</p> <p>Small patches of exposed ground surrounding the road corridor show gravel present (</p> | N/A                          |  <p>PHOTOGRAPH 7-12 SU 5 LOCATION, APPROXIMATELY 25KM SOUTH OF HAY (ERM 2024)</p> |

| Survey Unit                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                               | Identified cultural features | Photograph                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                 |  <p>PHOTOGRAPH 7-13).</p>                                                                                                                                                                                                                                               |                              |  <p>PHOTOGRAPH 7-13 DETAIL OF EXPOSED GROUND AT SU 5 (ERM 2024)</p>                 |
| <b>Survey Unit 6 (SU 2) – Site entrance, Cobb Hwy</b><br><br><b>Landform features:</b> Open Plain<br><b>Size:</b> 4,166.0<br><b>Visibility:</b> 0-10%<br><b>Exposure:</b> 0-10% | <p>SU 6 is approximately 30 km south of Hay. SU 6 consists of a site entrance, a right-hand turn, turning west from the Cobb Hwy. The road is built up around the SU, and no existing intersection is present. The SU has low visibility, with the area immediately surrounding the road corridor mostly covered in grass and thick low-lying shrubs.</p> | N/A                          |  <p>PHOTOGRAPH 7-14 SU 6 LOCATION, APPROXIMATELY 30 KM SOUTH OF HAY (ERM 2024)</p> |



| Survey Unit                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Identified cultural features | Photograph                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Survey Unit 7 (SU 2) – Site entrance, Cobb Hwy</b><br><br><b>Landform features:</b> Open Plain<br><b>Size:</b> 4,197.4<br><b>Visibility:</b> 0-10%<br><b>Exposure:</b> 0-10% | <p>SU 7 is approximately 31 km south of Hay. SU 7 consists of a site entrance, a left-hand turn, turning east from the Cobb Hwy. The road is built up around the SU, and the site entrance follows an existing faded dirt track heading into the Wind Farm Project area. The SU has low visibility, with the area immediately surrounding the road corridor covered in grass and thick low-lying shrubs. Some limited areas of exposed ground are present with evidence of gravel near a dirt track.</p> <p>The dirt track is present approximately 25 m east of and following adjacent to the Cobb Hwy at SU 7. This track is not the proposed site entrance track.</p> | N/A                          |  <p>PHOTOGRAPH 7-15 FADED DIRT TRACK AT SU 7, HEADING TOWARDS WIND FARM PROJECT AREA (ERM 2024)</p>  <p>PHOTOGRAPH 7-16 DETAIL OF EXPOSED</p> |

| Survey Unit                                                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Identified cultural features | Photograph                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              | GROUND NEAR TRACK, WITH GRAVEL VISIBLE (ERM 2024)                                                                                                                                            |
| <b>Survey Unit 8 (SU 2) – Site entrance, Cobb Hwy</b><br><br><b>Landform features:</b> Open Plain<br><b>Size:</b> 4,190.2<br><b>Visibility:</b> 0-10%<br><b>Exposure:</b> 0-10% | <p>SU 8 is approximately 32 km south of Hay. SU 8 consists of a site entrance, a left-hand turn, turning east from the Cobb Hwy. The road is built up around the SU, and the site entrance follows an existing well established dirt road, West Burrabogie Road, heading into the Wind Farm Project area. The SU has low visibility, with the area immediately surrounding the road corridor covered in grass and thick low-lying shrubs.</p> <p>The dirt track is present approximately 25 m east of and following adjacent to the Cobb Hwy at SU 8. This track is not the proposed site entrance track.</p> | N/A                          |  <p>PHOTOGRAPH 7-17 LOCATION OF SU 8, AT INTERSECTION OF COBB HWY AND WEST BURRABOGIE ROAD (ERM 2024)</p> |



## 8. SURVEY RESULTS AND DISCUSSION

### 8.1 REGISTERED ABORIGINAL HERITAGE SITES

Heritage NSW provides the AHIMS database which holds information concerning previously recorded Aboriginal sites in NSW. Searches were undertaken for the Broken Hill and Hay components of the transport route, with 33 sites in total identified within the search parameters. The sites varied in type, consisting of artefacts, stone quarries, hearths, PADs, culturally modified trees, shells, conflict, habitation structure and Aboriginal Resource Gathering sites.

Details of the sites are summarized in Table 8-1 and Table 8-2. The results of the full AHIMS searches are summarized in *Appendix I*. None of the previously registered sites were located with the Transport Route Activity Areas.

**TABLE 8-1 AHIMS REGISTERED SITE TYPES – BROKEN HILL**

| Site Type                         | Total Number            |
|-----------------------------------|-------------------------|
| Artefact                          | 10* (4 sites destroyed) |
| Stone Quarry, Artefact            | 2* (1 site destroyed)   |
| Artefact, Hearth                  | 1                       |
| Aboriginal Resource and Gathering | 1                       |
| Total                             | 14                      |

\* Includes destroyed sites.

**TABLE 8-2 AHIMS REGISTERED SITE TYPES - THE HAY PLAIN**

| Site Type                                                               | Total Number |
|-------------------------------------------------------------------------|--------------|
| Hearth                                                                  | 5            |
| Culturally Modified Tree (CMT), Aboriginal Resource Gathering, Artefact | 1            |
| Conflict, Habitation Structure, Shell                                   | 1            |
| CMT                                                                     | 9            |
| Shell                                                                   | 2            |
| Artefact, PAD                                                           | 1            |
| <b>Total</b>                                                            | <b>19</b>    |

### 8.2 NEWLY IDENTIFIED ABORIGINAL SITES

No newly identified sites were recorded during the surveys of the Transport Route Activity Areas.

### 8.3 ABORIGINAL ARCHAEOLOGICAL POTENTIAL

The archaeological potential of an area is determined by several factors including its landform, soil features and level of disturbance.

Certain landforms are conducive to both Aboriginal occupation and the survivability of subsurface deposits. The location of these landforms in proximity to natural resources including water and resources increase the likelihood that these landforms would have been used by Aboriginal people in the past.

The Transport Route Activity Areas are comprised of a landscape which is predominantly flat with small rises.

Most of the Broken Hill Transport Route Activity Areas include a route following existing roads and tracks, with significant historical disturbance evident through the presence of road embankments and drainage lines, redeposited soil and rock, as well as scattered contemporary metal, glass and ceramic items.

Most of the Hay Transport Route Activity Areas include a route following existing asphalt road, with significant historic disturbance evident through the presence of road embankments.

No areas of PAD were identified during the surveying.

## 8.4 DISCUSSION

The distribution of recorded sites is consistent with the predictive model discussed in *Section 6*, which has been refined to determine the Aboriginal heritage sensitivity mapping discussed below and is illustrated in Figure 8-1 and Figure 8-2.

No sites were recorded during the field surveys, potentially due to the high level of historical disturbance across the Transport Route Activity Areas.



## FIGURE 8-1 CULTURAL HERITAGE SENSITIVITY AND ABORIGINAL HERITAGE SITES BROKEN HILL

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## FIGURE 8-2 CULTURAL HERITAGE SENSITIVITY AND ABORIGINAL HERITAGE SITES = THE HAY PLAIN

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## 9. SIGNIFICANCE ASSESSMENT

The Aboriginal heritage significance of the project has been assessed based on the comments received from RAPs and the LALC during consultation throughout the life of the project, the background research, the archaeological field survey programs and the results of this report.

### 9.1 ABORIGINAL CULTURAL HERITAGE SIGNIFICANCE ASSESSMENT FRAMEWORK

Aboriginal heritage sites, objects and places hold value for communities and cultural knowledge-holders in many ways. The nature of those heritage values is an important consideration when deciding how to manage a heritage site, object or place and balance competing land use options.

Assessment of the Aboriginal cultural heritage significance of the Proposed Activity Areas has been completed in accordance with the requirements of the ACHAR Guide (OEH 2011). Assessment has included identification of social, historic, scientific, and aesthetic values which are discussed below:

Scientific values were graded with a basic ranking of high, moderate, or low. The grading is based on the rarity, representativeness, and research (educational) potential for each value:

- High significance is usually attributed to sites, which are so rare or unique that the loss of the site would affect our ability to understand aspects of past Aboriginal use/occupation for an area;
- Moderate significance can be attributed to sites which provide information on an established research question; and
- Low significance is attributed to sites which cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to disturbance of the nature of the site's contents.

### 9.2 IDENTIFYING CULTURAL VALUES

Cultural heritage values for the Transport Route Activity Areas were identified through a combination of desktop assessment and consultation undertaken during the preparation of the ACHAR (see *Section 3*). This information was collected by ERM Heritage Consultants.

The Burra Charter states:

*cultural significance is embodied in the place—in its fabric, setting, use, associations and meanings. It may exist in: objects at the place or associated with it; in other places that have some relationship to the place; and in the activities and traditional and customary practices that may occur at the place or that are dependent on the place.*

Table 9-1 summarizes the cultural heritage values identified for the Project area and the surrounding region.

**TABLE 9-1 CULTURAL HERITAGE VALUES IDENTIFIED FOR THE PROJECT AREA AND SURROUNDS**

| <b>Cultural heritage value</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Distance from Project area</b>                           | <b>Source</b>                                                             |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------|
| Freshwater                     | <p>The Murrumbidgee River is currently located approximately 15 km north of the Project area entrances and 350 M from the Hay round about pinch point. There are several river systems and the palaeochannels located south of the Project area would have provided an important source of fresh water. Nyangay, Eurolie, and Wargam Creeks and their tributaries, as well as the Coleambally Outfall Drain, would have provided water sources across the general landscape.</p> <p>The Broken Hill region is located in the western portion of the Barwon-Darling catchment, a 142,000 square km subcatchment of the Murray-Darling Basin. The Darling River and Barwon River, as well as their associated anabranches, flow within the catchment.</p>                                                                                      | Surrounding area                                            | Pardoe & Martin 2011; ERM 2023                                            |
| Cultural Landscapes            | The palaeochannel landforms present across the Hay Plain and beyond are generally associated with the Kerarbury system (~55-35 kya) and the Yanco system which formed between 20-13 kya, a peak time for Aboriginal occupation of the area, however several palaeochannels in the Murrumbidgee have been dated with their development extending as far back as 105 kya and could contain much early evidence. Burials are most often associated with scalded, channelled, and depressed plains associated with palaeochannels and they hold great cultural value to the Nari Nari accordingly. The Project area and its surrounds are a part of a song-line, starting at the Blue Mountains extending west and south-west towards the area now known as Swan Hill. This songline is closely tied to the creation story of The Three Sisters. | Surrounding area – Hay Plain Transport Route Activity Areas | Pardoe & Martin 2011<br><br>Neville Whyman; Mary Pappin (per comms 2023). |
| Aboriginal heritage sites      | Of value to the Aboriginal community as a tangible connection between the traditional lands and past Aboriginal occupation and use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Surrounding area – Hay Plain Transport Route Activity Areas | AHIMS; ERM 2023; Hay LALC (per comms 2023)                                |



| Cultural heritage value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Distance from Project area                                        | Source                                                                                                                                                      |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Food and raw materials  | <p>Pre-colonial contact, the local area would offer hunting and gathering opportunities. During previous field surveys for the Project, several plant species were identified by the Hay LALC as being native bush tucker and medicinal. Of note were the native Saltbush that was abundant across the Project area. CMTs in the local archaeological record attest to gathering. Although no trees are currently present within the Project area due to land clearing, it can be assumed that they would have been present pre-colonisation. RAPs shared some of the diet and hunting habits of the area. These included, climbing larger trees to hunt possums in hollows, used reeds for nets/ baskets to catch yabbies, turtles and mussels, and hunting emus and goannas for larger subsistence. These hunting habits relied on water availability, either through rainfall or bodies of water throughout the area. It was also shared by RAPs the saltbush berries are used to make jam, and have a salty, tangy flavor used to enhance meals. RAPs shared the Cypress Pine tree is of cultural importance, used as boundary markers between the two clans of the area (<i>Bidji</i> in the northern area of site). The tree resin was also used as glue for creating stone tools.</p> <p>During the survey for the Broken Hill Proposed Activity Areas, the RAPs discussed medicinal benefits of the box thorn (present throughout the area); the thorns were used for wound healing purposes.</p> | Within and surrounding                                            | <p>Hay LALC (per comms 2023)</p> <p>Neville Whyman; Mary Pappin (Per comms 2023)</p> <p>Ray Woods (Per comms 2024)</p> <p>Sinele Bates (per comms 2024)</p> |
| Animal Totems           | Landscape encompassing the Project area and Hay Proposed Activity Areas is reported to have been associated with bat and owl animal totems for Neville's grandparents. The bat totem is associated with men, and the owl totem is associated with women.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Within and surrounding – Hay Plain Transport Route Activity Areas | Neville Whyman (per comms 2023)                                                                                                                             |

### 9.2.1 SOCIAL OR CULTURAL SIGNIFICANCE

The Consultation Requirements specifies that the social or cultural value of a place must be identified through consultation with Aboriginal people. All Aboriginal sites are considered to have cultural significance to the Aboriginal community as they provide physical evidence of past Aboriginal use and occupation of the area.

### 9.2.2 HISTORIC SIGNIFICANCE

Historic values refer to the association of the place with aspects of Aboriginal history. Historic values are not necessarily reflected in physical objects, but may be intangible and relate to memories, stories, or experiences.

The current assessment has not identified a specific person or event of historic value associated with the Transport Route Activity Areas.

The Transport Route Activity Areas have been assessed to demonstrate low historic significance.

### 9.2.3 SCIENTIFIC SIGNIFICANCE

Scientific (archaeological) value refers to the importance of the landscape, area, place or object because of its rarity, representativeness, and the extent to which it may contribute to further understanding and information (Australian ICOMOS 2013b).

In assessing significance consideration should be given the following criteria:

- **Research potential:** does the evidence suggest any potential to contribute to an understanding of the area and/ or region and/or state's natural and cultural history?
- **Representativeness:** how much variability (outside and/or inside the site) exists, what is already conserved, how much connectivity is there?
- **Rarity:** is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function, or design no longer practiced? Is it in danger of being lost or of exceptional interest?
- **Educational potential:** does the site contain teaching sites or sites that may have teaching potential?

As no previously recorded nor new sites were identified during the undertaking of this report, scientific significance is not assessable at this stage.

### 9.2.4 AESTHETIC SIGNIFICANCE

Aesthetic values refer to the sensory, scenic, architectural and creative aspects of the place. These values may be related to the landscape and are often closely associated with social/cultural values.

While the Hay Plain Transport Route Activity Areas have some aesthetic values associated with being part of one of the flattest landscapes in Australia, it has been assessed as having low aesthetic significance due to absence of landmark features within the landscape.

### 9.2.5 ABORIGINAL HERITAGE STATEMENT OF SIGNIFICANCE

The Proposed Activity Areas form a component of a cultural landscape associated with Aboriginal use of the Broken Hill and Riverina Murray Regions for several cultural and subsistence-based activities. Sites that are present in the surrounding landscape represent evidence of residential and subsistence areas.

Assessment of social/cultural significance can only be undertaken by the local Aboriginal community. No specific areas of social or cultural significance have been identified; however, it is understood that all Aboriginal heritage sites retain significance for the Aboriginal community and the cultural landscape of the Transport Route Activity Areas is considered to maintain a **moderate** level of social significance as part of this wider landscape.



## 10. IMPACT ASSESSMENT

The definition of harm is limited to impacts which ‘...destroys, defaces, damages an object or place or in relation to an object – moves the object from land on which it has been situated.’ (Section 5 of the NPW Act).

### 10.1 ECOLOGICALLY SUSTAINABLE DEVELOPMENT PRINCIPLES

In accordance with the ACHAR Guide, Ecologically Sustainable Development (ESD) principles have also been considered in the preparation of this ACHAR.

The ESD principles as relevant to Aboriginal and historic cultural heritage when considered in the context of the preparation of the Transport Route Activity Areas of the proposed transport route are considered below.

#### 10.1.1 THE PRECAUTIONARY PRINCIPLE

The precautionary principle states that lack of full scientific certainty about the threat of harm should never be used as a reason for not taking measures to prevent harm from occurring. The current assessment has included detailed heritage investigation incorporating review of former studies, in depth field surveys and the identification of areas of heritage constraint which would require further investigation to ensure scientific certainty.

#### 10.1.2 THE PRINCIPLE OF INTERGENERATIONAL EQUITY

The principle of intergenerational equity holds that the present generation should make every effort to ensure the health, diversity, and productivity of the environment – which includes cultural heritage – is available for the benefit of future generations.

Heritage values have formed a key assessment criterion in the development of the current disturbance footprint.

The completion of the current detailed assessment at the proposed disturbance footprint stage has resulted in the development of a uniform and detailed understanding of the Transport Route Activity Areas. This will enable an accurate understanding of potential heritage impacts at a site-wide level and allow for appropriate management of the cumulative impacts to heritage associated with the proposed transport route ensuring that appropriate management and mitigation strategies can be developed as part of future development stages and ongoing site management.

### 10.2 CUMULATIVE IMPACTS

The ACHAR guide identifies that a consideration of the ESD principles should include an understanding of the cumulative impacts of the proposal in relation to other identified sites in the region.

*Cumulative impacts are a result of incremental, sustained and combined effects of human action and natural variations over time and can be both positive and negative. They can be caused by the compounding effects of a single project or multiple projects in an area, and by the accumulation of effects from past, current and future activities as they arise (DPIE 2022).*

The Transport Route Activity Areas do contain landscape features of moderate cultural heritage sensitivity, but the survey did not identify Aboriginal Objects, therefore there are no cumulative impacts associated with future land uses that would result in impacts to identified cultural heritage sites. However, it is acknowledged that continued development across the Broken Hill and Hay Plain regions has the potential to result in cumulative impact the cultural values identified within these areas. This effect is dependent on the scale and timing of the impacts and generally occurs when projects are constructed concurrently or consecutively and are based on their location.

Table 10.1 identifies and describes four projects that are within or adjacent to the Plains Wind Farm. The Bullawah Wind Farm is located to the east, and the Pottinger Wind farm is located immediately to the south. The Project EnergyConnect (NSW eastern section) traverses the southern area of the Wind Farm Project Area. The Project EnergyConnect (NSW eastern section) comprises the complete construction of a high voltage interconnector. As described in Section 6.5.2 a total of 142 sites were identified with direct harm likely to occur to 94 of them. Design refinements to the Project EnergyConnect (NSW eastern section) occurred to minimise impact where possible.

**TABLE 10.1 NEARBY RENEWABLE ENERGY PROJECTS**

| Project                                       | Distance to Project Area    | Description                                                                                 | Current Status     |
|-----------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------|--------------------|
| Bullawah Wind Farm                            | <1 km east                  | <ul style="list-style-type: none"> <li>170 wind WTGs</li> <li>~1,000 MW capacity</li> </ul> | EIS to be prepared |
| The Pottinger Wind Farm                       | <1 km (adjacent)            | <ul style="list-style-type: none"> <li>247 WTGs</li> <li>1,800 MW capacity</li> </ul>       | EIS to be prepared |
| Project EnergyConnect (NSW – Eastern Section) | <1 km (within Project Area) | <ul style="list-style-type: none"> <li>330 kV transmission line</li> </ul>                  | Determination      |

Archaeological sites are a non-renewable resource, thus any harm to an Aboriginal object/site constitutes an irreversible and cumulative impact. It is noted in Section 10 that all sites have inherent cultural value to the Aboriginal community as a tangible connection between the traditional lands and past Aboriginal occupation and use. During this assessment, no potential harm has been identified to archaeological sites therefore, as result of the proposed transport route for the Project will be overall minimal and not negatively affect the cultural and scientific values across the region.

For the above reasons it is assessed that cumulative impacts as a result of this Project are **low**.



## 11. RECOMMENDATIONS AND MANAGEMENT STRATEGIES

### 11.1 ABORIGINAL HERITAGE SUMMARY

- No previously registered sites are located within the Project area;
- No new Aboriginal cultural heritage sites were identified within the Project area; and
- Areas of low to moderate cultural heritage sensitivity, based on landscape features, were identified within the Transport Route Activity Areas.

### 11.2 RECOMMENDATIONS

#### 11.2.1 RECOMMENDATION 2: CULTURAL HERITAGE AWARENESS INDUCTION

All personnel involved with construction activities within the Transport Route Activity Areas should undertake a cultural awareness induction prior to commencing any activities in the works site. The cultural awareness induction should include:

- A summary of the cultural heritage values of the Transport Route Activity Areas and surrounds;
- Guidance on the identification of potential Aboriginal objects; and
- An explanation of the Unexpected Finds Procedure (see *Section 11.2.2*).

#### 11.2.2 RECOMMENDATION 2: UNEXPECTED FINDS PROCEDURE

In the event that cultural heritage sites or materials (or suspected cultural sites or materials) are discovered during earthworks at the open and close borehole locations or open trenching location, development operations or similar activities within proximity to the ground works location the procedure at is to be implemented.

Cultural heritage sites or materials may include, but not be limited to: stone artefacts, shell middens, stone arrangements or skeletal remains.

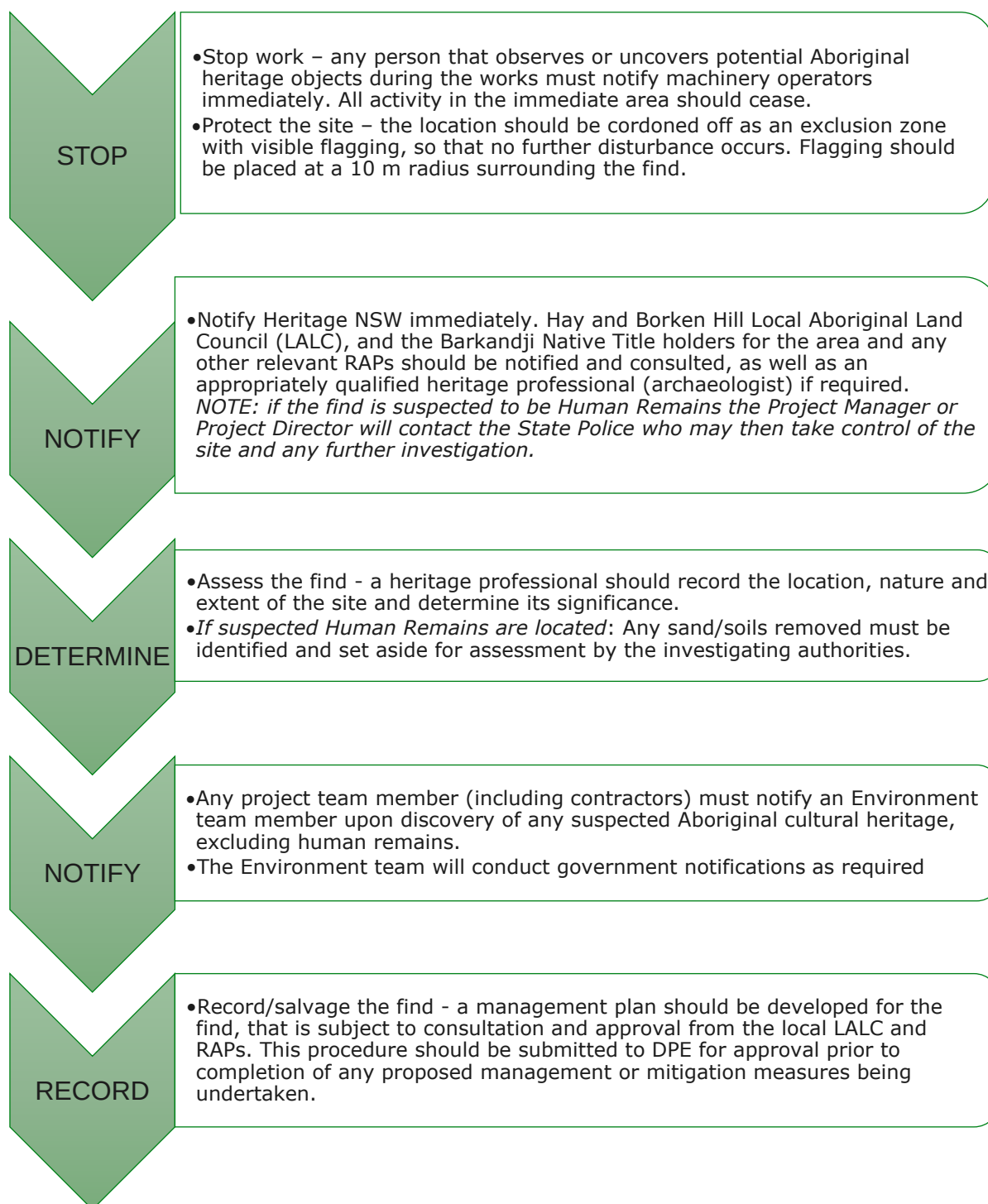


FIGURE 11-1 UNEXPECTED FINDS PROCEDURE – ABORIGINAL CULTURAL HERITAGE



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## APPENDIX A    CONSULTATION LOG

**Consultation Log – The Plains Transport Route**

| Date                                                | Method          | Addressee | Organisation         | Sender                             | Sender Organisation | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------|-----------------|-----------|----------------------|------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Early engagement and Pre-formal consultation</b> |                 |           |                      |                                    |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2022                                                | Email and Phone |           | Hay LALC             | Alyce Haast<br>And Lorien Perchard | ERM                 | Pre-formal contact was made with the Hay LALC in early 2022. This entailed initial project descriptions and organising a pre-formal survey. Due to varying changing circumstances and severe weather conditions including flooding in the region the survey was not complete. Due to time constraints the pre-formal survey was not complete and the formal consultation process commenced in early January 2023.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 18/01/2023                                          | Phone           |           | ERM                  |                                    | -                   | Lorien received a phone call from who wanted to know more about the upcoming project. Lorien explained that the initial agency letters had been sent out and that she was drafting a registration of interest letter to be sent out in the following week inviting RAPS to participate. Neville would like to receive information about the project as his grandmother and grandfather were from the Hay/Deniliquin region and have passed on totem cultural knowledge to him.<br>expressed his concern about the wind turbines upsetting the bats and tawny frog mouth owls flight paths, especially at night. He explained that the bat was the totem for males, like his grandpa, and the owl was the totem for women, like his grandmother. His father’s nick name was in the old language and he was the care taker of bats.<br>He explained that box trees, and areas were water may lay would bring insects and therefore important for animals and people.<br>Neville wanted to know rates and asked about insurance requirements. |
| <b>Agency Letters Out</b>                           |                 |           |                      |                                    |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Hay LALC             | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Deniliquin LALC      | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Riverina LLS         | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Hay Shire Council    | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Edward River Council | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12/01/2023                                          | Email           |           | Heritage NSW         | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.<br>.....<br><br>Lorien received a list on the 18/01/23 from Heritage NSW which included the names of Registered Aboriginal parties who may wish to be consulted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 12/01/2023                                          | Email           |           | NNTT                 | L. Perchard                        | ERM                 | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.<br>.....<br><br>Lorien received an email response from NNTT Geospatial search with the results for overlapping native title matters for the project area. No overlap was recorded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



| Date                               | Method | Addressee       | Organisation                           | Sender                                                          | Sender Organisation      | Details                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------|--------|-----------------|----------------------------------------|-----------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/01/2023                         | Email  | -               | NTS                                    | L. Perchard                                                     | ERM                      | Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.                                                                                                                                                                                                                                                         |
| 12/01/2023                         | Email  | -               | Officer of the Register                | L. Perchard                                                     | ERM                      | <p>Lorien sent out letters to agencies requesting the names of registered Aboriginal Parties for the project area.</p> <p>.....</p> <p>Lorien received an email letter from Karen Carter at OR stating that no Registered Aboriginal Owners are listed in the project area. However, to please contact the Hay and Deniliquin LALC as they may wish to participate.</p> |
| 14/8/2024                          | Email  |                 | Heritage NSW                           | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | Broken Hill LALC                       | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | Broken Hill City Council               | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | Western Local Land Services            | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | NTS Corp                               | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | Native Title Services                  | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| 14/8/2024                          | Email  |                 | Office of the Registrar                | Charles Barnett                                                 | ERM                      | Request for potentially interested parties – Broken Hill area                                                                                                                                                                                                                                                                                                           |
| <b>Responses to Agency Letters</b> |        |                 |                                        |                                                                 |                          |                                                                                                                                                                                                                                                                                                                                                                         |
| 15/08/2024                         | Email  | Charles Barnett | ERM                                    | Barry Gunther<br><Barry.Gunther@environment.nsw.gov.au>         | Heritage NSW             | Barry provided list of Aboriginal stakeholders for The Plains Transport Route, Broken Hill.                                                                                                                                                                                                                                                                             |
| 15/08/2024                         | Email  | Charles Barnett | ERM                                    | Geospatial Search Requests<br><GeospatialSearch@NNTT.gov.au>    | Native Title Services    | Geospatial Services provided information regarding overlapping native title matters for the project area.                                                                                                                                                                                                                                                               |
| 19/08/2024                         | Email  | Charles Barnett | ERM                                    | Corporate Services<br><CorporateServices@brokenhill.nsw.gov.au> | Broken Hill City Council | Jodie Brealey emailed providing contact details for Broken Hill LALC, Maari Ma Health Organisation and Central Darling Shite Council, indicating we may source further consultation from these groups.                                                                                                                                                                  |
| 23/08/2024                         | Email  | Charles Barnett | ERM                                    | Aboriginal Owners<br><aboriginalowners@oralra.nsw.gov.au>       | Office of the Registrar  | Team provided contact details for Registered Aboriginal Owners in Broken Hill area.                                                                                                                                                                                                                                                                                     |
| <b>Advert</b>                      |        |                 |                                        |                                                                 |                          |                                                                                                                                                                                                                                                                                                                                                                         |
| 29/08/2024                         | Print  | -               | Westside Plaza                         | ERM Administration (on behalf of Charles Barnett)               | ERM                      | Advertisement placed on noticeboard at Westside Plaza, with invitation to register, date ending 13 September 2024.                                                                                                                                                                                                                                                      |
| 25/01/23                           | Advert |                 | The Riverine Grazier                   |                                                                 |                          | Advert placed in local paper describing the project and requesting interested parties to respond to Lorien Perchard at ERM by 8 <sup>th</sup> February 2023.                                                                                                                                                                                                            |
| 24/01/23                           | Advert |                 | Deniliquin Pastoral Times              |                                                                 |                          | Advert placed in local paper describing the project and requesting interested parties to respond to Lorien Perchard at ERM by 7 <sup>th</sup> February 2023.                                                                                                                                                                                                            |
| <b>Invitation to register</b>      |        |                 |                                        |                                                                 |                          |                                                                                                                                                                                                                                                                                                                                                                         |
| 24/01/2023                         | Email  |                 | Hay Aboriginal Community Working Party | L. Perchard                                                     | ERM                      | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010.</i></p> <p>.....</p>                                                                                                                                    |

| Date                      | Method          | Addressee | Organisation                                   | Sender      | Sender Organisation | Details                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-----------------|-----------|------------------------------------------------|-------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                 |           |                                                |             |                     | Lorien email John on the 06/03/23 a touching base email as no response had been received.                                                                                                                                                                                                                               |
| 24/01/2023                | Email           |           | Konanggo Aboriginal Cultural Heritage Services | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .<br>.....<br>No response.                                                                              |
| 24/01/2023                | Email           |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .<br>.....<br><br>Email bounced back. Letter mailed out. No response.                                   |
| 24/01/2023                | Email           |           | Miyagan Culture & Heritage                     | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email and Phone |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>                                                                                                         |
| 24/01/2023                | Email           |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email           |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email           |           | Wakool Indigenous Corporation                  | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023 and 06/03/2023 | Email and Phone |           | Bangerang Aboriginal Corporation               | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email           |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>                                                                                                         |
| 24/01/2023                | Email           |           | Yarkuwa Indigenous knowledge Centre            | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email           |           |                                                | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                                                       |
| 24/01/2023                | Email           |           | Riverina Murray Regional Alliance              | L. Perchard | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .<br>.....<br>Lorien email Liam on the 06/03/23 a touching base email as no response had been received. |
| 24/01/2023                | Email           | Ian Woods | Hay LALC                                       | L. Perchard | ERM                 | Lorien sent an email on the 24/01/23 an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> .                                                                              |



| Date       | Method | Addressee | Organisation | Sender      | Sender Organisation | Details                                                                                                                                                                                                                                                                                                                           |
|------------|--------|-----------|--------------|-------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |        |           |              |             |                     | <p>.....</p> <p>Lorien received no response.</p> <p>.....</p> <p>Lorien sent a touching base email with the project methodology requesting feedback by the 3<sup>rd</sup> April and checking for survey participation in early April.</p>                                                                                         |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>.</p> <p>.....</p> <p>No response.</p>                                                                          |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>.</p> <p>.....</p> <p>No response.</p>                                                                          |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>.</p> <p>.....</p> <p>No response.</p>                                                                          |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i>.</p> <p>.....</p> <p>No response.</p>                                                                          |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.</p> <p>.....</p> <p>No response.</p>                                       |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.</p> <p>.....</p> <p>No response.</p>                                       |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.</p> <p>.....</p> <p>No response.</p>                                       |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.</p> <p>.....</p> <p>No response. Return to sender mail on the 27/01/23</p> |
| 24/01/2023 | Mail   |           |              | L. Perchard | ERM                 | <p>Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.</p> <p>.....</p> <p>No response.</p>                                       |

| Date       | Method | Addressee | Organisation                  | Sender          | Sender Organisation | Details                                                                                                                                                                                                                                                                                                      |
|------------|--------|-----------|-------------------------------|-----------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response. Return to sender mail receieved |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response. Return to sender mail received  |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 24/01/2023 | Mail   |           |                               | L. Perchard     | ERM                 | Lorien sent an Invitation to Register Interest to participate in an upcoming project, in accordance with Section 4.1.3 of the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> on the 24/01/23 by registered mail.<br>.....<br>No response.                                 |
| 21/08/2024 | Email  |           |                               | Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                |
| 21/08/2024 | Email  |           |                               | Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                |
| 21/08/2024 | Email  |           | Wakool Indigenous Corporation | Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                |



| Date       | Method | Addressee                     | Organisation                            | Sender                             | Sender Organisation           | Details                                                                                                                                                                                                                                                                    |
|------------|--------|-------------------------------|-----------------------------------------|------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21/08/2024 | Email  |                               | Girragirra Murun Aboriginal Corporation | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               | Wingarra Wilay Aboriginal Corporation   | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               | Creator Spirits                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               |                                         | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               | Maari Ma Health Organisation            | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 21/08/2024 | Email  |                               | ERM                                     |                                    | Wakool Indigenous Corporation | Indication an email did not reach sender.                                                                                                                                                                                                                                  |
| 27/08/2024 | Email  |                               | Mutawintji National Park                | Charles Barnett                    | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               |                                         | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               | Mutawintji Board of Management          | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               | Menindee Aboriginal Elders Council      | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               | Tibooburra LALC                         | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               | Barkindji Elders Council                | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW – ACHAR<br>Letter was returned to sender due to “Left Address/Unknown”. Charles phoned Barkandji Native Title Group Aboriginal Corporation RNTBC (20/9/24) to confirm their interest in the project. |
| 27/08/2024 | Mail   | PO Box 243 BALRANALD NSW 2715 | Garry Pappin                            | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW – ACHAR.<br>Letter was returned to sender due to “Left Address/Unknown”. Charles emailed Gary Pappin (2/9/24) with invitation to register letter.                                                    |
| 27/08/2024 | Mail   |                               | Mutawintji LALC                         | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |
| 27/08/2024 | Mail   |                               | Wilcannia LALC                          | Admin on behalf of Charles Barnett | ERM                           | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                              |

| Date                                                  | Method          | Addressee | Organisation                     | Sender                             | Sender Organisation | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|-----------------|-----------|----------------------------------|------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27/08/2024                                            | Mail            |           | Broken Hill LALC                 | Admin on behalf of Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 27/08/2024                                            | Mail            |           |                                  | Admin on behalf of Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 27/08/2024                                            | Mail            |           | Ngoorabul Elders                 | Admin on behalf of Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 27/08/2024                                            | Mail            |           | Wilyakali Aboriginal Corporation | Admin on behalf of Charles Barnett | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 02/09/2024                                            | Email           |           | Broken Hill LALC                 | Charles Barnett                    | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 02/09/2024                                            | Email           |           |                                  | Charles Barnett                    | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 02/09/2024                                            | Email           |           | Wilcannia LALC                   | Charles Barnett                    | ERM                 | Invitation to Register – The Plains Transport Route, Broken Hill, NSW - ACHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Registration of Interest from advert or letter</b> |                 |           |                                  |                                    |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 07/03/23                                              | Phone and Email |           |                                  | L. Perchard                        | ERM                 | <p>from Family AC responded to Lorien’s email on the 27/01/23 registering to participate in the project.</p> <p>.....</p> <p>Lorien responded on 30/01/23 acknowledging the registration and letting her know we’d be in touch with the project methodology soon.</p> <p>.....</p> <p>called Lorien on the 07/03/2023 and discussed the survey and how many Raps would be required. Lorien will send through more information once the survey has been finalised.</p>                                                                                                 |
| 06/07-03-23                                           | Phone and Email |           |                                  | L. Perchard                        | ERM                 | <p>Lorien sent an email on 06/03/23 to Patrica touching base and asking if she wished to participate as no response had been received.</p> <p>.....</p> <p>Lorien received an email from Patricia on the 06/03/23 “Hi Lorien I’m Patricia Winch Mutthi mitthi Elder of Balranald I would like to participate in the ACHAR</p> <p>Kind regards Patricia ”</p> <p>.....</p> <p>Lorien responded to Patricia on 07/03/23 acknowledging her registration and sent through the project methodology and asked for availability for the survey in early April.</p>           |
| 24/03/23 and 06/03/23                                 | Email           |           |                                  | L. Perchard                        | ERM                 | <p>responded on 24/01/23 ‘Dear Lorien,</p> <p>There is no such thing as the 'Nari Nari' people. Can you please send a map or a Lot/DP so that I can accurately ascertain the location of your project?</p> <p>Kind Regards, -’</p> <p>.....</p> <p>Lorien responded on 24/01/23 acknowledging her comments and attaching a table with the Lots and DPs as requested.</p> <p>.....</p> <p>Lorien sent through the project methodology requesting any feedback by the 3<sup>rd</sup> April and asked for availability for the proposed survey dates in early April.</p> |
| 06/03/23                                              | Email           |           |                                  | L. Perchard                        | ERM                 | <p>Lorien called and Bangereang AC. Vicki and Lorien discussed the upcoming project and its location. Vicki wishes to be kept informed on further stages of the project and can provide 2 RAPs for the survey</p> <p>.....</p>                                                                                                                                                                                                                                                                                                                                        |

| Date       | Method          | Addressee | Organisation                      | Sender          | Sender Organisation                  | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------|-----------------|-----------|-----------------------------------|-----------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                 |           |                                   |                 |                                      | Lorien sent through the project methodology on the 07/03/23 requesting any feedback by the 3 <sup>rd</sup> April and asked for availability for the proposed survey dates in early April.                                                                                                                                                                                                                                                                                                                                                                                                   |
| 06/03/23   | Email and Phone |           |                                   | L. Perchard     | ERM                                  | <p>Lorien called. John and Lorien discussed the upcoming project and its location. John wishes to be kept informed on further stages of the project and can provide RAPs for the survey</p> <p>.....</p> <p>Lorien sent through the project methodology on the 06/03/23 requesting any feedback by the 3<sup>rd</sup> April and asked for availability for the proposed survey dates in early April.</p>                                                                                                                                                                                    |
| 27/01/23   | Email           |           | Yarkuwa                           | L. Perchard     | ERM                                  | <p>David responded to Lorien on the 27/01/23 “This area lies at the northern boundary between Wamba Wamba/Perrepa Perrepa country and Nari Nari country so our primary interest is in the southern portion David”</p> <p>.....</p> <p>Lorien responded to David and Jeanette on the 06/03/23 acknowledging the information they had shared and their interest in the southern area of the project.</p> <p>Lorien provided them with the project methodology and requested feedback by the 3<sup>rd</sup> April. Lorien asked for interest to participate in the survey and hrly quotes.</p> |
| 08/03/23   | Phone           |           |                                   | L. Perchard     | ERM                                  | Lorien Phoned Neville to see if he had received the email with the project methodology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 06/03/2023 | Phone           |           | Deniliquin LALC                   | L. Perchard     | ERM                                  | Lorien Phoned Deniliquin LALC as no response had been received. Rose, Deniliquin CEO, spoke to Lorien and expressed interest about the project and wished to be kept informed of the project moving forward.                                                                                                                                                                                                                                                                                                                                                                                |
| 06/03/2023 | Phone           |           |                                   | L. Perchard     | ERM                                  | Lorien Phoned John as no response had been received. John spoke to Lorien and expressed interest about the project and wished to be kept informed of the project moving forward.                                                                                                                                                                                                                                                                                                                                                                                                            |
| 21/08/2024 | Email           |           | ERM                               |                 |                                      | emailed registering Corroboree Aboriginal Corporation’s interest in the project. ASK TO NOT HAVE DETAILS DISCLOSED TO LALCs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 22/08/2024 | Email           |           | Corroboree Aboriginal Corporation | Charles Barnett | ERM                                  | Charles responded thanking Marilyn for registering their interest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 22/08/2024 | Phone call      |           | Wakool Indigenous Corporation     | Charles Barnett | ERM                                  | Charles called asking if Wakool Indigenous Corporation would like to register their interest in the project. Cynthia declined, indicating Broken Hill was too far away.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 22/08/2024 | Email           |           | ERM                               |                 |                                      | emailed asking for info regarding registering for site survey.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 23/08/2024 | Email           |           |                                   | Charles Barnett | ERM                                  | Charles replied stating we have registered Barbara’s interest in the project, that we will provide a project methodology soon, and organize surveying thereafter.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 23/08/2024 | Email           |           | ERM                               |                 |                                      | emailed registering his interest in the project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 26/08/2024 | Email           |           |                                   | Charles Barnett | ERM                                  | Charles replied thanking Thomas for registering his interest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 02/09/2024 | Email           |           | ERM                               |                 | Pappin Family Aboriginal Corporation | emailed to register Family Aboriginal Corporation’s interest in the project. ASK TO NOT HAVE DETAILS DISCLOSED TO LALCs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 02/09/2024 | Email           |           | Family Aboriginal Corporation     | Charles Barnett | ERM                                  | Charles replied thanking Mary for registering their interest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 02/09/2024 | Email           |           | ERM                               |                 | Broken Hill LALC                     | emailed to register Broken Hill LALC’s interest in the project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 02/09/2024 | Email           |           | Broken Hill LALC                  | Charles Barnett | ERM                                  | Charles replied thanking Amanda for registering their interest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



| Date                               | Method     | Addressee | Organisation                                              | Sender          | Sender Organisation                | Details                                                                                                                                                                                                                                                                           |
|------------------------------------|------------|-----------|-----------------------------------------------------------|-----------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 03/09/2024                         | Phone call |           | ERM                                                       |                 | Menindee Aboriginal Elders Council | called Charles to register their interest in the project.                                                                                                                                                                                                                         |
| 19/09/2024                         | Email      |           | ERM                                                       |                 | Mutawintji National Park           | emailed, noting that Mutawintji Board of Management thanks ERM for providing information regarding the project, but that we will pick up Mutawintji Board of Management family groups through consultation with the Barkandji Prescribed Body Corporate and the Broken Hill LALC. |
| 19/09/2024                         | Email      |           | Mutawintji National Park                                  | Charles Barnett | ERM                                | Charles responded thanking Kristy for her email and notification.                                                                                                                                                                                                                 |
| 20/09/2024                         | Phone call |           | Barkandji Native Title Group Aboriginal Corporation RNTBC | Charles Barnett | ERM                                | Charles rang Billy-joe to confirm Barkarndji Native Title group's interest in the project.                                                                                                                                                                                        |
| 24/09/2024                         | Email      |           | ERM                                                       |                 | Mutawintji National Park           | emailed registering Menindee Aboriginal Elders Council's interest in the project.                                                                                                                                                                                                 |
| 24/09/2024                         | Email      |           | Mutawintji National Park                                  | Charles Barnett | ERM                                | Charles replied to Kristy thanking her for registering interest in the project and requesting confirmation of MAEC's contact details.                                                                                                                                             |
| <b>Section 4.1.6 Letter</b>        |            |           |                                                           |                 |                                    |                                                                                                                                                                                                                                                                                   |
| 08/03/23                           | Email      |           | Heritage NSW                                              | Meg Mathison    | ERM                                | Meg sent the Section 4.1.6 letter which included details of the consult advertisement placed in the local newspaper, the initial registration of interest letter and the Section 4.1.6 notification letter.                                                                       |
| 08/03/23                           | Email      |           | Hay LALC                                                  | Meg Mathison    | ERM                                | Meg sent the Section 4.1.6 letter which included details of the consult advertisement placed in the local newspaper, the initial registration of interest letter and the Section 4.1.6 notification letter.                                                                       |
| 08/03/23                           | Email      |           | Deniliquin LALC                                           | Meg Mathison    | ERM                                | Meg sent the Section 4.1.6 letter which included details of the consult advertisement placed in the local newspaper, the initial registration of interest letter and the Section 4.1.6 notification letter.                                                                       |
| 11/11/2024                         | Email      |           | Heritage NSW                                              | Charles Barnett | ERM                                | Section 4.1.6 letter issued.                                                                                                                                                                                                                                                      |
| 11/11/2024                         | Email      |           | Broken Hill LALC                                          | Charles Barnett | ERM                                | Section 4.1.6 letter issued.                                                                                                                                                                                                                                                      |
| <b>Issuing Project Methodology</b> |            |           |                                                           |                 |                                    |                                                                                                                                                                                                                                                                                   |
| 03/10/2024                         | Email      |           | Wakool Indigenous Corporation                             | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           | Pappin Family Aboriginal Corporation                      | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           | Yarkuwa Indigenous Knowledge Centre                       | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           | Hay LALC                                                  | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           |                                                           | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           | Deniliquin LALC                                           | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           |                                                           | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           |                                                           | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |
| 03/10/2024                         | Email      |           | Bangerang Aboriginal Corporation                          | Charles Barnett | ERM                                | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                                                                                                                                  |

| Date                                   | Method | Addressee | Organisation                                              | Sender                                                         | Sender Organisation                                       | Details                                                                                                                                                            |
|----------------------------------------|--------|-----------|-----------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 03/10/2024                             | Email  |           | Corroboree Aboriginal Corporation                         | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 03/10/2024                             | Email  |           |                                                           | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 03/10/2024                             | Email  |           |                                                           | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 03/10/2024                             | Email  |           | Broken Hill LALC                                          | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 03/10/2024                             | Email  |           | Menindee Aboriginal Elders Council                        | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 03/10/2024                             | Email  |           | Barkandji Native Title Group Aboriginal Corporation RNTBC | Charles Barnett                                                | ERM                                                       | Project Methodology issued, with comments requested by 31 <sup>st</sup> October.                                                                                   |
| 09/10/2024                             | Email  |           | ERM                                                       | <a href="mailto:moiradu57@gmail.com">moiradu57@gmail.com</a> . | Bangerang Aboriginal Corporation                          | emailed requesting the methodology to be resent to his new email address, and for further communications sent to new email address.                                |
| 11/10/2024                             | Email  |           | Bangerang Aboriginal Corporation                          | Charles Barnett                                                | ERM                                                       | Charles replied with a new link for the methodology, and confirming further communications will go to Kevin's new email address.                                   |
| <b>Comments on Project Methodology</b> |        |           |                                                           |                                                                |                                                           |                                                                                                                                                                    |
|                                        |        |           |                                                           |                                                                |                                                           |                                                                                                                                                                    |
|                                        |        |           |                                                           |                                                                |                                                           |                                                                                                                                                                    |
| <b>Organising Site Survey</b>          |        |           |                                                           |                                                                |                                                           |                                                                                                                                                                    |
| 21/6/2024                              | Email  |           | Hay LALC                                                  | Lorien Perchard                                                | ERM                                                       | Lorien confirmed survey dates with Hay LALC for 5-9 <sup>th</sup> August. Hay LALC confirmed RAPs will be available for the week.                                  |
| 26/09/2024                             | Email  |           | Broken Hill LALC                                          | Charles Barnett                                                | ERM                                                       | Charles emailed to request BH LALC's survey request form.                                                                                                          |
| 26/09/2024                             | Email  |           | Barkandji Native Title Group Aboriginal Corporation RNTBC | Charles Barnett                                                | ERM                                                       | Charles emailed to inquire about availability of Barkandji representatives for survey on 6/11/24.                                                                  |
| 26/09/2024                             | Email  |           | ERM                                                       |                                                                | Broken Hill LALC                                          | emailed through Broken Hill LALC's site survey request form.<br><br>Charles filled this out with survey details and returned to Amanda with request for quote.     |
| 26/09/2024                             | Email  |           | ERM                                                       |                                                                | Barkandji Native Title Group Aboriginal Corporation RNTBC | emailed confirming Barkandji have reps available and providing quote.                                                                                              |
| 14/10/2024                             | Email  |           | ERM                                                       |                                                                | Broken Hill LALC                                          | Broken Hill LALC forwarded a quote for 2 x reps for the survey.                                                                                                    |
| 14/10/2024                             | Email  |           | Broken Hill LALC                                          | Charles Barnett                                                | ERM                                                       | Charles emailed Amanda to confirm date of Nov 6 <sup>th</sup> for survey.                                                                                          |
| 14/10/2024                             | Email  |           | ERM                                                       |                                                                | Broken Hill LALC                                          | Amanda emailed Charles confirming date of Nov 6 <sup>th</sup> works, and once quote is accepted she can confirm which site officers will attend survey.            |
| 14/10/2024                             | Phone  |           | Broken Hill LALC                                          | Charles Barnett                                                | ERM                                                       | Charles called Amanda, apologising, and noting date of survey will need to be Nov 7 <sup>th</sup> due to flight availability, which Amanda said was not a problem. |
| 14/10/2024                             | Email  |           | Broken Hill LALC                                          | Charles Barnett                                                | ERM                                                       | Charles emailed Amanda, to confirm in writing change to Nov 7 <sup>th</sup> .                                                                                      |

| Date                        | Method | Addressee | Organisation                                                 | Sender          | Sender Organisation | Details                                                                                                                                                                                                                         |
|-----------------------------|--------|-----------|--------------------------------------------------------------|-----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14/10/2024                  | Email  |           | Barkandji Native Title Group<br>Aboriginal Corporation RNTBC | Charles Barnett | ERM                 | Charles emailed Luke and Billi-Jo asking if a change to survey on Nov 7 <sup>th</sup> was an issue.<br><br>Luke replied confirming 7 <sup>th</sup> was no problem.                                                              |
| 14/10/2024                  | Email  |           | Barkandji Native Title Group<br>Aboriginal Corporation RNTBC | Charles Barnett | ERM                 | Charles emailed Luke requesting confirmation of the admin fee in quote provided.<br><br>Luke replied confirming admin fee is correct.                                                                                           |
| 16/10/2024                  | Email  |           | Broken Hill LALC                                             | Charles Barnett | ERM                 | Charles emailed Amanda to confirm quote was accepted and provide the Perilya Mine site access form for LALC reps.                                                                                                               |
| 16/10/2024                  | Email  |           | Barkandji Native Title Group<br>Aboriginal Corporation RNTBC | Charles Barnett | ERM                 | Charles emailed Luke to confirm quote was accepted and provide the Perilya Mine site access form for Barkandji reps.                                                                                                            |
| 16/10/2024                  | Email  |           | ERM                                                          |                 | Broken Hill LALC    | Amanda emailed confirming she will organize site officers and Perilya Mine access form, and requested a map of the project area.<br><br>Charles replied with a map of the project area and description of the survey locations. |
| 31/10/2024                  | Email  |           | ERM                                                          |                 | Broken Hill LALC    | provided required forms.<br><br>Charles replied with thanks and confirming meeting time and place.                                                                                                                              |
| 4/11/2024                   | Email  |           | Barkandji Native Title Group<br>Aboriginal Corporation RNTBC | Charles Barnett | ERM                 | Billie-Jo emailed required forms.<br><br>Charles replied with thanks.                                                                                                                                                           |
| 4/11/2024                   | Email  |           | Barkandji Native Title Group<br>Aboriginal Corporation RNTBC | Charles Barnett | ERM                 | Charles emailed with updated meeting time and place for survey.                                                                                                                                                                 |
|                             |        |           |                                                              |                 |                     |                                                                                                                                                                                                                                 |
| <b>Issuing Draft Report</b> |        |           |                                                              |                 |                     |                                                                                                                                                                                                                                 |
| 20/12/2024                  | Email  |           | Wakool Indigenous Corporation                                | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           | Family Aboriginal Corporation                                | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           | Yarkuwa Indigenous Knowledge<br>Centre                       | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.<br><br>email rebounded saying could not be delivered.                                                                                           |
| 20/12/2024                  | Email  |           | Hay LALC                                                     | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           |                                                              | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           | Deniliquin LALC                                              | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           |                                                              | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           | Bangerang Aboriginal<br>Corporation                          | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.<br><br>email rebounded saying could not be delivered.                                                                                           |
| 20/12/2024                  | Email  |           | Corroboree Aboriginal<br>Corporation                         | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |
| 20/12/2024                  | Email  |           |                                                              | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                                                                 |



| Date       | Method | Addressee | Organisation                                                             | Sender          | Sender Organisation | Details                                                                                                                                                                                     |
|------------|--------|-----------|--------------------------------------------------------------------------|-----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20/12/2024 | Email  |           | Thomas Dahlstrom Offers ACH value by using 3D Laser and Drone technology | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                             |
| 20/12/2024 | Email  |           | Broken Hill LALC                                                         | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                             |
| 20/12/2024 | Email  |           | Menindee Aboriginal Elders Council                                       | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                             |
| 20/12/2024 | Email  |           | Barkandji Native Title Group Aboriginal Corporation RNTBC                | Charles Barnett | ERM                 | Charles issued draft ACHAR with comments requested by 17 <sup>th</sup> January.                                                                                                             |
| 27/12/2024 | Email  |           | ERM                                                                      |                 | Broken Hill LALC    | <p>emailed requesting we forward a link for the ACHAR to the following emails:</p> <p>Charles added those email addresses to access list and replied to all confirming access provided.</p> |
|            |        |           |                                                                          |                 |                     |                                                                                                                                                                                             |

**Comments on Draft Report**



APPENDIX B

AGENCY NOTIFICATION LETTER

---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:14 AM

To [REDACTED]

📎 1 attachment (252 KB)

The Plains Transport Route\_Agency\_Letter\_Broken Hill City Council.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)



---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:13 AM

To [REDACTED]

Cc [REDACTED]

 1 attachment (249 KB)

The Plains Transport Route\_Agency\_Letter\_Broken Hill LALC.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)

---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:13 AM

To [REDACTED]

Cc [REDACTED]

 1 attachment (251 KB)

The Plains Transport Route\_Agency\_Letter\_Heritage NSW.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)

---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:15 AM

To [REDACTED]

Cc [REDACTED]

 1 attachment (252 KB)

The Plains Transport Route\_Agency\_Letter\_LLS.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



# ERM

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)



---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:16 AM

To [REDACTED]

Cc [REDACTED]

 1 attachment (251 KB)

The Plains Transport Route\_Agency\_Letter\_NNTT.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)

---

## Request for potentially interested parties - Broken Hill Area

---

From Charles Barnett [REDACTED]

Date Wed 8/14/2024 9:15 AM

To [REDACTED]

Cc [REDACTED]

 1 attachment (253 KB)

The Plains Transport Route\_Agency\_Letter\_NTS Corp.pdf;

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)



# ERM

Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia

**erm.com**

Broken Hill City Council  
Via email:

**DATE**  
14 August 2024

**REFERENCE**  
0667692

Dear Sir/Madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

ERM have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

The Project is a proposed wind farm located in Hay, NSW. The wind farm will consist of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). The Project will feature some of the largest wind turbines and towers currently available with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to the Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components. These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades.

A Transport Route Assessment was conducted by Ares Group in March 2024. This assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide. This port is currently being used by several wind farm projects and has the capacity and laydown area required for the wind farm components. Two routes are proposed for the wind farm components; the blade route which requires modification and has nine pinch points identified and the tower route, which has no pinch points. Most of the transport route for the blades is on state highways via Angle Vale, Gawler, Tarlee, and Burra in SA, and Broken Hill, Wilcannia, and Hay in NSW. The route includes pinch points on the Barrier Hwy (turn off approx. 2.4km west of Broken Hill), as well as at Crystal, Sturt and Chettle



Streets in Broken Hill, which are the subject of this Aboriginal Cultural Heritage Assessment.

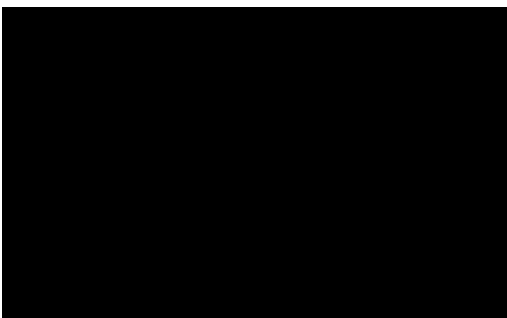
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Australia



Charles Barnett  
Senior Consultant  
ERM



# ERM

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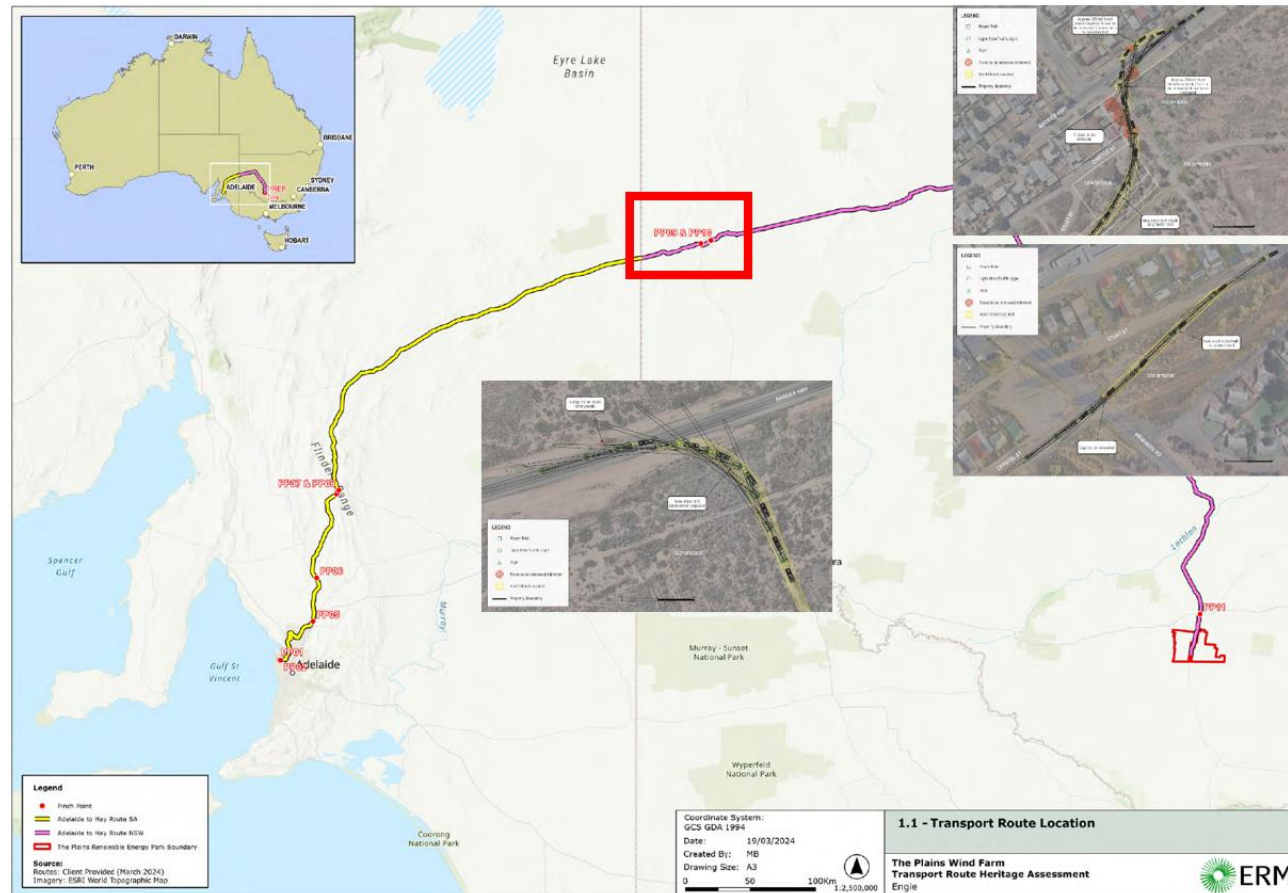


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# ERM

Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia

**erm.com**

Broken Hill LALC

Via email:

**DATE**

14 August 2024

**REFERENCE**

0667692

Dear Sir/Madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

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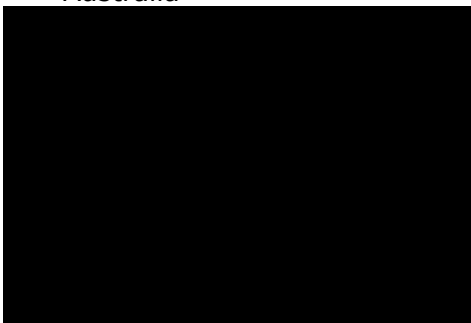
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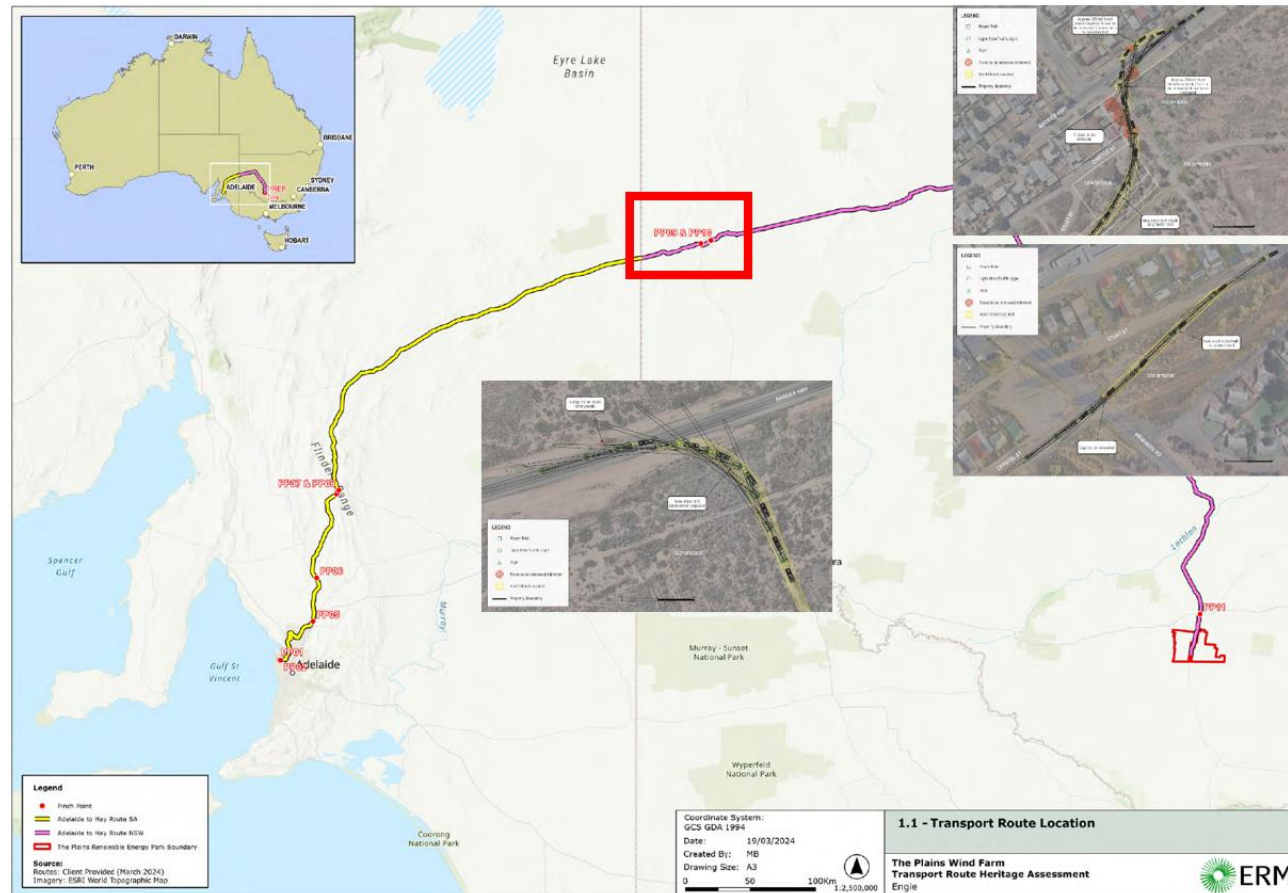


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Heritage NSW

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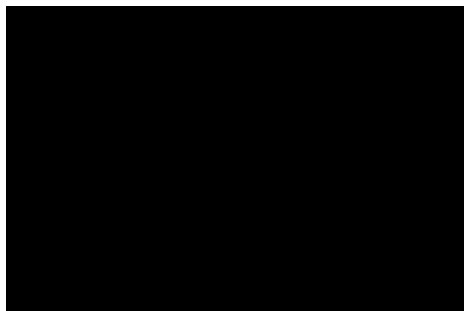
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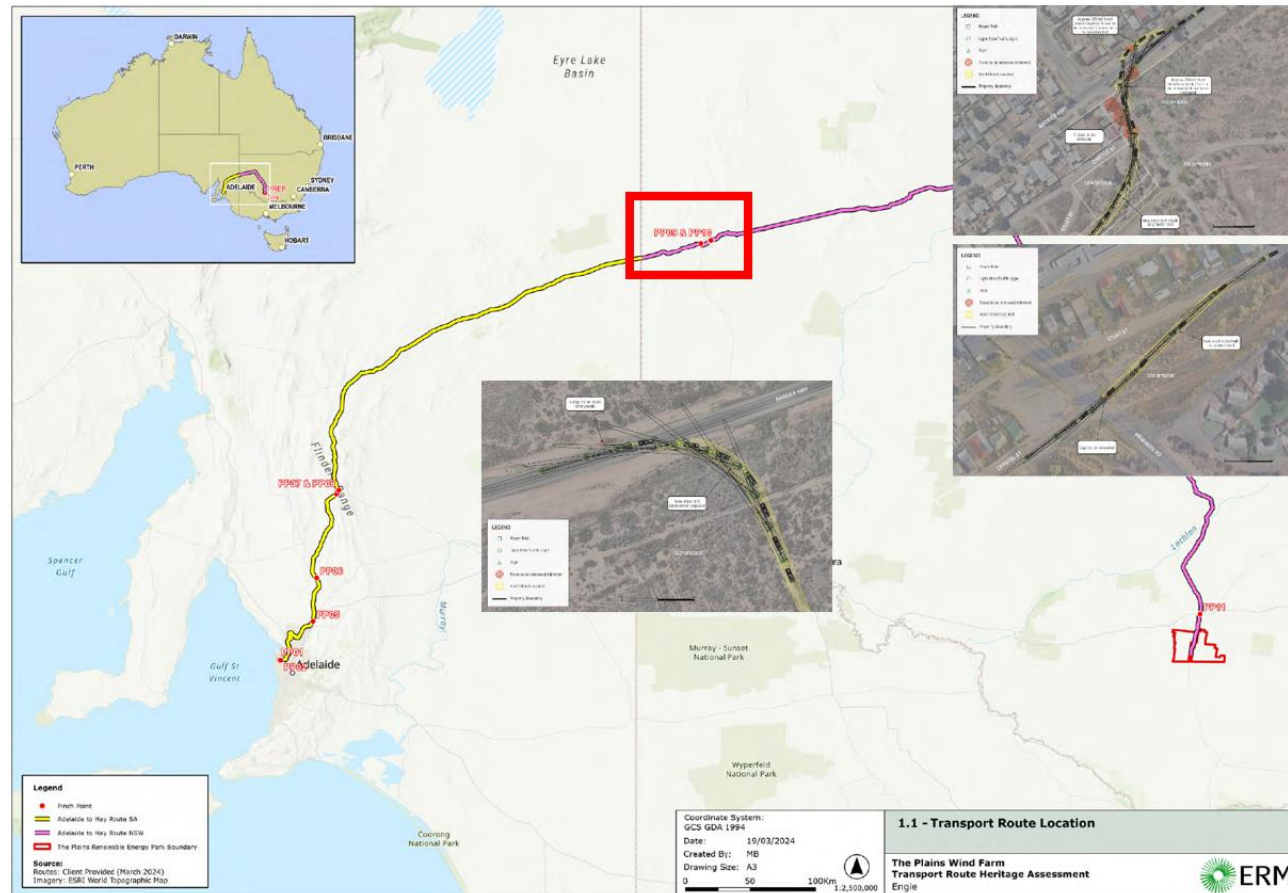


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# ERM

Level 14, 207 Kent Street  
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Australia

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Western Local Land Services  
Via email:

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14 August 2024

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0667692

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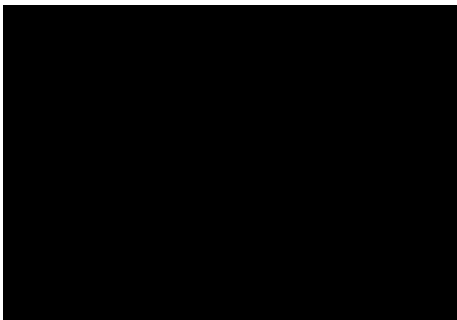
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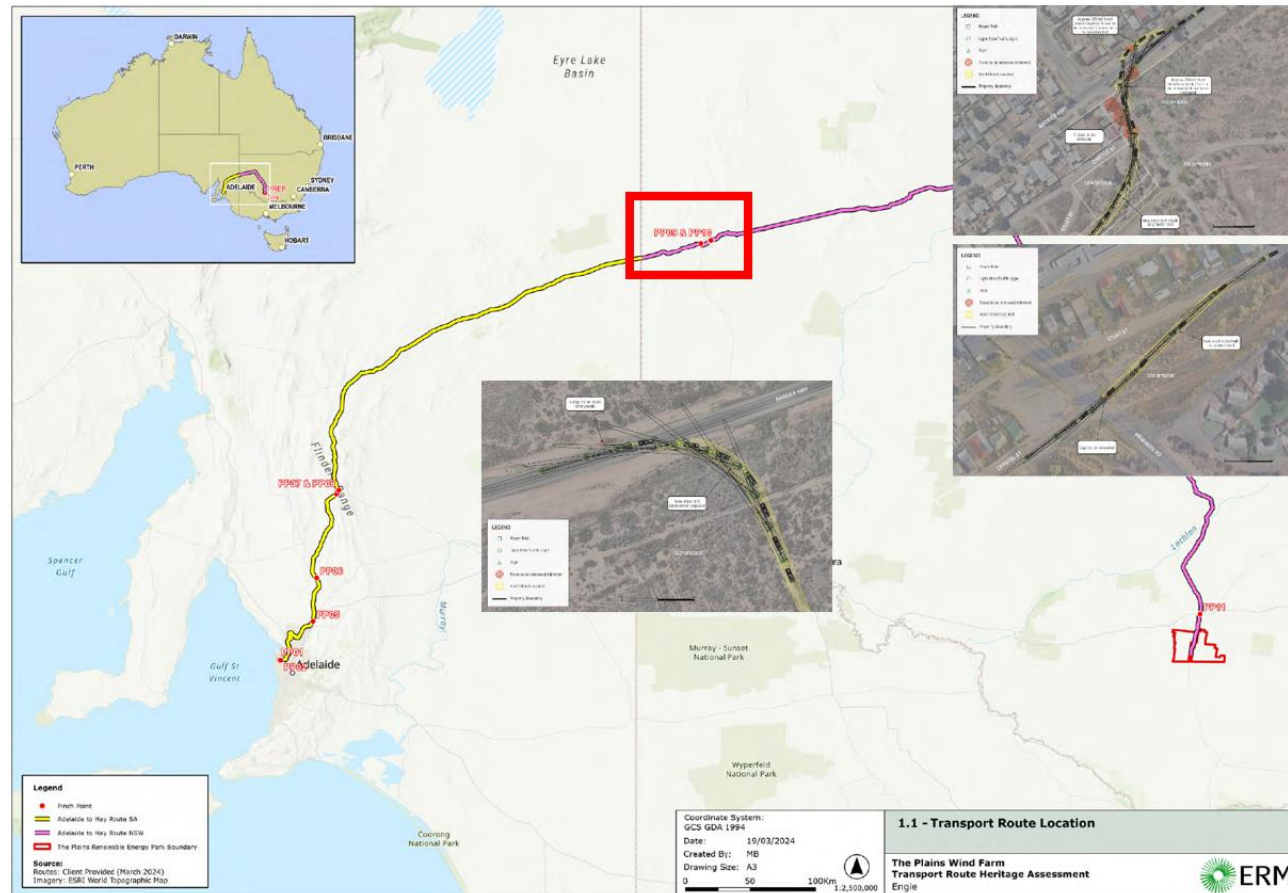


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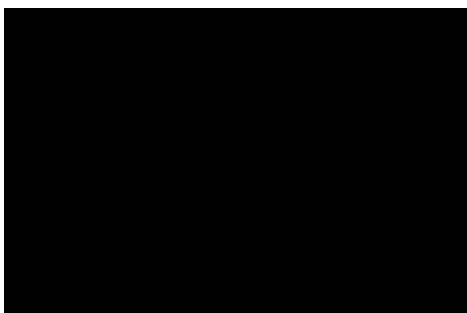
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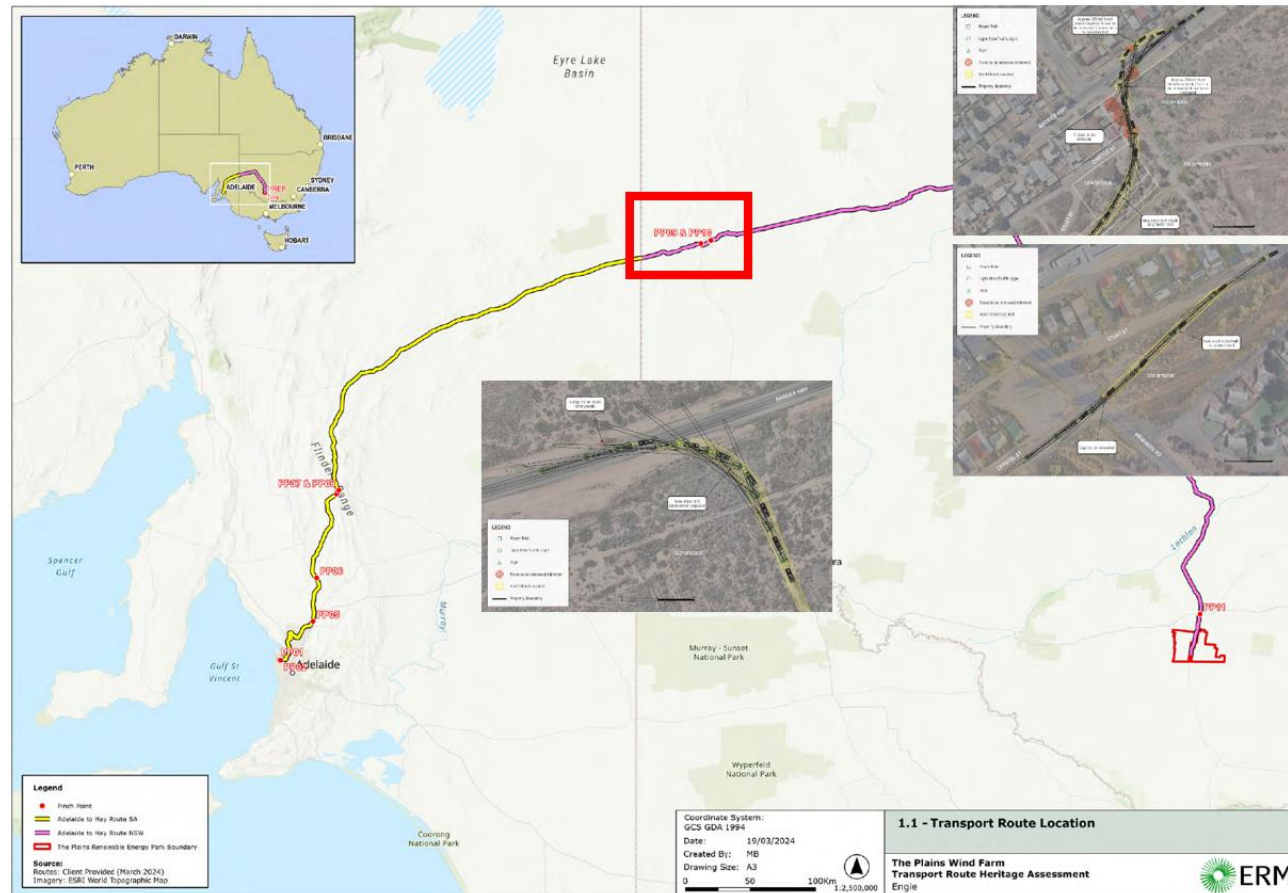


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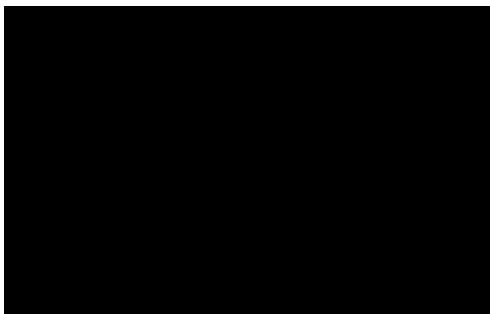
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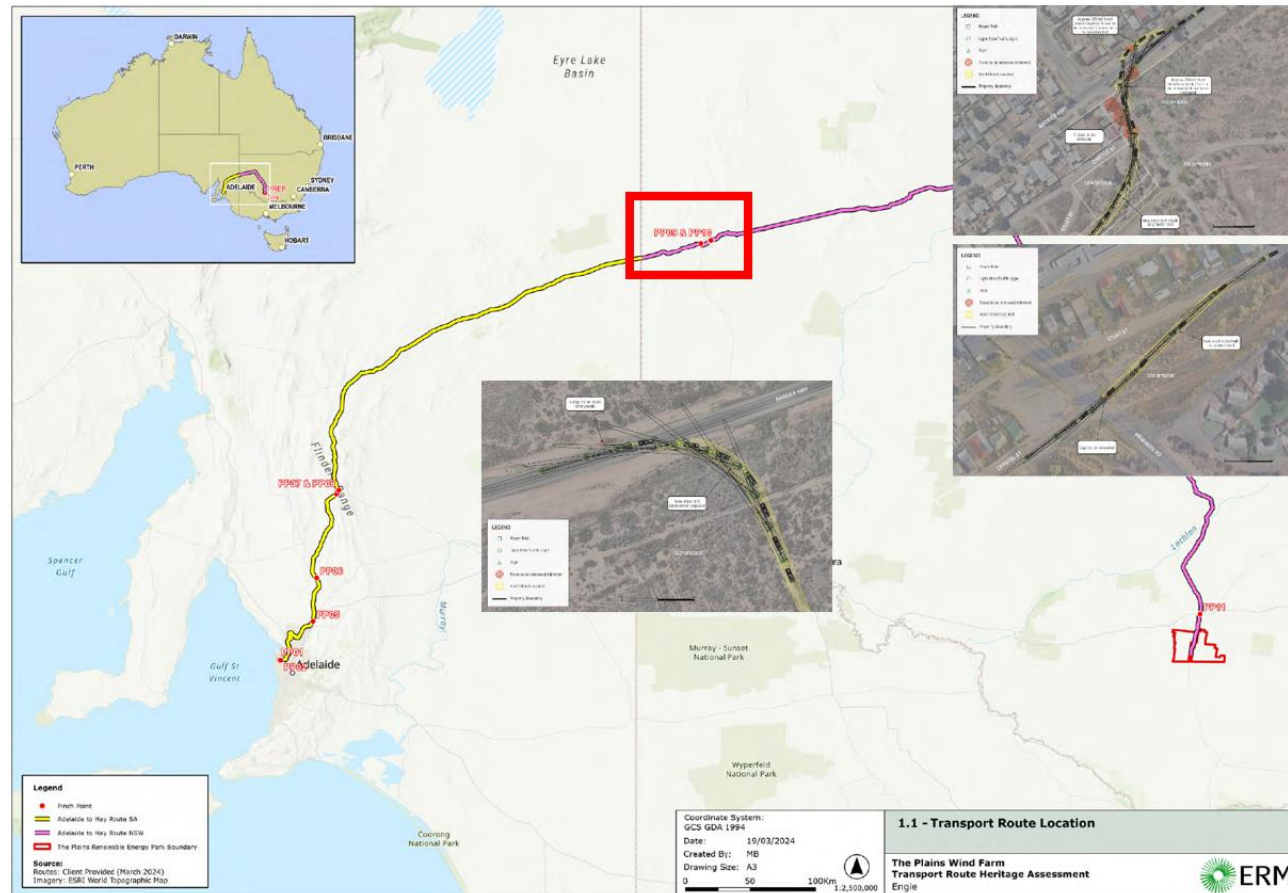


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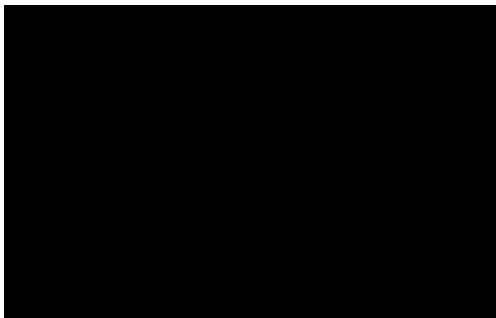
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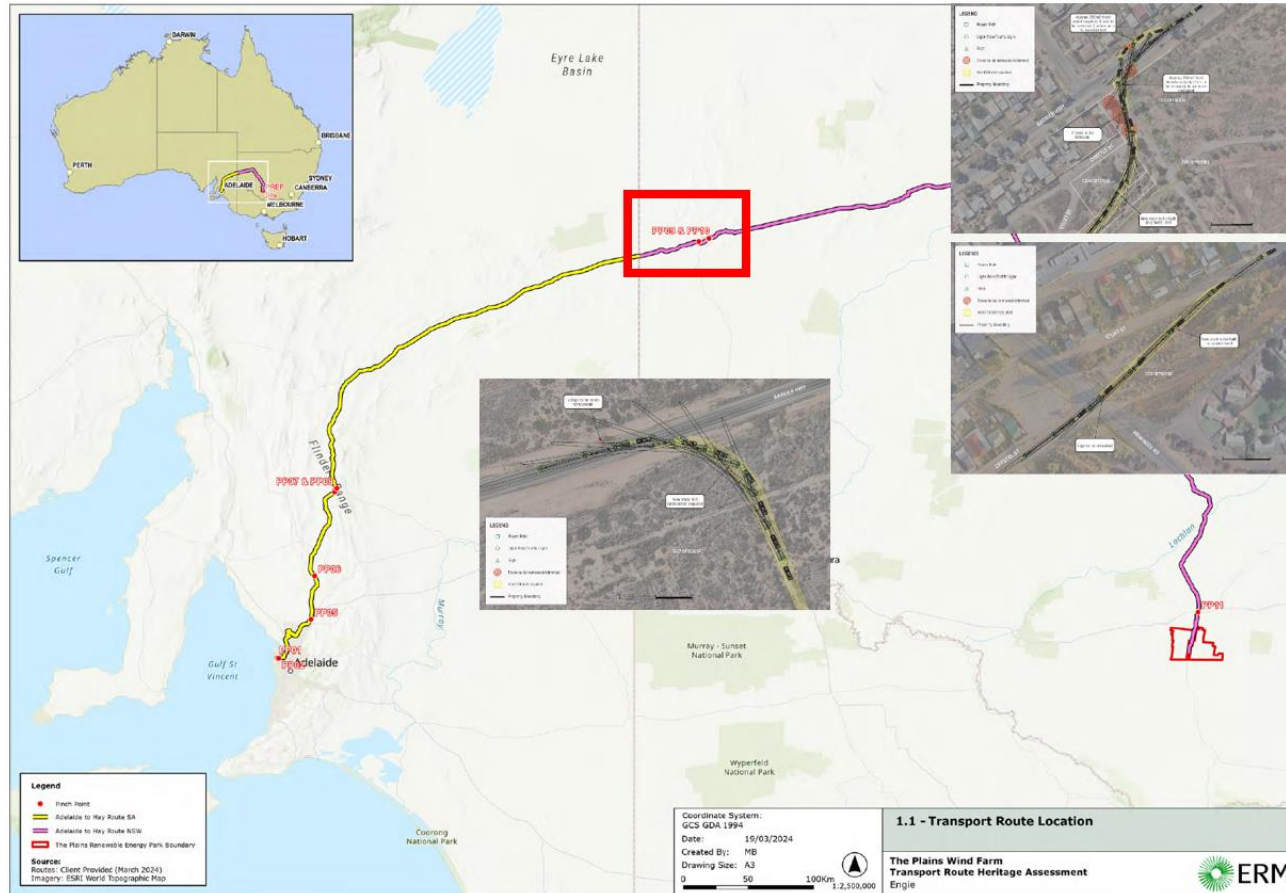


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## APPENDIX C   AGENCY RESPONSES





14 June 2024

By email: [REDACTED]

Charles Barnett  
ERM  
Level 14, 207 Kent Street  
SYDNEY NSW 2000

Dear Charles

**Aboriginal Cultural Heritage Assessment – The Plains Transport Route (road works located within the Broken Hill area) Broken Hill NSW: request for list of potential Aboriginal stakeholders**

We refer to your email and letter to this Office dated 14 August 2024 requesting contact information for Aboriginal organisations, stakeholders and/or people who may have cultural knowledge relevant to The Plains Transport Route (road works located within the Broken Hill area) Broken Hill NSW, as part of an Aboriginal Cultural Heritage Assessment (ACHA).

Under Section 170 of the *Aboriginal Land Rights Act 1983 (NSW)*, the Office of the Registrar is required to maintain the Register of Aboriginal Owners (RAO) for **New South Wales**. The works you are proposing, and location are in proximity to an area for which there are Registered Aboriginal Owners: Mutawintji National Park.

We suggest you contact the Joint Management Coordinator for the Mutawintji National Park. The Joint Management Coordinator for Mutawintji National Park is Kristy Bennett on [REDACTED] to ascertain whether the Board of Management are interested in the project.

The proposed road works fall within the boundaries of Broken Hill Local Aboriginal Land Council. We suggest you contact Broken Hill Local Aboriginal Land Council on the details provided below, as they may wish to participate or contribute.

Yours sincerely

[REDACTED]  
Project Officer  
Office of the Registrar, Aboriginal Land Rights Act 1983

Broken Hill Local Aboriginal Land Council  
[REDACTED]

**LIST OF ABORIGINAL STAKEHOLDERS FOR THE DEPARTMENT OF PLANNING AND ENVIRONMENT (DPE) HELD BY DPE FOR THE PURPOSES OF THE OEH  
ABORIGINAL CULTURAL HERITAGE CONSULTATION REQUIREMENTS FOR PROPONENTS 2010**

The purpose of this letter is to assist you as the proposed applicant in undertaking Aboriginal community consultation in accordance with the relevant legislation and guidelines.

The consultation process involves getting the views of, and information from, Aboriginal people and reporting on these. It is not to be confused with other field assessment processes involved in preparing a proposal and an application. Consultation does not include the employment of Aboriginal people to assist in field assessment and/or site monitoring. Aboriginal people may provide services to proponents through a contractual arrangement however, this is separate from consultation. The proponent is not obliged to employ those Aboriginal people registered for consultation. Consultation as per these requirements will continue irrespective of potential or actual employment opportunities for Aboriginal people.

In accordance with Clause 60 (10) of the National Parks and Wildlife Regulation 2019, where an agreement of the kind listed below specifies or identifies a modified or alternative consultation process for the purposes of Part 6 of the National Parks and Wildlife Act 1974, the applicant is to undertake consultation in accordance with the modified or alternative process. The applicable agreements are:

- a) a registered Indigenous Land Use Agreement under the Native Title Act 1993 of the Commonwealth entered into between an Aboriginal community and the State,
- b) a lease entered into under Part 4A of the Act,
- c) an agreement entered into by the Secretary and a board of management reserved under Part 4A of the Act that has the consent of Aboriginal owner board members for the land concerned,
- d) an agreement entered into between an Aboriginal community and the Department of Planning, Industry and the Environment.

Where you believe your application is wholly or partially located within an area subject to any of the above agreements, please provide further correspondence (including mapping, if required) detailing the applicable agreement and its relationship to the application area to [heritagemailbox@environment.nsw.gov.au](mailto:heritagemailbox@environment.nsw.gov.au). Heritage NSW will respond with further advice.

Where the above does not apply, please proceed with consultation in accordance with the Clause 60 (1-9) of the National Parks and Wildlife Regulation 2019 and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the "Consultation Requirements"). A copy of the Consultation Requirements can be found on the OEH website at: <http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf>.

Under the Consultation Requirements, a proponent is required to provide Aboriginal people who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places as relevant to the proposed project area, with an opportunity to be involved in consultation. Section 3.3.1 of the Consultation Requirements states that Aboriginal people who can provide this information are, based on Aboriginal lore and custom, the traditional owners or custodians of the land that is the subject of the proposed project.

The Consultation Requirements also state that:

Traditional owners or custodians with appropriate cultural heritage knowledge to inform decision making who seek to register their interest as an Aboriginal party are those people who:

- continue to maintain a deep respect for their ancestral belief system, traditional lore and custom

- recognise their responsibilities and obligations to protect and conserve their culture and heritage and care for their traditional lands or Country
- have the trust of their community, knowledge and understanding of their culture, and permission to speak about it.

This list is provided to proponents in accordance with Clause 60(2)(a)(i) of the National Parks and Wildlife Regulation 2019 and section 4.1.2 of the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.

The stakeholders identified on this list may have an interest in the proposed project area and may hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places.

#### **How to use this list**

- Contact the organisations/individuals who have indicated an interest in the relevant LGA/s and invite them to register an interest in your project.
- Do not reproduce the attached list in publicly available reports and other documents. Your report should only contain the names of the organisations and individuals who you have invited to register an interest in your project and those who have registered as stakeholders for your project.
- Note that the provision of this Aboriginal stakeholder list does not override a proponent's requirement to also advertise in the local newspaper and to seek from other sources the names of any other Aboriginal people who may hold cultural knowledge as required under clause 60 (2) of the National Parks and Wildlife Regulation 2019.
- Please refer to Clause 60 of the National Parks and Wildlife Regulation 2019 and the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 for further information on the requirements of the consultation process.
- If contact details of stakeholders are found to be incorrect or outdated, please contact [heritagemailbox@environment.nsw.gov.au](mailto:heritagemailbox@environment.nsw.gov.au).

**Last updated August 2024**



Our reference: Doc24/659855

The Plains Transport Route, Broken Hill for The Plains Wind Farm.

Aboriginal Stakeholders – Broken Hill Local Government Area.

|                                        |             |  |  |  |  |  |   |
|----------------------------------------|-------------|--|--|--|--|--|---|
|                                        |             |  |  |  |  |  | - |
| Barkandji #8 Native Title Determinants | NTSCorp     |  |  |  |  |  | - |
| Barkindji Elders Council               |             |  |  |  |  |  | - |
| Broken Hill LALC                       | Chairperson |  |  |  |  |  | - |
| Chair, Mutawintji Board of Management  |             |  |  |  |  |  | - |
| Corroboree Aboriginal Corporation      |             |  |  |  |  |  | - |
| Edgerton kwiembal AC                   |             |  |  |  |  |  |   |
|                                        |             |  |  |  |  |  |   |
|                                        |             |  |  |  |  |  |   |
|                                        |             |  |  |  |  |  |   |

|                                                |                                                                                                |            |   |                                                                                  |   |                                                                    |   |
|------------------------------------------------|------------------------------------------------------------------------------------------------|------------|---|----------------------------------------------------------------------------------|---|--------------------------------------------------------------------|---|
| Menindee<br>Aboriginal Elders<br>Council       | The Chair                                                                                      | -          | - | -                                                                                | - | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] | - |
| Mutawintji LALC                                | Chairperson                                                                                    |            |   |                                                                                  |   | [REDACTED]                                                         | - |
| Ngoorabul Elders                               | Chairperson                                                                                    |            |   | [REDACTED]                                                                       |   | [REDACTED]                                                         | - |
| [REDACTED] Family<br>Aboriginal<br>Corporation | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] | [REDACTED] |   | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] |   | [REDACTED]                                                         |   |

|                                                                                         |                                                                                   |                                               |              |                                                                                                                                     |              |                                                           |              |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------|--------------|
| <div>██████████</div> <div>██████████</div> <div>██████████</div> <div>██████████</div> | <div>██████████</div> <div>██████████</div>                                       | <div>██████████████████</div> <div>████</div> | <div>█</div> | <div>██████████</div> <div>██████████</div> <div>██████████</div> <div>██████████</div> <div>██████████</div> <div>██████████</div> | <div>█</div> | <div>██████████████████████████████</div> <div>████</div> | <div>-</div> |
| Tibooburra LALC                                                                         | Chairperson                                                                       | <div>█</div>                                  | <div>█</div> | <div>█</div>                                                                                                                        | <div>█</div> | <div>██████████████████████████████</div>                 | <div>█</div> |
| Wakool Indigenous Corporation                                                           | <div>██████████</div> <div>██████████</div> <div>████</div> <div>██████████</div> | <div>██████████████████</div>                 | <div>█</div> | <div>██████████</div>                                                                                                               | <div>█</div> | <div>██████████████████████████████</div>                 | <div>█</div> |
| Wilcannia LALC                                                                          | Chairperson                                                                       | <div>█</div>                                  | <div>█</div> | <div>█</div>                                                                                                                        | <div>█</div> | <div>██████████████████████████████</div>                 | <div>█</div> |
| Wilyakali Aboriginal Corporation                                                        | <div>██████████</div> <div>██████████</div> <div>██████████</div>                 | <div>█</div>                                  | <div>█</div> | <div>█</div>                                                                                                                        | <div>█</div> | <div>██████████████████████████████</div>                 | <div>█</div> |



|                                               |  |  |  |  |  |  |  |
|-----------------------------------------------|--|--|--|--|--|--|--|
| Girragirra Murun<br>Aboriginal<br>Corporation |  |  |  |  |  |  |  |
| Wingarra Wilay<br>Aboriginal<br>Corporation   |  |  |  |  |  |  |  |
| Josephine Johnson                             |  |  |  |  |  |  |  |
| Verna Eade                                    |  |  |  |  |  |  |  |
| Kalathi Consultancy                           |  |  |  |  |  |  |  |
|                                               |  |  |  |  |  |  |  |
|                                               |  |  |  |  |  |  |  |
| Creator Spirits                               |  |  |  |  |  |  |  |
|                                               |  |  |  |  |  |  |  |

**From:** [REDACTED]  
**To:**  
**Subject:** Heritage NSW Aboriginal stakeholder list for The Plains Transport Route, Broken Hill.  
**Date:** Thursday, 15 August 2024 12:47:24 PM  
**Attachments:** [Heritage NSW Aboriginal stakeholder list for Broken Hill LGA.docx](#)  
[The Plains Transport Route Agency Letter Heritage NSW.pdf](#)

You don't often get email from [REDACTED]

[Learn why this is important](#)

**EXTERNAL MESSAGE**

Hi Charles,

Please find attached the Heritage NSW Aboriginal stakeholder list for The Plains Transport Route, Broken Hill.

regards

[REDACTED]  
Aboriginal Senior Assessment Officer  
Heritage NSW  
[Department of Climate Change,  
Energy, the Environment and Water](#)

-----  
This email is intended for the addressee(s) named and may contain confidential and/or privileged information.

If you are not the intended recipient, please notify the sender and then delete it immediately.

Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment, Energy and Science.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** RE: Request for potentially interested parties - Broken Hill Area  
**Date:** Monday, 19 August 2024 3:07:55 PM  
**Attachments:** [image005.png](#)  
[image006.jpg](#)  
[image001.png](#)

You don't often get email from [REDACTED] [Learn why this is important](#)

**EXTERNAL MESSAGE**

Good afternoon

Please find attached some contact details for whom you may be able to source further consultation:

- Broken Hill Local Aboriginal Land Council
  - [REDACTED]
- Maari Ma Health Organisation
  - [REDACTED]
- Central Darling Shire Council
  - [REDACTED]

With regards

[REDACTED]  
Corporate Services Team Leader  
[REDACTED]

*We acknowledge the traditional owners of the land on which we live and work, and pay our respects to their elders past, present, and emerging.*

DISCLAIMER

This e-mail message and any accompanying attachments may contain information that is confidential and subject to legal privilege. If you are not the intended recipient do not read, use, disseminate, distribute or copy this message or attachments.

If you have received this message in error, please notify the sender immediately and delete this message. Views expressed in this e-mail are those of the individual, except where specifically stated otherwise.

Broken Hill City Council does not warrant this message to be free of errors, interference or viruses.

**From:** Charles Barnett [REDACTED]  
**Sent:** Wednesday, August 14, 2024 8:45 AM  
**To:** Broken Hill City Council [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Request for potentially interested parties - Broken Hill Area

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may



hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,

**Charles Barnett**  
Senior Consultant

---

Sydney

**erm.com**

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From: [REDACTED]  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: SR24/1372 - Request for potentially interested parties - Broken Hill Area [SEC=OFFICIAL]  
Date: Thursday, 15 August 2024 3:16:41 PM  
Attachments: [image001.png](#)  
[image002.jpg](#)

EXTERNAL MESSAGE

OFFICIAL

Your ref: Broken Hill TR ACHAR      Our ref: SR24/1372

Dear Charles Barnett

Thank you for your search request, please find your results below.

Your request for a geospatial search in its current form cannot be undertaken as requested as the area of interest is not clearly identifiable in the State datasets held by the Tribunal. Instead, your search has been completed against Local Government Areas that we have identified as containing your area(s) of interest.

If this is not suitable, please:

1. Provide spatial data for the specific area(s) of interest; or
2. provide direction as to what other recognised area you would like searched as an alternative. I.e. adjacent parcels or coordinate point(s) with a nominated buffer.

Other options include searching the areas of interest on [Native Title Vision](#) (NTV) or downloading and analysing the area of interest against our [custodial datasets](#).

Search Results

The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

0. Schedule of Native Title Determination Applications
1. Register of Native Title Claims
2. Native Title Determinations
3. Indigenous Land Use Agreements (Registered and notified)

Results for overlapping native title matters in NSW:

| Feature ID  | Tenure | LGA Data As At | Feature Area SqKm | Overlapping Native Title Feature |                                               |                |                   |                    |
|-------------|--------|----------------|-------------------|----------------------------------|-----------------------------------------------|----------------|-------------------|--------------------|
|             |        |                |                   | NNTT File Number                 | Name                                          | Category       | Overlap Area SqKm | % Selected Feature |
| Broken Hill | LGA    | 3/05/2023      | 168.0752          | <a href="#">NCD2015/001</a>      | Barkandji Traditional Owners #8 (Part A)      | Determinations | 63.8143           | 37.97%             |
|             |        |                |                   | <a href="#">NCD2017/001</a>      | Barkandji Traditional Owners #8 Part B        | Determinations | 0.0007            | <0.001%            |
|             |        |                |                   | <a href="#">NI2018/007</a>       | Barkandji Interim Licences ILUA               | ILUAs          | 63.8143           | 37.97%             |
|             |        |                |                   | <a href="#">NI2019/004</a>       | Barkandji Single Dealings ILUA                | ILUAs          | 0.0053            | 0.003%             |
|             |        |                |                   | <a href="#">NI2021/002</a>       | Ongoing Tenures (including White Cliffs) ILUA | ILUAs          | 63.8147           | 37.97%             |

For more information about the Tribunal's registers or to search the registers yourself and obtain copies of relevant register extracts, please visit our [website](#).

Information on native title claims and freehold land can also be found on the Tribunal's website here: [Native title claims and freehold land](#).

**Please note:** There may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed with the Federal Court may not appear on the Tribunal's databases.

The search results are based on analysis against external boundaries of applications only. Native title applications commonly contain exclusions clauses which remove areas from within the external boundary. To determine whether the areas described are in fact subject to claim, you need to refer to the "Area covered by claim" section of the relevant Register Extract or Schedule Extract and any maps attached.

Search results and the existence of native title

Please note that the enclosed information from the Register of Native Title Claims and/or the Schedule of Applications is **not** confirmation of the existence of native title in this area. This cannot be confirmed until the Federal Court makes a determination that native title does or does not exist in relation to the area. Such determinations are registered on the National Native Title Register.

The Tribunal accepts no liability for reliance placed on enclosed information

The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representation, either express or implied, as to the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

If you have any further queries, please do not hesitate to contact us via: [REDACTED]

Regards,

Geospatial Searches

National Native Title Tribunal | Perth

[REDACTED]

From: Charles Barnett [REDACTED]  
Sent: Thursday, August 15, 2024 6:35 AM  
To: Geospatial Search Requests [REDACTED]  
Cc: [REDACTED]  
Subject: SR24/1372 - RE: Request for potentially interested parties - Broken Hill Area [SEC=OFFICIAL]

Hi there,

Many thanks for your email.

Please find attached the completed search form.

Please let me know if you require any additional information.

Kind regards,

Charles Barnett  
Senior Consultant

Sydney [erm.com](mailto:erm.com)

**From:** Geospatial Search Requests [REDACTED]  
**Sent:** Wednesday, August 14, 2024 1:18 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Request for potentially interested parties - Broken Hill Area [SEC=OFFICIAL]

EXTERNAL MESSAGE

OFFICIAL

Please note: We have attached a copy of our current form for your convenience.  
The form is also available from the Tribunal's website at this address: [REDACTED]

Dear Charles

Thank you for your search request.

To enable us to complete the search appropriately and adequately, please fill out the attached search form and return to us via [REDACTED]

If you have any further queries, please do not hesitate to contact us via [REDACTED]

Regards,

Geospatial Searches  
National Native Title Tribunal | Perth  
[REDACTED]

**From:** Charles Barnett [REDACTED]  
**Sent:** Wednesday, August 14, 2024 7:17 AM  
**To:** Geospatial Search Requests [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Request for potentially interested parties - Broken Hill Area

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,

Charles Barnett  
Senior Consultant

Sydney [erm.com](mailto:erm.com)

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**From:** [REDACTED]  
**To:**  
**Subject:** Reply: Request for potentially interested parties - Broken Hill Area  
**Date:** Friday, 23 August 2024 11:56:27 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.jpg](#)  
[image004.jpg](#)  
[20240823\\_AO Search ACHA\\_ERM\\_The Plains Transport Route\\_Broken Hill LALC & Mutawintji AO.pdf](#)

---

**EXTERNAL MESSAGE**

OFFICIAL

Good morning Charles

Please find attached the response from the Office of the Registrar, ALRA to your email and letter of 14 August 2024 regarding to The Plains Transport Route (road works located within the Broken Hill area) Broken Hill NSW, as part of an Aboriginal Cultural Heritage Assessment (ACHA).

**Please note**, we now have an Aboriginal Owners email mailbox to which such requests can be sent in future. Please email your ACHA requests to [REDACTED]

Kind regards

**The Aboriginal Owners team**

Office of the Registrar, Aboriginal Land Rights Act 1983

**Working days** Monday to Friday, 9:00 am – 5:00 pm

I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

Please consider the environment before printing this email.

---

OFFICIAL

**From:** Charles Barnett [REDACTED]

**Sent:** Friday, August 23, 2024 8:47 AM

**To:** Aboriginal Owners [REDACTED]

**Subject:** RE: Request for potentially interested parties - Broken Hill Area

OFFICIAL

[CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.]

Hi,

Yes that's correct, only for the Broken Hill Area.

Please let me know if any issues.

Kind regards,

**Charles Barnett**  
Senior Consultant

Sydney  
[REDACTED]

[erm.com](mailto:erm.com)

OFFICIAL

**From:** Aboriginal Owners [REDACTED]

**Sent:** Thursday, August 22, 2024 12:12 PM

**To:** Charles Barnett [REDACTED]

**Subject:** RE: Request for potentially interested parties - Broken Hill Area

You don't often get email from [REDACTED] [Learn why this is important](#)

EXTERNAL MESSAGE

OFFICIAL

Good afternoon Charles

We would like confirmation from you that the search area in your request is only for the portion located within the Broken Hill area. We appreciate the time you need to put aside to follow up with the further information request.

Kind regards

## The Aboriginal Owners team

Office of the Registrar, Aboriginal Land Rights Act 1983



**Working days** Monday to Friday, 9:00 am – 5:00 pm

I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

Please consider the environment before printing this email.

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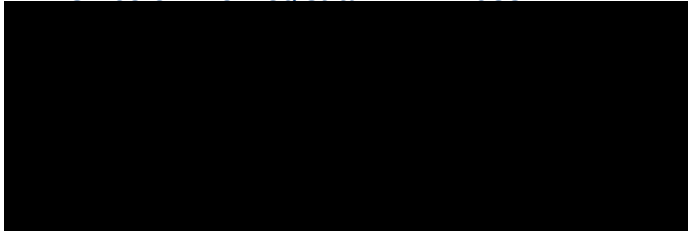
OFFICIAL

**From:** Admin Officer   
**Sent:** Wednesday, August 14, 2024 9:29 AM  
**To:** Aboriginal Owners   
**Subject:** FW: Request for potentially interested parties - Broken Hill Area

OFFICIAL

Regards

Jodie Rikiti,  
Office of The Registrar ALRA 1983



*The Office of the Registrar stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to supporting the return of land to Aboriginal people as compensation for past dispossession; and to support self-determination through participation and representation in the land council network*



---

OFFICIAL

**From:** Charles Barnett [REDACTED]  
**Sent:** Wednesday, August 14, 2024 9:18 AM  
**To:** Admin Officer [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Request for potentially interested parties - Broken Hill Area

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[CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.]

To whom it may concern,

In accordance with Section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached a letter requesting the names of Aboriginal parties who may hold an interest in the Broken Hill area of NSW.

Please feel free to get in touch if you have queries.

Kind regards,

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](http://erm.com)



## APPENDIX D INVITATION TO REGISTER LETTER

Organization Name

Via email: [Email]

**DATE**

21 August 2024

**REFERENCE**

0667692

To Sir/madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

ERM have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

The Project is a proposed wind farm located in Hay, NSW. The wind farm will consist of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). The Project will feature some of the largest wind turbines and towers currently available with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to the Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components. These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades.

A Transport Route Assessment was conducted by Ares Group in March 2024. This assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide. This port is currently being used by several wind farm projects and has the capacity and laydown area required for the wind farm components. Two routes are proposed for the wind farm components; the blade route which requires modification and has nine pinch points identified and the tower route, which has no pinch points. Most of the transport route for the blades is on state highways via Angle Vale, Gawler, Tarlee, and Burra in SA, and Broken Hill, Wilcannia, and Hay in NSW. The route includes pinch points on the Barrier Hwy (turn off approx. 2.4km west of Broken Hill), as well as at Crystal, Sturt and Chettle



Streets in Broken Hill, which are the subject of this Aboriginal Cultural Heritage Assessment.

Aboriginal community consultation is being undertaken to assist the Applicant in the preparation of the Cultural Heritage Assessment. It is intended that the consultation process would be continued into subsequent stages of the Project which may require approvals under the *National Parks and Wildlife Act 1974* or *Environmental Planning and Assessment Act 1979*. Future approvals may include an application for an Aboriginal Heritage Impact Permit (AHIP). If required, this consultation process would be utilised to support the application for an AHIP and to assist the Secretary of Heritage NSW in their assessment of the AHIP application.

The contact details for the Applicant are:

ENGIE Australia and New Zealand



## REGISTRATION

ERM is seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the Project Area who may be able to assist.

If you wish to formally register your interest in the process of community consultation could you please contact Charles Barnett (Project Archaeologist) by **Wednesday 4 September** at the below details:

Charles Barnett  
Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia



To assist in the identification of specific knowledge holders as part of the consultation process, ERM respectfully requests that you advise us if you have any specific information concerning the cultural values of the Project Area. We would also be grateful if you could identify any other knowledge holders who would be appropriate to contact regarding the Project Area. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Please note that the Consultation Requirements require the Applicant to provide details of registered Aboriginal parties to the Heritage NSW and the Broken Hill Local Aboriginal Land Council. In your response could you please advise if you would like your details to not be provided.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Charles Barnett  
Senior Consultant  
ERM



# ERM

Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia

T +(02) 8584 8894

[erm.com](http://erm.com)

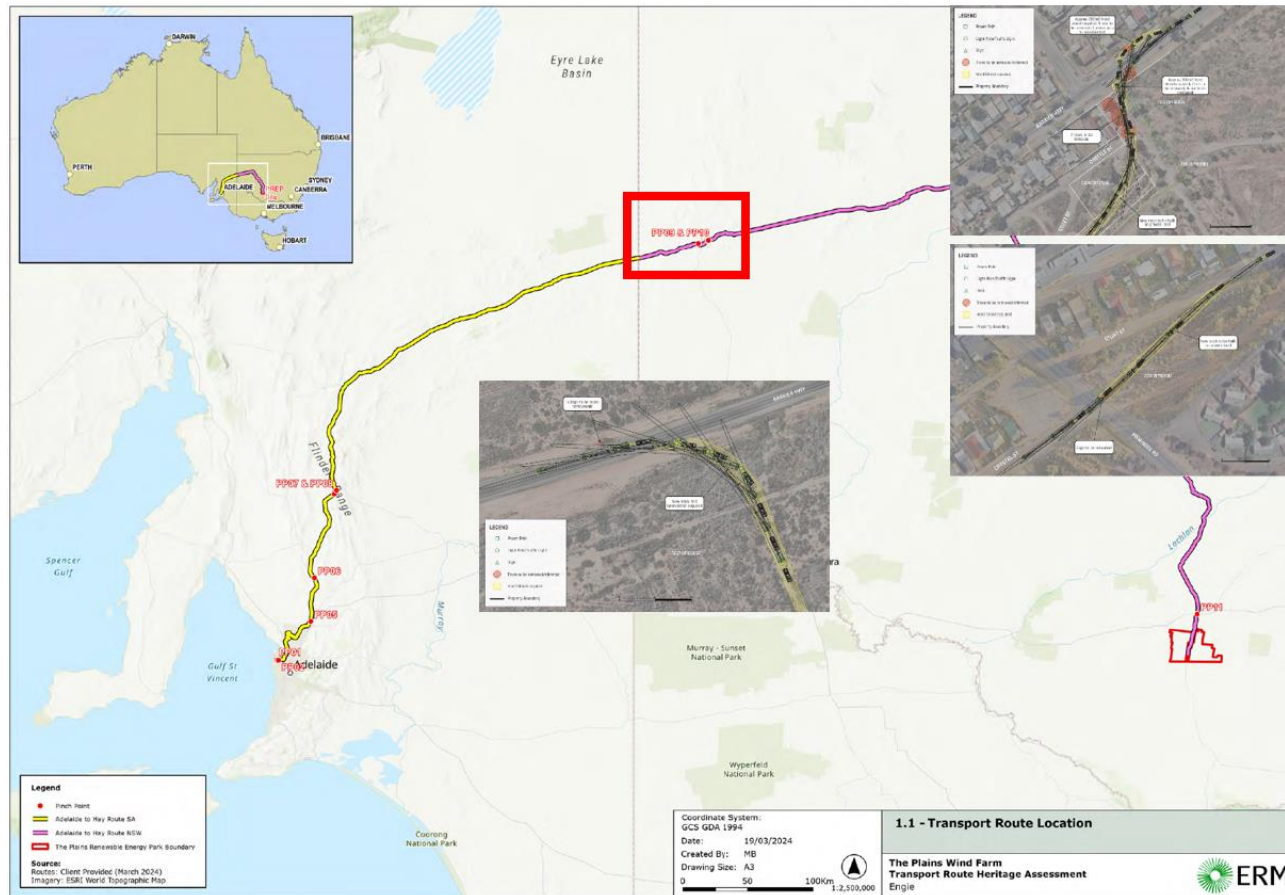


FIGURE 0.1 PROPOSED ROUTE AND PINCH POINTS WITH THE BROKEN HILL AREA (RED BOX), WITH DETAILS OF PINCH POINT 9 (CENTRE INSET), PINCH POINT 10A (TOP RIGHT INSET) AND 10C (BOTTOM RIGHT INSET)





## APPENDIX E    ADVERTISEMENT

## **Invitation to Register an Interest – The Plains Transport Route, Broken Hill, NSW**

Environmental Resources Management Australia Pty Ltd (ERM) have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

Aboriginal community consultation is being undertaken to assist the Proponent in the preparation of the Cultural Heritage Assessment to inform the development. It is intended that the consultation process would be continued into subsequent stages of the Project which may require approvals under the *National Parks and Wildlife Act 1974* or *Environmental Planning and Assessment Act 1979*.

The proponent contact details are:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

ERM is seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the Broken Hill area who may be able to assist. Interested Aboriginal parties wishing to be consulted for this assessment are invited to register a written expression of their interest by **13 September 2024**.

Please respond in writing to:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Please note that the consultation guidelines require the proponent to provide details of registered Aboriginal parties to Heritage NSW and the Broken Hill LALC. In your response could you please advise if you would like your details to not be provided.



## APPENDIX F    RAP RESPONSES



[REDACTED]

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**From:** Lorien Perchard  
**Sent:** Tuesday, 7 March 2023 7:46 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs  
**Attachments:** 0667692 The Plains ACHAR Methodology\_V1.pdf

Hi [REDACTED]

It was nice to talk to you yesterday. As I was saying in our conversation the project is located approx.. 12km south of within the Hay and the Deniliquin LALCs. Please find attached a copy of the Draft methodology for the upcoming project which includes mapping of the area for your reference.

The methodology includes details on how the field assessment and ACHARs are proposed to be undertaken. The document also requests any feedback you may have on the assessment procedure including any cultural values or areas of significance within the project area. We request that any feedback is provided by **3<sup>rd</sup> April 2023**.

We will be looking at getting into the field in early April for a period of 2 weeks (approx. 3<sup>rd</sup> April to 14<sup>th</sup> April) . I will confirm these dates as soon as possible for you. I note that it is the Easter break during this period but due to time constraints we might look at working over that holiday period. If you are interested in participating in the survey, could you please confirm if working over the easter break is ok for you and the participating RAPS and provide a quote for an hourly rate, and public holiday rate if applicable.

Thanks, and look forward to working with you.

Cheers, Lorien Perchard

---

**From:** Lorien Perchard  
**Sent:** Monday, March 6, 2023 9:14 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Good morning.

I hope this email finds you well. I'm just touching base with you as I didn't receive a response to the below email and the closing date to register your interest to participate has drawn closed. However due to some delays I am due to send out the project methodologies to interested parties today. So, if you are interested in participating in the consultation process for this project, please let me know so I can include you in the registered list.

Kind regards, Lorien Perchard.

---

**From:** Lorien Perchard  
**Sent:** Tuesday, January 24, 2023 3:05 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Dear [REDACTED],

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,  
Lorien Perchard  
Heritage Consultant

**ERM**

**W** [www.erm.com](http://www.erm.com)

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Tuesday, 24 January 2023 2:05 PM  
**To:** Lorien Perchard  
**Subject:** Re: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dear Lorien,

There is no such thing as the 'Nari Nari' people. Can you please send a map or a Lot/DP so that I can accurately ascertain the location of your project?

Kind Regards,

[REDACTED]

On 24/01/2023 3:00 pm, Lorien Perchard wrote:

Dear [REDACTED]

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,  
Lorien Perchard  
Heritage Consultant

ERM

[REDACTED]

| W [www.erm.com](http://www.erm.com)



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 27 January 2023 10:34 AM  
**To:** Lorien Perchard  
**Subject:** The Plains Renewable Energy Park

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

This area lies at the northern boundary between Wamba Wamba/Perrepa Perrepa country and Nari Nari country so our primary interest is in the southern portion

David

[REDACTED]

*Manager*

*Yarkuwa Indigenous Knowledge Centre*

*Aboriginal Corporation*

[REDACTED]

---

**From:** Lorien Perchard  
**Sent:** Tuesday, 24 January 2023 2:28 PM  
**To:** [REDACTED]  
**Cc:** Joanne Woodhouse  
**Subject:** RE: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs  
**Attachments:** F1-1\_0606253m\_SCRWF\_G001\_R02.pdf

Hi [REDACTED]

Sorry about that. I will make a note of your comments for the report.

Please find attached a PDF map of the Project Area. And the table below contains the Lots and DPs within the Project Area boundary. Any other queries please let me know.

Cheers, Lorien

| Lot number | Plan number |
|------------|-------------|
| 105        | 721978      |
| 45         | 756321      |
| 32         | 756321      |
| 7          | 756321      |
| 12         | 756321      |
| 13         | 756321      |
| 5          | 756321      |
| 6          | 756321      |
| 44         | 756321      |
| 3          | 134993      |
| 2          | 134993      |
| 8          | 756277      |
| 20         | 756277      |
| 10         | 756277      |
| 12         | 756277      |
| 11         | 756277      |
| 18         | 756277      |
| 17         | 756277      |
| 9          | 756277      |
| 14         | 756277      |
| 15         | 756277      |
| 16         | 756277      |
| 13         | 756277      |
| 19         | 756277      |
| 21         | 756277      |
| 44         | 756737      |
| 37         | 756737      |
| 8          | 756745      |
| 19         | 756745      |

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| 12 | 756737 |
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| 16 | 756737 |
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| 17 | 756737 |
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| 15 | 756745 |
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| 27 | 756737 |
| 50 | 756737 |
| 25 | 756745 |
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| 1  | 529796 |
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| 2  | 756778 |
| 41 | 756785 |
| 67 | 756785 |
| 66 | 756785 |
| 61 | 756785 |
| 5  | 756785 |
| 55 | 756785 |
| 62 | 756785 |
| 32 | 756778 |
| 36 | 756778 |
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| 38 | 722043 |
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| 3  | 756785 |
| 59 | 756785 |
| 38 | 756778 |
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| 2  | 529796 |
| 57 | 756785 |
| 28 | 756778 |
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| 23 | 756785 |
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| 20 | 756779 |
| 15 | 756779 |
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| 12 | 756779 |
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| 21 | 831180 |
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| 24   | 756779  |
| 23   | 756779  |
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| 19   | 756779  |
| 35   | 756779  |
| 68   | 756785  |
| 22   | 756779  |
| 13   | 756779  |
| 27   | 756779  |
| 10   | 756779  |
| 36   | 756779  |
| 1    | 126222  |
| 37   | 756779  |
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| 2    | 126223  |
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| 56   | 756785  |
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| 30   | 756779  |
| 18   | 756779  |
| 28   | 756779  |
| 49   | 756737  |
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| 34   | 756779  |
| 32   | 756779  |
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| 1    | 1101148 |
| 7304 | 1149704 |
| 7303 | 1149704 |
| 24   | 756745  |
| 2    | 1091853 |
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| 8   | 756785  |
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| 2   | 703764  |
| 86  | 756809  |
| 1   | 1123124 |
| 4   | 1091853 |
| 23  | 756745  |
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| 15  | 756797  |
| 38  | 756732  |
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| 12  | 756732  |
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| 119 | 756732  |
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| 76 | 756774  |
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| 3  | 756737 |
| 8  | 756770 |
| 6  | 756737 |

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**From:** [REDACTED]

**Sent:** Tuesday, January 24, 2023 3:05 PM

**To:** Lorien Perchard [REDACTED]

**Subject:** Re: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Dear Lorien,

There is no such thing as the 'Nari Nari' people. Can you please send a map or a Lot/DP so that I can accurately ascertain the location of your project?

Kind Regards,

[REDACTED]

On 24/01/2023 3:00 pm, Lorien Perchard wrote:

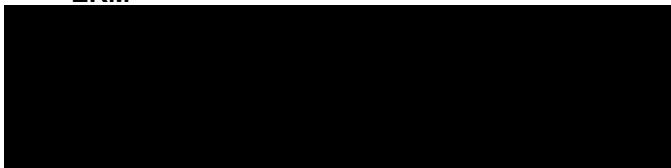
Dear [REDACTED]

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,  
Lorien Perchard  
Heritage Consultant

ERM



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[REDACTED]

---

**From:** Lorien Perchard  
**Sent:** Tuesday, 14 March 2023 7:24 AM  
**To:** [REDACTED]  
**Subject:** RE: Project methodology -The Plains Energy Park- Solar and Wind Farm ACHARs

Hi [REDACTED]

Thanks for that. I'll make a note of your new email contact details.

As for the below information regarding timing and capacity for the field work, will you be able to participate between the 3<sup>rd</sup> and 14<sup>th</sup> April? And will you be able to work during the Easter break?

If you could let me know soon that would be great.

Cheers, Lorien

---

**From:** [REDACTED]  
**Sent:** Sunday, March 12, 2023 8:34 PM  
**To:** Lorien Perchard [REDACTED]  
**Subject:** Re: Project methodology -The Plains Energy Park- Solar and Wind Farm ACHARs

Please note that this is now my email address: [REDACTED]

Regards

[REDACTED]

---

**From:** Lorien Perchard [REDACTED]  
**Sent:** 07 March 2023 08:48  
**To:** [REDACTED]  
**Subject:** Project methodology -The Plains Energy Park- Solar and Wind Farm ACHARs

Hi [REDACTED]

It was nice to talk to you yesterday. As I was saying in our conversation the project is located approx. 12km south of Hay within the Hay and Deniliquin LALC boundaries. Please find attached a copy of the Draft methodology for the upcoming project which includes mapping of the area for your reference.

The methodology includes details on how the field assessment and ACHARs are proposed to be undertaken. The document also requests any feedback you may have on the assessment procedure including any cultural values or areas of significance within the project area. We request that any feedback is provided by **3<sup>rd</sup> April 2023**.

We will be looking at getting into the field in early April for a period of 2 weeks (approx. 3<sup>rd</sup> April to 14<sup>th</sup> April) . I will confirm these dates as soon as possible for you. I note that it is the Easter break during this period but due to time constraints we might look at working over that holiday period. If you are interested in participating in the survey,



could you please confirm if working over the easter break is ok for you and the participating RAPS and provide a quote for an hourly rate, and public holiday rate if applicable.

Thanks, and look forward to working with you.

Cheers, Lorien Perchard

---

**From:** Lorien Perchard

**Sent:** Monday, March 6, 2023 9:35 AM

**To:** [REDACTED]

**Subject:** FW: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Good morning [REDACTED]

I hope this email finds you well. I'm just touching base with you as I didn't receive a response to the below email and the closing date to register your interest to participate has drawn closed. However due to some delays I am due to send out the project methodologies to interested parties today. So, if you are interested in participating in the consultation process for this project, please let me know so I can include you in the registered list.

Kind regards, Lorien Perchard.

---

**From:** Lorien Perchard

**Sent:** Tuesday, January 24, 2023 3:09 PM

**To:** [REDACTED]

**Subject:** Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Dear [REDACTED]

I hope you are well. I am reaching out to you again as another heritage project has come up in the region and I thought you might like to be consulted throughout the project.

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,  
Lorien Perchard  
Heritage Consultant

ERM  
[REDACTED]

[REDACTED]

---

**From:** Lorien Perchard  
**Sent:** Monday, 6 March 2023 8:35 AM  
**To:** [REDACTED]  
**Subject:** FW: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs  
**Attachments:** The Plains Registration of Interest letter\_John Jackson.pdf

Good morning John

I hope this email finds you well. I'm just touching base with you as I didn't receive a response to the below email and the closing date to register your interest to participate has drawn closed. However due to some delays I am due to send out the project methodologies to interested parties today. So, if you are interested in participating in the consultation process for this project, please let me know so I can include you in the registered list.

Kind regards, Lorien Perchard.

---

**From:** Lorien Perchard  
**Sent:** Tuesday, January 24, 2023 3:09 PM  
**To:** [REDACTED]  
**Subject:** Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

Dear [REDACTED]

I hope you are well. I am reaching out to you again as another heritage project has come up in the region and I thought you might like to be consulted throughout the project.

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Kind Regards,  
Lorien Perchard  
Heritage Consultant

ERM

[REDACTED] | W [www.erm.com](http://www.erm.com)

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|---------------|----------------------------------------------|---------------------------------------------------------------------------------------|
| ▲ Lift & Peel | Sender to keep<br>02 01012 38086 80060 40993 |    |
| ▲ Lift & Peel | Sender to keep<br>02 01012 38086 90060 40990 |    |
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## Maggie Cronin

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**From:** Lorien Perchard  
**Sent:** Tuesday, 24 January 2023 1:59 PM  
**To:** bushie60@gmail.com  
**Cc:** Joanne Woodhouse  
**Subject:** Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs  
**Attachments:** The Plains Registration of Interest letter\_Neville Whayman.pdf

Dear Neville,

Thanks you for your phone call last Wednesday. It was nice to chat to chat you. The information you passed on to me regarding the bat and owl totems as well as your concerns for their safety has been noted and passed on.

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,

Lorien Perchard  
Heritage Consultant

### ERM

Level 14 | 207 Kent Street | Sydney NSW 2000  
Locked Bag 3012 | Australia Square NSW 1215

T 61(0) 2 8584 8828 E [lorien.perchard@erm.com](mailto:lorien.perchard@erm.com) | W [www.erm.com](http://www.erm.com)



[REDACTED]

---

**From:** Pappin Family Aboriginal Corporation [REDACTED]  
**Sent:** Friday, 27 January 2023 8:21 AM  
**To:** Lorien Perchard  
**Subject:** Re: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

G,day Lorien, the [REDACTED] Family Aboriginal Corporation would like to register our interest in the Plains Energy Park Solar and Wind.  
thanks and we look forward to hearing from you soon

Our contacts are

[REDACTED]

Regards

[REDACTED]

On 24 Jan 2023 2:56 pm, Lorien Perchard [REDACTED] wrote:

Dear [REDACTED]

In accordance with Section 4.1.3 of the *Aboriginal cultural heritage consultation requirements for proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Energy Park (the Project) which will consist of two Aboriginal Cultural Heritage Assessments which will assess both the proposed Wind and Solar Farm. It will be located south of Hay, NSW, within the Hay Shire and Edward River Local Government Area in what is understood to traditionally have been within the boundaries of the Nari Nari people. Currently the Project area is located within the boundaries of Hay and Deniliquin Local Aboriginal Land Council on Mungadal Station.

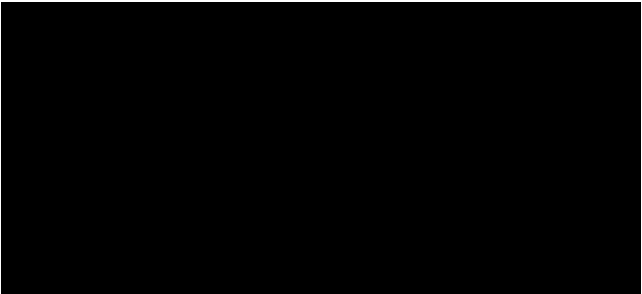
The attached letter outlines the details of the proposed project. We are hoping to ensure consultation with the Aboriginal community regarding the project is undertaken from the earliest stages of the Project. Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind Regards,

Lorien Perchard

Heritage Consultant

**ERM**



| W [www.erm.com](http://www.erm.com)

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**From:** Microsoft Outlook  
**To:** [REDACTED]  
**Sent:** Tuesday, 24 January 2023 1:47 PM  
**Subject:** Undeliverable: Invitation to Register -The Plains Energy Park- Solar and Wind Farm ACHARs

**Delivery has failed to these recipients or groups:**

[REDACTED]  
Your message couldn't be delivered. The Domain Name System (DNS) reported that the recipient's domain does not exist.

Contact the recipient by some other means (by phone, for example) and ask them to tell their email admin that it appears that their domain isn't properly registered at their domain registrar. Give them the error details shown below. It's likely that the recipient's email admin is the only one who can fix this problem.

For more information and tips to fix this issue see this article:  
<https://go.microsoft.com/fwlink/?LinkId=389361>.

**Diagnostic information for administrators:**

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info@nclwac.com.au

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From: Lorien Perchard <Lorien.Perchard@erm.com>  
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**From:**

**To:**

**Date:**

Thursday, 22 August 2024 12:28:03 PM

Thank you for the email in regards to the Culture and Heritage site survey work. This is new to me. Can you please assist me in the process of applying. Thank you

Regards



**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Re: Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR  
**Date:** Monday, 2 September 2024 1:12:16 PM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)  
[Outlook-klswi24f.png](#)

Hi Charles

Please accept this email as the Broken Hill Local Aboriginal Land Council (BHLALC) request to be listed as a Registered Aboriginal Party for the Plains Transport Route, Broken Hill, NSW - ACHAR

Broken Hill Local Aboriginal Land Council (BHLALC) has a long standing commitment to fostering the best interest/s of Aboriginal Culture & Heritage within its boundaries.

Under the Aboriginal Land Rights Act 1983 (ALRA 83), BHLALC has particular statutory obligations in relation to “Protecting and Conserving” Aboriginal Culture & Heritage.

Legislation;

Section 52.4 of the ALRA 83, advises the following;

A Local Aboriginal Land Council has the following functions in relation to Aboriginal culture and heritage:

- (a) to take action to protect the culture and heritage of Aboriginal persons in the Council’s area, subject to any other law,
- (b) to promote awareness in the community of the culture and heritage of Aboriginal persons in the Council’s area.

There are two Aboriginal organisations that the Broken Hill LALC recommend you contact or list as RAP’s for this project those being;

1. Wilyakali Aboriginal Corporation – [admin@wilyakali.org](mailto:admin@wilyakali.org)
2. Barkandji Native Title Group Aboriginal Corporation RNTBC email: [barkandjiceo@gmail.com](mailto:barkandjiceo@gmail.com)

Kind regards,

[REDACTED]  
Acting Chief Executive Officer  
Broken Hill Local Aboriginal Land Council  
[REDACTED]

*I acknowledge the Traditional Owners of the country in which I work on, the Wilyakali people and all Traditional Owners of Country throughout Australia. I recognise their continuing connection to Land, Water and Culture and I pay my respects to the Elders, past, present and emerging.*

---

**From:** Charles Barnett [REDACTED]  
**Sent:** Monday, 2 September 2024 12:02 PM  
**To:** [REDACTED]  
**Subject:** Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR

To whom this may concern,

In accordance with Section 4.1.3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, please find attached an Invitation to Register an interest to participate in Aboriginal community consultation for The Plains Transport Route project located at Broken Hill, NSW.

We posted this in the mail to you last week (27 August 2024) and wanted to follow up with an email.

Please feel free to get in touch if you have any queries or wish to register your interest to participate throughout the process.

Kind regards,

**Charles Barnett**  
Senior Consultant

---

Sydney

[erm.com](http://erm.com)



**From:**

**To:**

**Subject:**

Re: Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR

**Date:**

Wednesday, 21 August 2024 12:25:42 PM

**Attachments:**

[image001.jpg](#)

[image002.jpg](#)

## **Corroboree Aboriginal Corporation Registration of interest as required under Heritage NSW Aboriginal Cultural heritage**

We at Corroboree Aboriginal Corporation are identified First Nations people who hold cultural knowledge relevant to this project area and we wish to register an interest in the process of community consultation. Our members are from all over NSW. As such we send the relevant clan members to the project areas. Baring in mind that as per legislation as long ad we are Aboriginal and hold culture connections and knowledge, etc, we support participation of our stakeholders/members. As part of our registering we look forward to the opportunity to provide culturally appropriate information and to comment on the cultural heritage significance of Aboriginal Culture and heritage We are registering Corroboree Aboriginal Corporation in a full capacity. We have worked on a vast number of projects as Cultural Heritage Officers in the project area. We are currently involved on many projects in the subject area. My family and other family members have lived in the area and family currently reside in the surrounding areas.

We are registering in a full capacity. We are Aboriginal people who are culturally & heritage aware. We have the necessary ability, experience, skills, insight and the knowledge to identify artefacts on field work. And as Aboriginal People we connect thru the land, thru our Ancestors and our Heritage. Therefore we are able participate on all levels. We have worked with many archaeologists across a broad landscape. We have consulted with most archeological companies over many years on projects. We have all the relevant insurances and safety gear. We are all fit, capable and adapt to a vast landscape.

Contact is preferred via email: [REDACTED] The contact number, email and contact person is also listed in the signature.

Please do not disclose any of our details to LALC. We have responded for inclusion, to participate on all levels. Thanks.

Kind regards  
Marilyn Carroll  
Director  
Corroboree Aboriginal Corporation  
[REDACTED]

We respectfully acknowledge the Traditional Owners of the lands upon which we work and pay our deep respect to Elders past, present and emerging.

On 21 Aug 2024, at 12:16 PM, Charles Barnett [REDACTED]  
wrote:

Corroboree Aboriginal Corporation

DATE

21 August 2024

REFERENCE

0667692

To Sir/madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

ERM have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

The Project is a proposed wind farm located in Hay, NSW. The wind farm will consist of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). The Project will feature some of the largest wind turbines and towers currently available with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to the Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components. These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades.

A Transport Route Assessment was conducted by Ares Group in March 2024. This assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide. This port is currently being used by several wind farm projects and has the capacity and laydown area required for the wind farm components. Two routes are proposed for the wind farm components; the blade route which requires modification and has nine pinch points identified and the tower route, which has no pinch points. Most of the transport route for the blades is on state highways via Angle Vale, Gawler, Tarlee, and Burra in SA, and Broken Hill, Wilcannia, and Hay in NSW. The route includes pinch points on the Barrier Hwy (turn off approx. 2.4km west of Broken Hill), as well as at Crystal, Sturt and Chettle Streets in Broken Hill, which are the subject of this Aboriginal Cultural Heritage Assessment.

Aboriginal community consultation is being undertaken to assist the Applicant in the preparation of the Cultural Heritage Assessment. It is intended that the consultation process would be continued into subsequent stages of the Project which may require approvals under the *National Parks and Wildlife Act 1974* or *Environmental Planning and Assessment Act 1979*. Future approvals may include an application for an Aboriginal Heritage Impact Permit (AHIP). If required, this consultation process would be utilised to support the application for an AHIP and to assist the Secretary of Heritage NSW in their assessment of

the AHIP application.

The contact details for the Applicant are:

ENGIE Australia and New Zealand

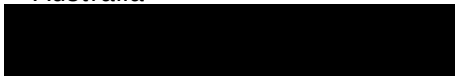


## REGISTRATION

ERM is seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the Project Area who may be able to assist.

If you wish to formally register your interest in the process of community consultation could you please contact Charles Barnett (Project Archaeologist) by **Wednesday 4 September** at the below details:

Charles Barnett  
Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia



To assist in the identification of specific knowledge holders as part of the consultation process, ERM respectfully requests that you advise us if you have any specific information concerning the cultural values of the Project Area. We would also be grateful if you could identify any other knowledge holders who would be appropriate to contact regarding the Project Area. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Please note that the Consultation Requirements require the Applicant to provide details of registered Aboriginal parties to the Heritage NSW and the Broken Hill Local Aboriginal Land Council. In your response could you please advise if you would like your details to not be provided.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd

<image001.jpg>

Charles Barnett  
Senior Consultant  
ERM

<image002.jpg>

**FIGURE 0.1 PROPOSED ROUTE AND PINCH POINTS WITH THE BROKEN HILL AREA (RED BOX), WITH DETAILS OF PINCH POINT 9 (CENTRE INSET), PINCH POINT 10A (TOP RIGHT INSET) AND 10C (BOTTOM RIGHT INSET)**

---

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**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment  
**Date:** Tuesday, 24 September 2024 12:09:45 PM  
**Attachments:** [image001.jpg](#)

---

**EXTERNAL MESSAGE**

Good Morning Charles

The Menindee Aboriginal Elders Council would like to register their interest in the above mentioned project. My apologies for the late reply however the committee have only just met and tabled this letter.

Regards

[REDACTED]  
Joint Management Officer  
West Branch, West Darling Area  
NSW National Parks and Wildlife Service

I work flexibly with NPWS. If I'm sending this message to you outside normal working hours, its because it suits me – I do not expect that you will read, respond to or action it outside of your normal working hours.

 [Do you really need to print this?](#)

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This email is intended for the addressee(s) named and may contain confidential and/or privileged information. If you are not the intended recipient, please notify the sender and then delete it immediately. Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment, Energy and Science.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL



[REDACTED]

---

**From:** Kristy Bennett [REDACTED]  
**Sent:** Thursday, 19 September 2024 11:48 AM  
**To:** Charles Barnett  
**Subject:** The Plains Transport Route - Aboriginal Cultural Heritage Assessment

Good Morning Charles

The Mutawintji Board of Management met over the weekend where your letter seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the above mentioned project was tabled.

The Board thanks you for providing this information and have advised that you'll pick up the Mutawintji Board of Management family groups through your consultation with the Barkandji Prescribed Body Corporate and the Broken Hill Local Aboriginal Land Council.

If you'd like contact details for both these organisations please let me know and I'll forward these onto you.

Regards



[REDACTED]  
Joint Management Officer  
West Branch, West Darling Area  
NSW National Parks and Wildlife Service

I work flexibly with NPWS. If I'm sending this message to you outside normal working hours, it's because it suits me – I do not expect that you will read, respond to or action it outside of your normal working hours.

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Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment, Energy and Science.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** Re: Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR  
**Date:** Monday, 2 September 2024 8:45:52 AM  
**Attachments:** [image001.jpg](#)  
[image002.jpg](#)

G,day Charles,

The Pappin Family Aboriginal Corporation would like to register for this  
We do not wish for our details to be provided to any LALCs.

Our contact persons are:

[REDACTED]

Thankyou and we look forward to hearing from you.

Kind Regards  
Mary.

**From:** Charles Barnett [REDACTED]  
**Sent:** Wednesday, 21 August 2024 2:16 AM  
**To:** [REDACTED]  
**Subject:** Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR

[REDACTED] Family Aboriginal Corporation  
[REDACTED]

DATE  
21 August 2024  
REFERENCE  
0667692

To

Sir/madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

ERM have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

The Project is a proposed wind farm located in Hay, NSW. The wind farm will consist of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). The Project will feature some of the largest wind turbines and towers currently available with a proposed height (to tip of vertical blade) of 270 m (hub height 180 m, blade length up to 90 m). Tower components will be up to 6.3 m in width. The transportation of the blades and tower components from the Port of Adelaide to the Project Site will play an important role in the site feasibility. Due to the large and specific nature of equipment required to transport these loads, 'pinch points' were identified along the proposed transport route. These 'pinch points' are areas identified where modifications are required to either private or government owned land to facilitate transport of the wind farm components. These modifications include removal of signage and/or light poles, tree trimming and/or removal, and road and intersection upgrades.

A Transport Route Assessment was conducted by Ares Group in March 2024. This assessment

identified the preferred port for the importation of the wind farm components as the Port of Adelaide. This port is currently being used by several wind farm projects and has the capacity and laydown area required for the wind farm components. Two routes are proposed for the wind farm components; the blade route which requires modification and has nine pinch points identified and the tower route, which has no pinch points. Most of the transport route for the blades is on state highways via Angle Vale, Gawler, Tarlee, and Burra in SA, and Broken Hill, Wilcannia, and Hay in NSW. The route includes pinch points on the Barrier Hwy (turn off approx. 2.4km west of Broken Hill), as well as at Crystal, Sturt and Chettle Streets in Broken Hill, which are the subject of this Aboriginal Cultural Heritage Assessment.

Aboriginal community consultation is being undertaken to assist the Applicant in the preparation of the Cultural Heritage Assessment. It is intended that the consultation process would be continued into subsequent stages of the Project which may require approvals under the *National Parks and Wildlife Act 1974* or *Environmental Planning and Assessment Act 1979*. Future approvals may include an application for an Aboriginal Heritage Impact Permit (AHIP). If required, this consultation process would be utilised to support the application for an AHIP and to assist the Secretary of Heritage NSW in their assessment of the AHIP application.

The contact details for the Applicant are:

ENGIE Australia and New Zealand

## REGISTRATION

ERM is seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the Project Area who may be able to assist.

If you wish to formally register your interest in the process of community consultation could you please contact Charles Barnett (Project Archaeologist) by **Wednesday 4 September** at the below details:

Charles Barnett  
Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia

of specific knowledge holders as part of the consultation process, ERM respectfully requests that you advise us if you have any specific information concerning the cultural values of the Project Area. We would also be grateful if you could identify any other knowledge holders who would be appropriate to contact regarding the Project Area. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Please note that the Consultation Requirements require the Applicant to provide details of registered Aboriginal parties to the Heritage NSW and the Broken Hill Local Aboriginal Land Council. In your response could you please advise if you would like your details to not be provided.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd

Charles Barnett  
Senior Consultant  
ERM

FIGURE 0.1 PROPOSED ROUTE AND PINCH POINTS WITH THE BROKEN HILL AREA (RED BOX), WITH DETAILS OF PINCH POINT 9 (CENTRE INSET), PINCH POINT 10A (TOP RIGHT INSET) AND 10C (BOTTOM RIGHT INSET)

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**From:**

**To:**

**Subject:**

**Date:**

Re: Invitation to Register - The Plains Transport Route, Broken Hill, NSW - ACHAR

Friday, 23 August 2024 7:35:19 PM

Hi

Thank you for your invitation. Can you please register me as an Individual RAP for this project? Look forward to hearing back from you.

Kind regards

Sent from my iPhone

On 21 Aug 2024, at 12:16 pm, Charles Barnett <charles.barnett@erm.com> wrote:

DATE

21 August 2024

REFERENCE

0667692

To Sir/madam,

**Subject: The Plains Transport Route, Broken Hill, NSW - Aboriginal Cultural Heritage Assessment**

ERM have been engaged by ENGIE Australia and New Zealand (The Applicant) to undertake an Aboriginal Cultural Heritage Assessment for road works required along the proposed transport route for The Plains Wind Farm. The portion of the road works that is the subject of the Aboriginal Cultural Heritage Assessment is located within the Broken Hill area.

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ENGIE Australia and New Zealand

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Charles Barnett  
Level 14, 207 Kent Street  
Sydney, NSW 2000  
Australia

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd

<image001.jpg>

Charles Barnett  
Senior Consultant  
ERM

<image002.jpg>

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## APPENDIX G    SECTION 4.1.6 LETTER



---

## The Plains Transport Route, NSW ACHAR

---

From Charles Barnett [REDACTED]

Date Mon 11/11/2024 11:50 AM

To [REDACTED]

Cc Lorien Perchard [REDACTED]

 3 attachments (461 KB)

The Plains Transport Route\_Invitation\_to\_Register\_Broken Hill LALC.pdf; Section 4.1.6\_Notification Letter\_The Plains Transport Route\_Broken Hill LALC.pdf; The Plains Transport Route\_Advert\_Draft\_V1.pdf;

To whom it may concern,

In accordance with the *Aboriginal Consultation Requirements for Proponents 2020* (Stage 1, s4.1.6), Environmental Resources Management Australia Pty Ltd (ERM) and our client ENGIE Australia and New Zealand (The Proponent) have collated a list of registered parties who would like to participate in the upcoming project. I have included details of the consult advertisement placed as a flyer in the Westside Plaza, the initial registration of interest letter and the Section 4.1.6 notification letter.

If you have any queries about the included information of the upcoming project please do not hesitate to reach out.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)

---

## The Plains Transport Route, NSW ACHAR

---

From Charles Barnett [REDACTED]

Date Mon 11/11/2024 11:49 AM

To [REDACTED]

Cc Lorien Perchard [REDACTED]

 3 attachments (464 KB)

Section 4.1.6\_Notification Letter\_The Plains Transport Route\_Heritage NSW.pdf; The Plains Transport Route\_Advert\_Draft\_V1.pdf; The Plains Transport Route\_Invitation\_to\_Register\_Broken Hill LALC.pdf;

To whom it may concern,

In accordance with the *Aboriginal Consultation Requirements for Proponents 2020* (Stage 1, s4.1.6), Environmental Resources Management Australia Pty Ltd (ERM) and our client ENGIE Australia and New Zealand (The Proponent) have collated a list of registered parties who would like to participate in the upcoming project. I have included details of the consult advertisement placed as a flyer in the Westside Plaza, the initial registration of interest letter and the Section 4.1.6 notification letter.

If you have any queries about the included information of the upcoming project please do not hesitate to reach out.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://www.erm.com)



Broken Hill Local Aboriginal Land Council

Via email: [REDACTED]

11 November 2024

Reference: 0667692

Dear Broken Hill LALC,

**Subject: Written notification of registrations of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1) – The Plains Transport Route, NSW – Aboriginal Cultural Heritage Project**

In accordance with the *Aboriginal Consultation Requirements for Proponents 2010* (Stage 1, s4.1.6), Environmental Resources Management Australia Pty Ltd (ERM) and our client ENGIE Australia and New Zealand (The Proponent) wish to inform you of the First Nations people who have registered an interest in the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR) associated with the proposed transport route for The Plains Renewable Energy Park, NSW.

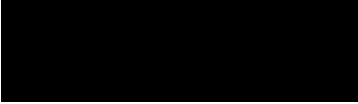
| PERSON OR ORGANISATION                                    | CONTACT DETAILS                                      |
|-----------------------------------------------------------|------------------------------------------------------|
| [REDACTED]                                                | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Barkandji Native Title Group Aboriginal Corporation RNTBC | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] |
| Broken Hill LALC                                          | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Menindee Aboriginal Elders Council                        | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| [REDACTED]                                                | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |

Two more groups have registered an interest in the Project but have requested that their details not be disclosed at this time.

As also required, a copy of the invitation to register letter and public advertisement required for *Aboriginal Consultation Requirements for Proponents 2010* (Stage 1, s4.1.3) is attached for your records. The advertisement was placed in Westside Plaza on 29 August 2024.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Charles Barnett  
Senior Consultant

ATTACHMENT 1: Invitation to register

ATTACHMENT 2: Public Notice



Heritage NSW

Via email: [REDACTED]



11 November 2024

Reference: 0667692

Dear Heritage NSW,

**Subject: Written notification of registrations of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1) – The Plains Transport Route, NSW – Aboriginal Cultural Heritage Project**

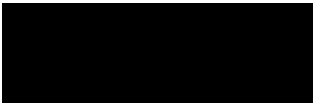
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| PERSON OR ORGANISATION                                    | CONTACT DETAILS                                      |
|-----------------------------------------------------------|------------------------------------------------------|
| [REDACTED]                                                | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Barkandji Native Title Group Aboriginal Corporation RNTBC | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] |
| Broken Hill LALC                                          | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Corroboree Aboriginal Corporation                         | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Menindee Aboriginal Elders Council                        | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| Pappin Family Aboriginal Corporation                      | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |
| [REDACTED]                                                | [REDACTED]<br>[REDACTED]<br>[REDACTED]               |

As also required, a copy of the invitation to register letter and public advertisement required for *Aboriginal Consultation Requirements for Proponents 2010* (Stage 1, s4.1.3) is attached for your records. The advertisement was placed in Westside Plaza on 29 August 2024.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Charles Barnett  
Senior Consultant

ATTACHMENT 1: Invitation to register  
ATTACHMENT 2: Public Notice



## APPENDIX H    METHODOLOGY

# The Plains Transport Route

Aboriginal Cultural Heritage  
Assessment Survey Methodology

PREPARED FOR



ENGIE Australia and New Zealand

DATE

02 October 2024

REFERENCE

0667692





DOCUMENT DETAILS

|                   |                                                            |
|-------------------|------------------------------------------------------------|
|                   |                                                            |
| DOCUMENT TITLE    | The Plains Transport Route                                 |
| DOCUMENT SUBTITLE | Aboriginal Cultural Heritage Assessment Survey Methodology |
| PROJECT NUMBER    | 0667692                                                    |
| DATE              | 02 October 2024                                            |
| VERSION           | 01                                                         |
| AUTHOR            | Charles Barnett, Lorien Perchard, Victoria Gleeson         |
| CLIENT NAME       | ENGIE Australia and New Zealand                            |

DOCUMENT HISTORY

|         |          |                                     |             | ERM APPROVAL TO ISSUE |            |                    |
|---------|----------|-------------------------------------|-------------|-----------------------|------------|--------------------|
| VERSION | REVISION | AUTHOR                              | REVIEWED BY | NAME                  | DATE       | COMMENTS           |
| Draft   | 01       | C. Barnett, L. Perchard, V. Gleeson | E. Finnegan | M. Davey              | 02.10.2024 | Approval for issue |
|         |          |                                     |             |                       |            |                    |
|         |          |                                     |             |                       |            |                    |

# The Plains Transport Route

## Aboriginal Cultural Heritage Assessment Survey Methodology

0667692

*Draft*

---

**Lorien Perchard**  
Managing Consultant

*Draft*

---

**Erin Finnegan**  
Technical Consulting Director - Heritage

*Draft*

---

**Mark Davey**  
Partner

Environmental Resources Management  
Australia Pty Ltd  
Level 14, 207 Kent Street  
Sydney NSW 2000  
T +61 2 8584 8888

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## ACRONYMS AND ABBREVIATIONS

| Name          | Description                                                                                                                                 |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| AHIMS         | Aboriginal Heritage Information Management System                                                                                           |
| Burra Charter | The Australian International Council on Monuments and Sites (ICOMOS) Charter for the conservation of places of cultural significance (2013) |
| CHL           | Commonwealth Heritage List                                                                                                                  |
| CMT           | Culturally Modified Tree                                                                                                                    |
| DCCEEW        | Department of Climate Change, Energy, the Environment and Water                                                                             |
| Engie         | Engie Australia and New Zealand                                                                                                             |
| ERM           | Environmental Resources Management Australia Pty                                                                                            |
| EP&A Act      | Environmental Planning and Assessment Act 1979                                                                                              |
| EPBC Act      | Environment Protection and Biodiversity Conservation Act 1999                                                                               |
| EPIs          | Environmental Planning Instruments                                                                                                          |
| ha            | Hectares                                                                                                                                    |
| Heritage Act  | The Heritage Act 1977                                                                                                                       |
| HIS           | Heritage Impact Assessment                                                                                                                  |
| ICOMOS        | International Council on Monuments and Sites                                                                                                |
| IHO           | Interim Heritage Orders                                                                                                                     |
| LEP           | Local Environmental Plan                                                                                                                    |
| MW            | Megawatt                                                                                                                                    |
| NSW           | New South Wales                                                                                                                             |
| NHL           | National Heritage List                                                                                                                      |
| NPW Act       | NSW National Parks and Wildlife Act 1974                                                                                                    |
| REZ           | Renewable Energy Zone                                                                                                                       |
| RNE           | Register of the National Estate                                                                                                             |
| SA            | South Australia                                                                                                                             |
| SHR           | NSW State Heritage Register                                                                                                                 |
| WHL           | World Heritage List                                                                                                                         |
| WTG           | Wind Turbine Generator                                                                                                                      |



# 1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM), on behalf of ENGIE Australia and New Zealand (ENGIE), are preparing an Aboriginal Cultural Heritage Assessment Report (ACHAR) for road upgrades required along the transport route proposed for The Plains Renewable Energy Park (the Project). The Project is located approximately 15 kilometers (km) south of Hay, New South Wales (NSW). The Project will require the transporting of up to 188 wind turbine generators (WTGs) with a maximum installed capacity of up to approximately 1,350 megawatts (MW). Road upgrades are required to facilitate the transportation of blade and tower components for the Project, from the Port of Adelaide to the Project site, south of Hay, NSW. This ACHAR will only consider road upgrades required for the NSW section of the transport route.

ERM has previously completed two ACHARs for the Project for the Wind and the Solar Farms separately. ERM has also complete a Heritage Assessment (HA) and Statement of Heritage Impact (SoHI) for the proposed transport route in the Broken Hill area. These documents accompanied the Project EIS which was exhibited by the Department of Planning, Housing and Infrastructure (DPHI) between 8 May and 4 June 2024. The Project was assessed as a State Significant Development (SSD) under Part 4, Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979*.

This ACHAR of the transport route will be provided with the Submissions Report and Amendment Report.

This report provides the proposed methodology to identify and assess Aboriginal cultural heritage within areas along the NSW portion of the transport route that will require upgrades. The methodology has been prepared in accordance with the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a) (Consultation Requirements).

Preparation of the ACHAR will include Aboriginal community consultation which will be undertaken with the Registered Aboriginal Parties (RAPs) who have expressed interest in the Project. This document will be provided to all RAPs for their review and comment. Any comments received will be considered and incorporated into the assessment methodologies where practicable.

## 1.1 PROJECT AREA

A Route Study was conducted by Ares Group in March 2024 (*Appendix A*). This assessment identified the preferred port for the importation of the wind farm components as the Port of Adelaide. Two transport routes are proposed - one for blades and one for towers and other components. Only the transport route proposed for blades has pinch points (e.g., areas where modifications or upgrades are required to facilitate blade transport). Only the blade transport route will be assessed in the ACHAR (Figure 1-1).

Most of the transport route for the blades in NSW is on state highways via Broken Hill, Wilcannia, and Hay. The blade route is further detailed in Table 1-1.

**TABLE 1-1    BLADE ROUTE**

| <b>START – Port Adelaide</b> |                                                   |
|------------------------------|---------------------------------------------------|
| 0.0 KM to 463.1 km           | Ocean Steamers Road – Barrier Hwy (SA-NSW border) |
| 510.9 KM                     | (Broken Hill bypass)                              |
| 515.1 KM                     | Barrier Highway                                   |
| 729.1 KM                     | Cobb Highway                                      |
| <b>1,133.8 KM</b>            | <b>FINISH – The Project Area</b>                  |

The proposed transport route is summarised as follows:

- The transport routes leaves the Port of Adelaide via Ocean Steamers Road, Eastern Parade, Port River Expressway, and Port Wakefield Highway;
- The route then deviates along Port Wakefield/Augusta Highway, Wilkins Highway (Jamestown Bypass), Jamestown-Yarcowie/Whyte Road, to the Barrier Highway;
- The blade transport route progresses along Angle Vale Road, North-South Motorway, Horrocks Highway to the Barrier Highway; and
- The transport route then uses the Barrier Highway, and Cobb Highway to get to the Project Site.

All pinch points identified along the transport route are related to blade transport route. This report only deals with the blade transport route within NSW.

Nine pinch points were identified along the proposed blade transport route. A full description of the required works is provided within Appendix A.

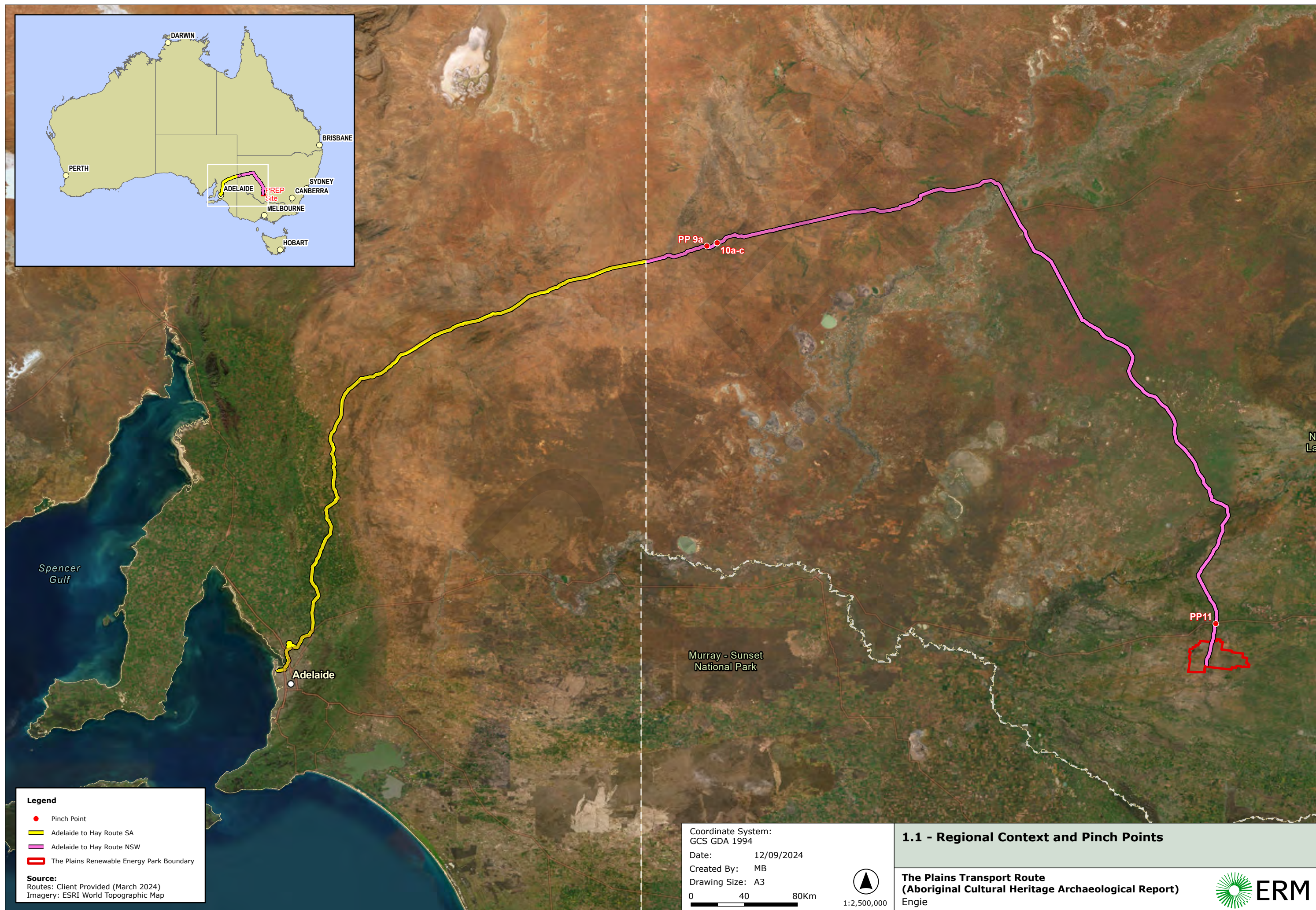
It should be noted that an additional two pinch points were identified in the 2024 Route Assessment relating to the SA section of the blade transport route (pinch point 03 and 04), as well as an additional option for pinch point 10. However, this report details those pinch points that relate to the current transport route chosen by ENGIE.

## 1.2 PROPOSED DEVELOPMENT

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

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





**Legend**

Pinch Point

Adelaide to Hay Route SA

Adelaide to Hay Route NSW

The Plains Renewable Energy Park Boundary

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

Coordinate System:  
GCS GDA 1994

Date: 12/09/2024

Created By: MB

Drawing Size: A3

04080

Km

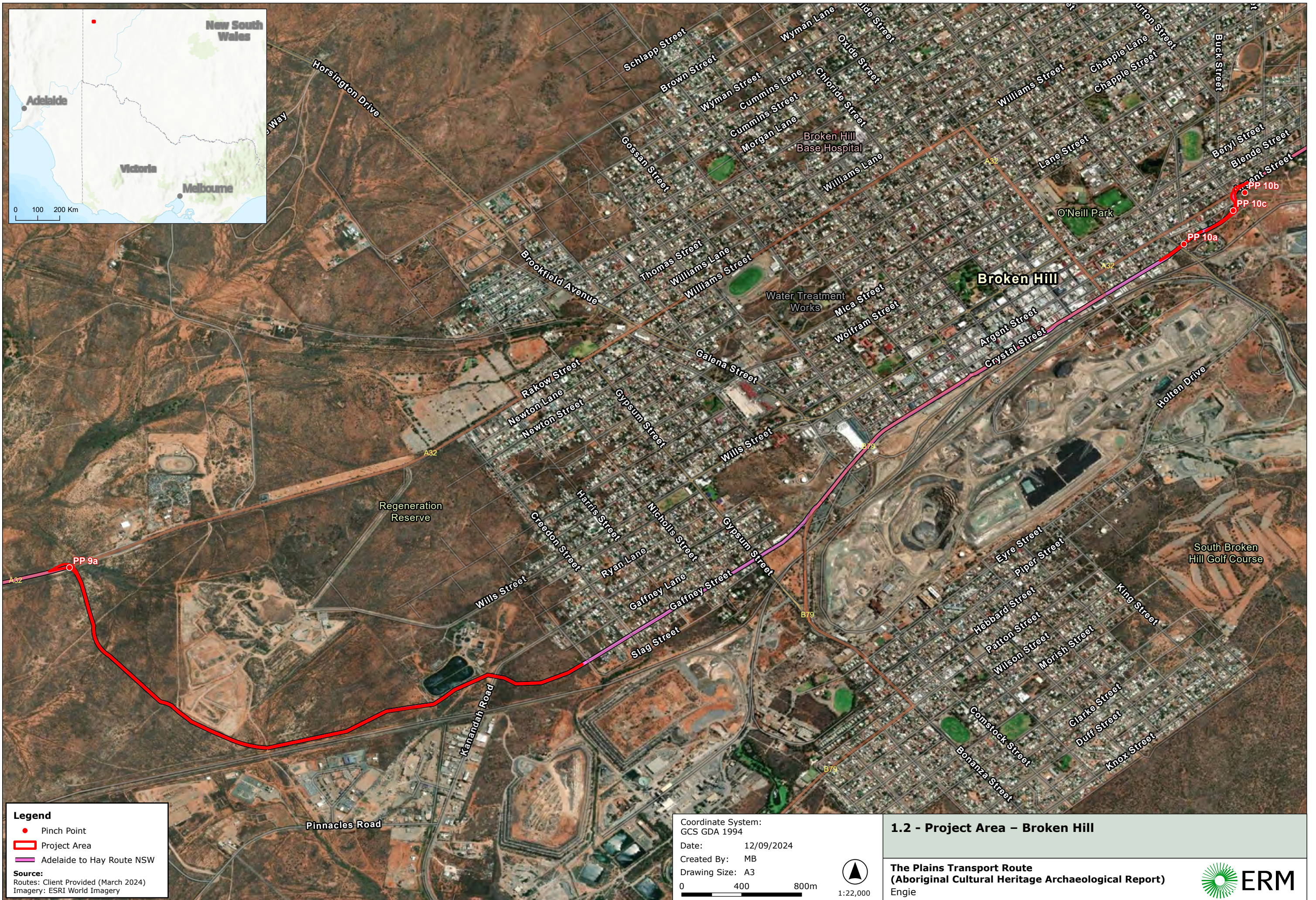
1:2,500,000

**1.1 - Regional Context and Pinch Points**

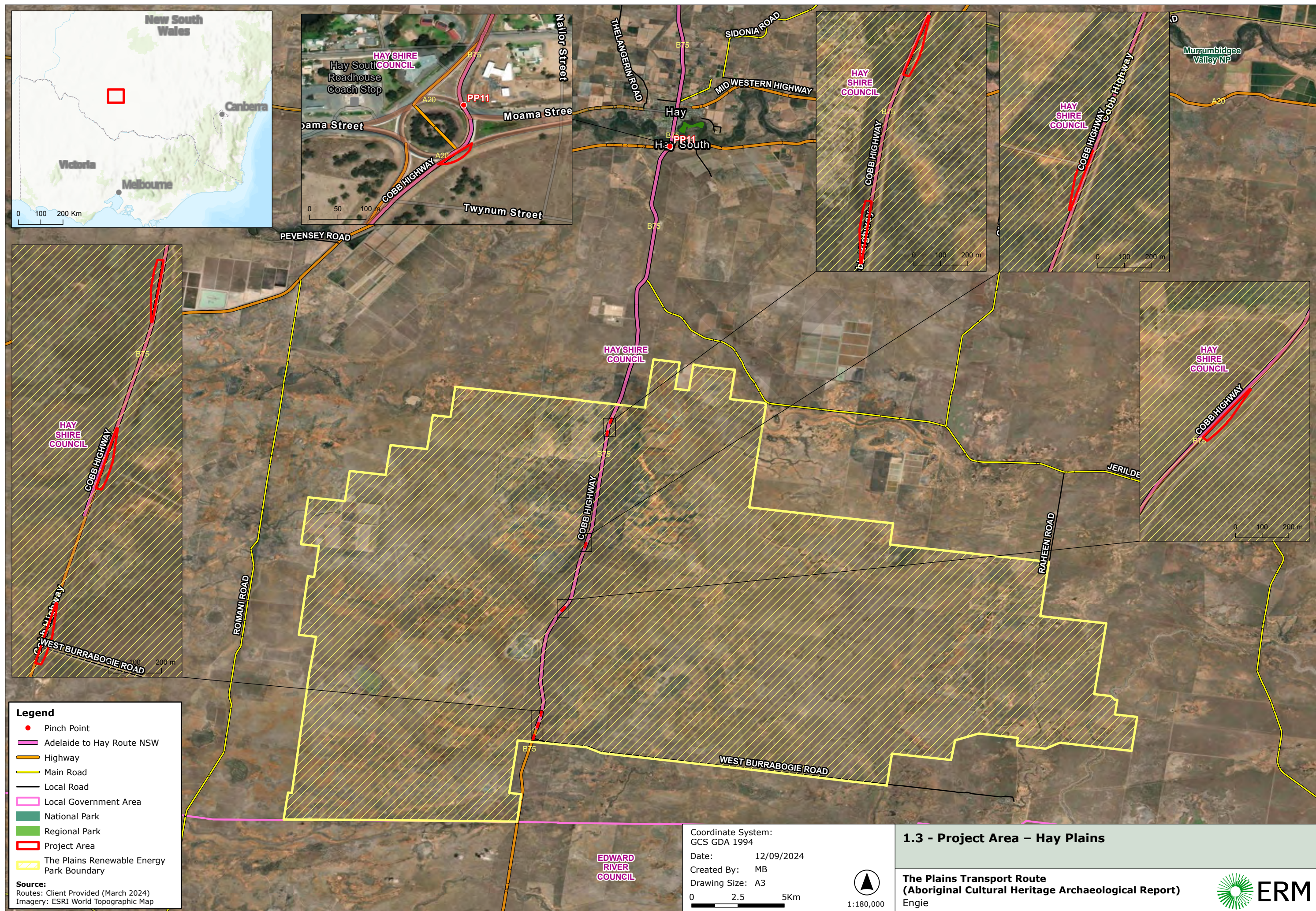
**The Plains Transport Route**  
(Aboriginal Cultural Heritage Archaeological Report)

Engie











## 2. HERITAGE BACKGROUND

ERM recognises that the primary source of information regarding the First Nations cultural values and significance of a place is First Nations knowledge holders. The following background has been prepared as a summary of the current understanding of the environmental, historical, and archaeological background of the Transport Route Activity Area. This information has been used to develop an understanding of the potential cultural heritage values and sites which may be present which will be utilised in conjunction with RAP feedback to develop the proposed assessment approach.

### 2.1 FIRST NATIONS LAND USE

#### 2.1.1 BROKEN HILL

Aboriginal people have occupied the Australian continent for at least 40,000 years, with some reports of 60,000 years and beyond. There have been no dated excavations within Transport Route Activity Area; however, it is located around 250 km north-west of Lake Mungo, one of the most significant archaeological sites in Australia that has been dated back as far as 40,000 years (Hiscock 2000:21-22).

A significant amount of archaeological research has been conducted in western NSW, primarily around the ephemeral lakes and art sites in the region. A hearth site at Lake Yantara (approximately 250 km north of Broken Hill) was dated to  $26,200 \pm 1,110$  BP. Along the Darling River (approximately 100 km east of Broken Hill), sites have been dated from 27,000 BP to the present (OzArk 2012: 21). Holdway *et al* (2002) studied the occupation of the arid margins of southeastern Australia, dating 28 hearths found in the Sturt National Park (far north-western NSW) to use within the last 1700 years. However, the researchers identified a gap in occupation of around 200-400 years between  $820 \pm 50$  and  $1170 \pm 130$  years BP, arguing this was possibly due to palaeo-environmental fluctuations (Holdway 2002). Shiner (2006) found a similar gap in occupation when dating hearth sites located from Pine Point and Langwell Stations, approximately 40 km south of the Project Area. Sixteen hearths at these sites indicated occupation over the last 2000 years, but with significant periods with little evidence.

Witter (2004) defined the area surrounding Broken Hill as the Barrier Ranges archaeological region, which is lacking in archaeological research. The semi-arid nature of the environment, far from rivers or lakes, would appear to make this region unfavorable for occupation, but Witter indicates open camp sites are found in significant numbers within all landscapes. Witter also suggests that occupation was likely dynamic and fluctuating with seasonal and longer-term climatic conditions.

Site types found in the Barrier Ranges include camp sites comprising of stone artefacts, hearths commonly found along streams, clay pans and near water holes in the ranges, stone quarries and rock art sites. Artefact types from the region include grinding stones, milling stones, flaked stone (mostly quartz), some retouched artefacts including Pirri points, geometric backed blades, Bondi points and Talus (Dibden, 2008: 36).

### 2.1.2 THE HAY PLAINS

Several ethnographic accounts of Aboriginal people are available for the region, however as noted by Barber (2015), these ethnographies provide only a glimpse of a way of life which had already been impacted by disease and colonialism. Consequently, it is noted that the ethnographic record cannot provide a detailed and accurate understanding of how Aboriginal groups of the region inhabited the landscape without the influence of European arrival.

Ethnographic histories may however provide some insight into Aboriginal land use and culture at the time of colonisation. For example, Beveridge (1884) describes the communities of the Lower Murray, Murrumbidgee, Lachlan, and Darling areas as family oriented. Daily life often consisted of hunting or gathering, cooking, or preparing food, preparing tools and canoes, and telling stories or playing games. Beveridge notes that these groups had substantial commercial networks, with trade suggested to extend up to far north Queensland.

Items that were described as tradable goods were reeds for spears, red ochre, chalk for painting, stone for tools, fibre for nets and cord, opossum cloaks, wood for weapons, etc. Trade for certain items would have been vital for the communities of this area as some resources, such as that used for the stone tool production that took place, were difficult or impossible to source locally (Barber 2015; NGH 2020). Beveridge describes the importance of trade despite the noted difference in languages across the local Aboriginal communities. To this end he identified the importance of particular members of society known as Ngalla Wattow. These men were reportedly able to communicate in the languages of the surrounding communities and provided the means to transport goods from community to community. So respected were these men that Beveridge writes that even hostile communities would do no harm to the Ngalla Wattow of their rival community (NGH 2020).

The Aboriginal communities themselves were reportedly slightly different from others across Australia, as researchers such as Pardoe (1988) and Martin (2006) argue that the mounds of the plains represent territorial markers. Beveridge reports that they were a patriarchal society led by the elder generations of the community. Utilised food resources were reported to consist primarily of fish but also other animals such as kangaroo, wallaby, emu, and possum. What was eaten was dependent on the time of year and availability in the region. These resources were typically available in abundance for some eight months of the year, where the rivers and creeks of the region would fill with water and often flood the surrounding areas. Beveridge states that at these times there was more than the community could conceivably eat. However, during the remaining four months of the year it was substantially more difficult to forage for food. During the summer, when the river systems are teeming with life, Beveridge notes that the banks were filled by communities who would remain there for weeks or even months; this behaviour extended to the lakes too, which could be as heavily populated during these periods of time (Barber 2015; NGH 2020).

NGH (2021) report that one of the major features of these campsites were the ovens and/or mounds that were left behind. These features often formed central components within a campsite; their true purpose has been debated for some time, but the most accepted theories suggest that they were the areas where food was cooked (ovens) and potentially grown (mounds). Beveridge describes coming across mounds that had dozens of people buried within them, while others believe they were simply used as ovens. Martin (2006) suggests that these mounds were used to grow crops.

The effect of colonial settlement was initially felt through the rampant spread of disease, which had originally spread from the early colonial holdings along the coastline. By the time colonial explorers had reached the interior disease had ravaged the Aboriginal population. The situation grew even more dire as the true effects of colonialism reached the region and the traditional lands of the communities were possessed by settlers who used them for farming or herding. During this time resistance by Aboriginal people was usually met with retaliatory acts of violence. Those who had survived both disease and frontier violence were forced to adapt to a different world, as their access to their traditional way of life was blocked by colonial expansion. During this period, many had no other choice except to integrate into the new colonial settlements, as a result, the traditional way of life, along with the acts of hunting, gathering, religious life, marriage links, and ceremonial sites were disrupted or destroyed.

## 2.2 EXISTING PREDICTIVE MODELS

### 2.2.1 BROKEN HILL

The Broken Hill Activity Area is located within the Barrier Range Subregion of the Broken Hill Complex Bioregion. The Barrier Range Subregion includes steep, low rocky ranges oriented to bedrock structures, prominent fault scarps and eroded foot slopes. There is a high proportion of rock outcrop with shallow stony soil on the crests. Soils become deeper and finer downslope. Texture contrast profiles are common, and quality differs according to rock type (NPWS, 2004: 45). Occupation of the Barrier Ranges was likely highly variable from the period of the Pleistocene to present day. Seasonal as well as longer term climatic conditions likely had significant effects on occupation trends. These trends provide complexity to an assessment of archaeological sensitivity within the Broken Hill region that may not be identified through the predictive features of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Code of Practice) (DECCW, 2010b).

Johnston & Witter (1996) developed a predictive model for site locations in western New South Wales, analysing sites across landscapes and undertaking in-field testing, with the following conclusions:

- Occupation can be expected near to water; and the abundance of archaeological evidence should be proportional to the quality of the water source, considering factors such as reliability, salinity and production of vegetation;
- Occupation can be expected to focus on ecotonal boundary areas; people prefer to occupy certain environmental types which need to be ranked with regard to factors such as the presence of ephemeral water, food resource abundance and food resource diversity;
- Varying effective visibility should be taken into account for each environmental type so that potential biases can be avoided. Then the information derived would relate to the archaeology and Aboriginal heritage present in an area, rather than only that which can be detected;
- Where stone sources are known to exist artefacts can be expected in extreme abundance within a radius of two kilometres and in increased numbers within a radius of twenty kilometres; and



- Other factors such as areas of known population focus, zones of exceptional productivity and food abundance could have been such a centre of activity in the landscape that a halo effect may have resulted. Within localised study areas more small-scale influencing factors that are difficult to consider within a regional model may be of use (Johnston & Witter, 1996).

Martin undertook two studies (1995 and 1998) based in the Living Desert State Park area immediately north of Broken Hill. The results of these studies concluded the following:

- Intensive exploitation of quartz reefs occurred throughout the Hills especially where Rock Outcrops dominated the landform;
- Large complex campsites occur in the Upper Creeks containing heat retainer ovens, seed grinding material, flaking areas, and a range of flaked artefacts dominated by quartz but including on average <5% silcrete/chert;
- Less abundant, less varied archaeological material occurs on Low Ridges and the Undulating Uplands landforms; and
- Rare but well-delineated quartz blade workshops and artefact scatters occur on some ridges, perhaps indicating areas that were used as day camps and 'lookouts' overlooking valleys or waterholes.

Martin (1998a) conducted a survey of 'The Pinnacles' area, approximately 5 km south-west of the Broken Hill Activity Area. Martin found site distribution was strongly tied to the geomorphic and topographic nature of the area, providing the following predictive model:

- Pine Creek and Stirling Vale Creek: Near 'The Pinnacles' campsite material was found to be concentrated in two areas along Pine Creek and in one area on Stirling Vale Creek. All three areas contained ovens and food processing equipment including grinding dishes and mortar/pestle type artefacts. Apart from these three areas there was a consistent low to medium density scatter of material along both creeks with only occasional ovens and rare grinding equipment;
- Rolling Lowlands: The lowland hills adjacent to 'The Pinnacles' contained significant campsite material especially where these lowlands occurred adjacent to the main Stirling Vale and Pine Creeks; and
- Conical peaks of the South, Middle and North Pinnacles: No archaeological material occurred on the conical peaks of 'The Pinnacles' although a very low-density background scatter was identified on the lower colluvial slopes of these peaks.

Dibden (2008) provided a predictive model for site type and location within the Barrier Ranges region that is summarised below:

- Stone artefacts will be widely distributed across the landscape in a virtual continuum, with significant variations in density in relation to different environmental factors;
- Artefact density and site complexity is expected to be greater near water courses and the confluence of several different resource zones;
- Grinding grooves are found in rock surfaces and result from the manufacture and maintenance of ground edge tools. Grinding grooves are only found on sedimentary rocks such as sandstone. Given the absence of suitable rock exposures in the study area grinding groove sites are unlikely to be present;

- Burial sites have been recorded within the wider region and are commonly found in riverine or lacustrine contexts. Although it is not of the question this site type is not expected to be present within the proposed impact areas given the geological and geomorphic context;
- Rock shelters sites are unlikely to be present in the study area given the absence of large vertical stone outcrops;
- The likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires;
- Quartz quarries are often recorded during surveys in the Broken Hill area and represent intensive exploitation of the good quality quartz and less intensive exploitation of poorer quality quartz material;
- Hearths are commonly recorded along valley floors and in upper valley/basin contexts. There is high potential for this site type to be recorded in the lower landforms of the proposal area; and
- Providing suitable rock surfaces are present in the Project Area, there is potential for rock art sites to be present. (Dibden, 2008: 51).

Archaeological Surveys & Reports Pty Ltd 2003 developed the following predictive model for the occurrence of sites within the Willyama Common surrounding Broken Hill:

- Isolated artifacts may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines;
- Artifact scatters and hearths may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines;
- There will be no art sites;
- There may be rock surfaces exhibiting pecked engravings;
- There will be no scarred or carved trees;
- There will be no evidence of burials;
- There will be no Bora rings;
- It is unlikely there will be any stone arrangements;
- There will be no shell middens;
- There are no known mythological sites directly associated with the Common; and
- There are unlikely to be quartz reef quarries and associated workshop waste, specifically in the north-western section of the Project Area (Corkery & Co. 2003: c-25).

Preliminary cultural heritage sensitivity mapping is provided in *Figure 2-1*. Further assessment is required to identify additional environmental or landscape features (including palaeochannels) which may also be archaeologically sensitive, as well as historic land uses which may have disturbed or otherwise modified the archaeological sensitivity of an area. Detailed environmental modelling and ground-truthing will be required to adequately categorise the archaeological and cultural sensitivity of the Broken Hill Activity Area.

### 2.2.2 THE HAY PLAINS

The Hay Plains Activity Area is located within the Murrumbidgee Province of the Riverina Bioregion. The Murrumbidgee Province is generally comprised of a natural flat landscape largely consisting of clays, silts and sands which historically has been subject to a consistent cycle of annual flooding. Environmental influences on this landscape have varied dramatically over time with post glacial climate changes in the Holocene reducing flood peaks and sediment load. Over time this has resulted in modern watercourses crossing and cutting through earlier palaeochannels. These landscape features provide complexity to an assessment of archaeological sensitivity within the Riverine region that may not be identified through the predictive features of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Code of Practice) (DECCW, 2010b).

A localised landscape based predictive model was developed by Colin Pardoe for the 'Murrumbidgee Province' as part of the Murrumbidgee Province Aboriginal Cultural Heritage Study (Pardoe & Martin, 2011). This predictive model has focused on the localised landform features and their relationship to site identification and includes assessment of The Hay Plains Activity Area. Pardoe's assessments considered the relationship between landform features and the location of archaeological sites making the following conclusions.

- Water – The pattern of site distribution was identified as having its greatest concentration within proximity to watercourses. Pardoe and Martin (2011) found some variation in site distribution based on water source type was also noted:
  - Major Streams – No site was located more than 12 km from a major river channel with most sites found with a short distance of this channel (75% of sites were within 3.3 km of a major stream);
  - Minor Streams – No site was located more than 12 km from a minor stream (75% were within 2.2 km);
  - Lakes – More than 82% of sites are found within 8 km of a lake; and
  - Swamps – No obvious pattern of distribution was identified which was attributed to variations in the way swamps are described in official mapping data.
- Landforms – Plains made up 93% of the Murrumbidgee Province, and as such minor variations in landform were noted to be significant as an impetus to the flow of water and location of resources. While sites were identified across most landform patterns; channeled plain and confined trace landforms were identified as containing a disproportionate number of sites. These landforms were most often associated with the modern active floodplain. Comparatively, burials were most often associated with scalded, channeled, and depressed plains associated with paleo environments; and
- Soils – Soil type was noted for its association with water resources and vegetation communities. Based on this association, particular soil types were identified to be associated more closely with site features (burials, hearths, mounds etc.) rather than overall site distribution.

Additional large-scale review of archaeological site types was completed by Martin in her review of the Hay Plains (Martin, 2007 and Martin, 2010). Martin noted a number of patterns in site distribution related to environmental features. In particular Martin noted that:

- The narrow floodplains or confined traces of the Murrumbidgee and Lachlan, the Lowbidgee distributary system, the Gum Creek palaeochannel, and the Abercrombie Creek system in the Hay Plains have the highest density of sites. Large open water lakes also have a high density of sites;
- Sites are widely spread over different geomorphic categories across the Hay Plains with certain site types most likely to be identified in specific soil types. Confined traces (including the Murrumbidgee River), plains with channels, plain with depressions and channeled plains contained a higher density of sites. Localised landforms included lunettes and lakes were also identified to have a higher than average site density;
- Mounds were identified to be located to particular parts of the Hay Plains and not directly related to geomorphology. Mounds were noted however to be particularly dense along confined traces, the Lowbidgee and Hay Plains Southeast;
- Middens were identified to be largely located along the confined traces of the major rivers and on large water lakes and lunettes;
- Open sites were more commonly found away from riverine grey cracking clays;
- Burials appeared to cluster in the western portion of the Hay Plains in similar locations to mounds. These sites were not identified to be connected to geomorphology;
- Artefact sites and ground ovens were recorded to have been spread widely across the Hay Plains; and
- All archaeological site types are considered likely to occur on slightly raised sandier paleochannel features.

Martin noted that on a wider scale the gently west sloped topography of the Hay Plains was identified to have an influence on the overall presence of sites. Martin suggested this may have been related to earlier water retention environments. Prior to modern water control systems, it was noted that the western half of the Hay Plains would have acted as a sump which collected seasonal floodwater and excess rainfall and would have provided appropriate resources for the growth of a number of plant and animal resources. Mound sites in the area surrounding Gum Creek and the Abercrombie Creek System were noted to be focused on paleochannel features and around ephemeral lakes and swamps (Martin, 2007, p. 199).

Most of the Hay Plains Activity Area is comprised of landform types which were identified by Pardoe and Martin as having the potential to contain Aboriginal sites. Sensitivity mapping focused on delineating sensitivity into zones based on types of sites which would be expected in each landscape. Areas associated with scalded plains and paleo environments were assessed to contain high archaeological sensitivity associated with their potential to contain burials and intact deposits, while depression plains and otherwise clay-based deposits were considered to demonstrate moderate sensitivity. Delineation of soil landscapes was based off data available from the Reconnaissance Soil Landscape of the Riverine Plains (Department of Natural Resources, 2004) which was subsequently adjusted based on visual clues available from aerial imagery.



Preliminary cultural heritage sensitivity mapping is provided in *Figure 2-2* based on the above assessments. Further assessment is required to identify additional environmental or landscape features (including palaeochannels) which may also be archaeologically sensitive, as well as historic land uses which may have disturbed or otherwise modified the archaeological sensitivity of an area. Detailed environmental modelling and ground-truthing will be required to adequately categorise the archaeological and cultural sensitivity of the Project Area.

In addition to the large number of tangible cultural heritage remains identified across the Murrumbidgee Province, Pardoe and Martin also noted that intangible ceremonial, dreaming, and story sites were common through the region. These were often associated with landscape features such as waterholes, hills, trees, or other minor features.

## 2.3 AHIMS SEARCH RESULTS

### 2.3.1 BROKEN HILL

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 10 September 2024 using a shape file of the Transport Route Activity Area with a 1000 m buffer included. A total of 14 sites are located within 1 km of the proposed Project Area with the closest sites approximately 400 m away from the Transport Route Activity Area boundary. The results are provided in *Table 2-1* and shown in *Figure 2-1*.

**TABLE 2-1 AHIMS DATABASE SEARCH DETAILS – BROKEN HILL**

| Item                         | Detail |
|------------------------------|--------|
| Client Service ID            | 928978 |
| Buffer                       | 1000 m |
| Number of Sites <sup>1</sup> | 14     |

A total of 14 sites were identified during the search. Of the 14 sites listed on the AHIMS register, Artefacts were the most common site type, while other sites registered include Stone Quarries, Hearth and Aboriginal Resource and Gathering sites. Some of the registered sites contain multiple site types in one location (e.g., Stone Quarry and Artefact). Cultural heritage and landform sensitivity mapping demonstrate that areas of low to moderate potential exist within the Transport Route Activity Area.

<sup>1</sup> Number of sites registered following data download on 16 July 2024.

The results of the AHIMS search are summarised in Table 2-2.

**TABLE 2-2 AHIMS REGISTERED SITE TYPES – BROKEN HILL**

| Site Type                         | Total Number            |
|-----------------------------------|-------------------------|
| Artefact                          | 10* (4 sites destroyed) |
| Stone Quarry, Artefact            | 2* (1 site destroyed)   |
| Artefact, Hearth                  | 1                       |
| Aboriginal Resource and Gathering | 1                       |
| Total                             | 14                      |

\* Includes destroyed sites.

### 2.3.2 THE HAY PLAINS

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 10 September 2024 using a shape file of the Transport Route Activity Area with a 1000 m buffer included. A total of 19 sites are located within 1 km of the proposed ground disturbance locations, with the closest sites approximately 500 m away from the Transport Route Activity Area boundary. The results are provided in Table 2-3 and shown in Figure 2-.

**TABLE 2-3 AHIMS DATABASE SEARCH DETAILS - THE HAY PLAINS**

| Item                         | Detail |
|------------------------------|--------|
| Client Service ID            | 928937 |
| Buffer                       | 1000 m |
| Number of Sites <sup>2</sup> | 19     |

A total of 19 sites were identified during the search. Of the 19 sites listed on the AHIMS register the most common site feature included Culturally Modified Trees. Other site features included Hearth, Aboriginal Resource and Gathering, Conflict, Habitation Structure, Shell and Potential Archaeological Deposits (PAD) sites. Cultural heritage and landform sensitivity mapping demonstrate that areas of low to high potential exist within the Project Area.

The results of the AHIMS search are summarised in Table 2-4.

**TABLE 2-4 AHIMS REGISTERED SITES TYPES - THE HAY PLAINS**

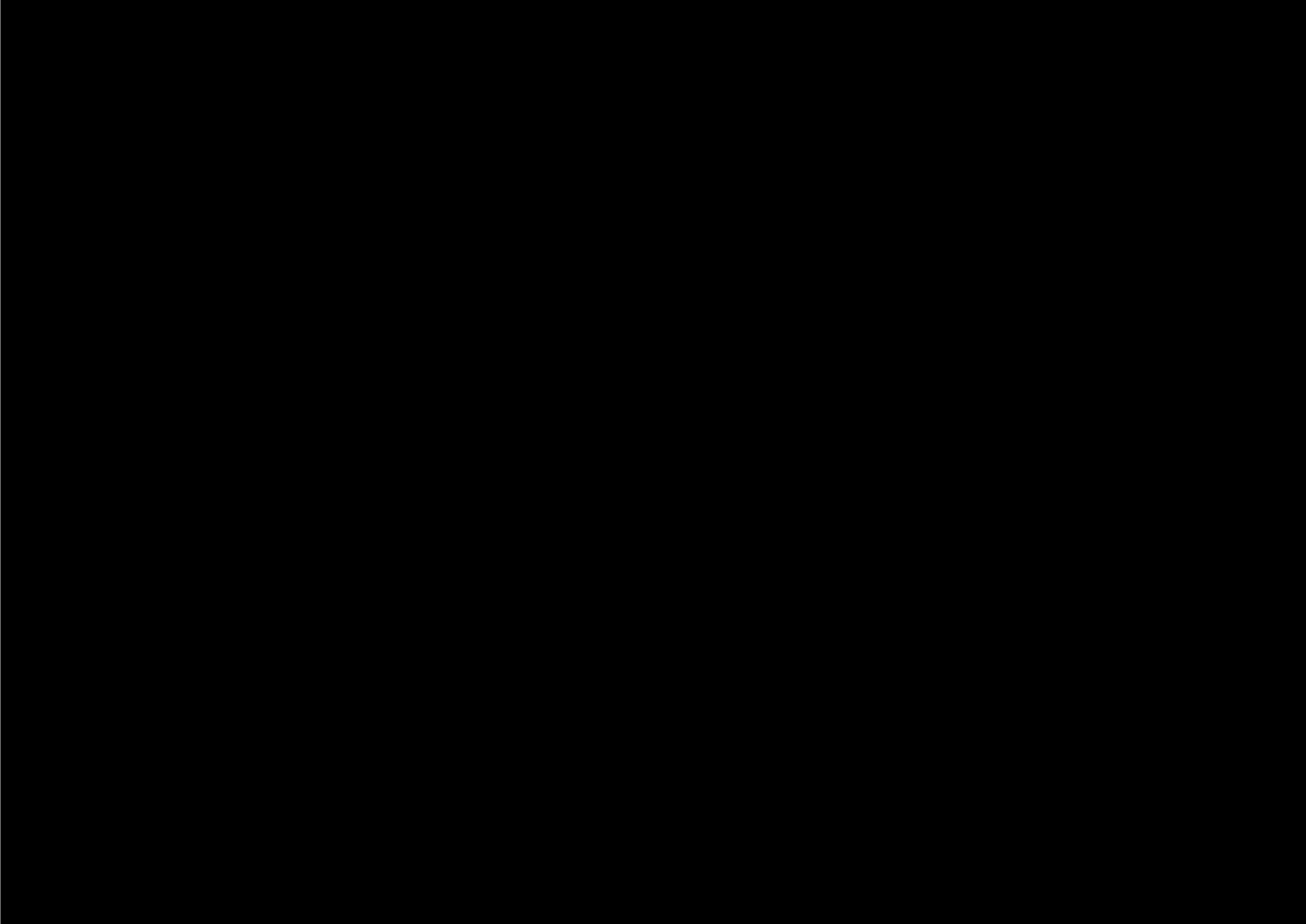
| Site Type                                                               | Total Number |
|-------------------------------------------------------------------------|--------------|
| Hearth                                                                  | 5            |
| Culturally Modified Tree (CMT), Aboriginal Resource Gathering, Artefact | 1            |
| Conflict, Habitation Structure, Shell                                   | 1            |

<sup>2</sup> Number of sites registered following data download on 17 July 2024.

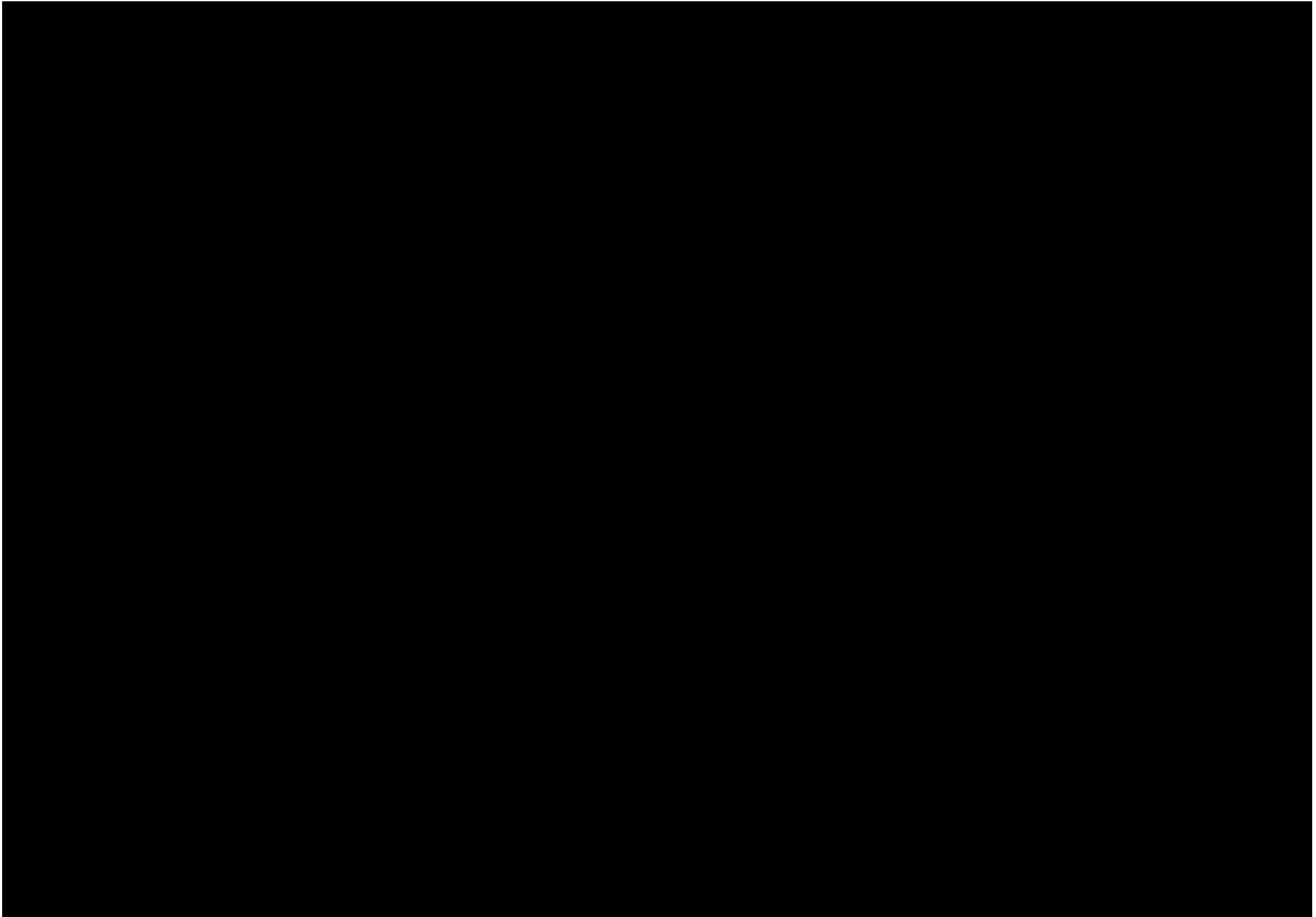
| Site Type     | Total Number |
|---------------|--------------|
| CMT           | 9            |
| Shell         | 2            |
| Artefact, PAD | 1            |
| <b>Total</b>  | <b>19</b>    |

DRAFT









### 3. FIELD INVESTIGATION METHODOLOGY

The following field investigation methodology has been developed to further assess the significance of the Project Area. Field investigation is proposed to be undertaken over a 1-day survey in the Broken Hill area. The Hay area was previously surveyed on 5 August 2024 by ERM staff.

#### 3.1 FIELD SURVEY

An archaeological survey will aim to identify all First Nations sites and areas of cultural significance present within the proposed Transport Route Activity Area (impact footprint). Survey would include the identification of any areas of PAD and would ground truth the locations of any previously registered Aboriginal sites within the impact footprint.

ERM proposes to undertake the survey with the following conditions:

- A survey would be undertaken across the full extent of the transport route impact footprint in Broken Hill and Hay;
- The impact footprint would be delineated into landforms, with survey including investigation of each individual landform across the transport route impact footprint. Survey would also include investigation of varying soil landscapes, varying distances from watercourses and areas of intact vegetation where they overlap with the impact footprint;
- A site discussion will be held with the RAPs at the commencement of each field survey to refine the proposed survey sampling strategy, to discuss sensitive landforms or locations, proposed targeted survey areas, and any relevant cultural information;
- The survey will be undertaken using pedestrian survey, with the team comprised of two archaeologists and up to two or four RAPs present. Survey will be limited to areas that can be traversed on foot;
- Identified objects will be recorded in situ, photographed and will remain onsite; and
- Any cultural heritage information for the study area shared by the RAPs will be recorded during the field survey. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the provider.

#### 3.2 SITES CONTAINING HUMAN REMAINS

Where potential ancestral remains are identified they would be subject to a non-invasive recording via photograph and GPS. The extent of the potential remains and an appropriate buffer zone to avoid potential impact to the remains during the remainder of the survey program would be discussed with the RAPs and recorded. Identified potential ancestral remains would not be touched during the recording process. Preliminary discussions with the RAPs would also be held to discuss potential mechanisms to manage the remains during construction and operational phases of the project. Identified buffer zones would be provided to the proponent to be incorporated into detailed design considerations.

As part of the preliminary recording, recommendations for long-term management of the remains would also be sought from the RAPs. At the end of the survey program, all potential ancestral remains would be reported to NSW Police and subject to inspection by a forensic anthropologist in accordance with the *Coroners Act 2009*. Heritage NSW would also be notified of the finds with all confirmed ancestral remains registered on the AHIMS database.

### 3.3 SITE RECORDING

All Aboriginal objects and sites would be recorded and registered on the AHIMS database at the end of each field survey.

Feedback from the RAPs would be sought to identify any culturally sensitive or gendered sites which may need to be registered as a restricted site.

### 3.4 ARCHAEOLOGICAL REPORTING

The results of the archaeological field investigation would be documented in an ACHAR. The report would detail the results of the field investigation and would be completed in accordance with the Code of Practice.

### 3.5 TEST EXCAVATION

At present, test excavation has not been incorporated into the current methodology.

Areas of PAD will be recorded during the survey and reviewed against the design layout to confirm if they would be subject to impact by the proposed activity. Where impact cannot be avoided, mechanisms to further investigate these sites through archaeological excavation would be recommended.

Any test excavation program would be subject to a separate test excavation methodology which would be subject to consultation with the RAPs.

### 3.6 ABORIGINAL STAKEHOLDER INVOLVEMENT

It is proposed that the survey would consist of one survey team to be comprised of two archaeologists and between two and four RAPs. It would be the site archaeologist's responsibility to perform all photographic tasks and site recording and ensure adequate site recording is undertaken in accordance with the requirements of the Code of Practice and this methodology.

A copy of this proposed survey methodology has been sent to all RAPs to provide any comments they may have prior to its implementation.

## 4. ACHAR METHODOLOGY

The ACHAR will be prepared in accordance with the Heritage NSW Consultation Requirements and the Code of Practice and will include the following steps.

### 4.1 BACKGROUND RESEARCH AND PREDICTIVE MODELLING

A background assessment will review and analyse existing background information to gain a contextual understanding of the cultural landscape associated with the Transport Route Activity Area. Review of background information will include assessment of environmental information, former historic land use, available ethnographic information, as well as existing registered Aboriginal heritage sites and reports.

This stage is ongoing, with preliminary information identified throughout this phase summarised in Section 2 above.

### 4.2 ABORIGINAL COMMUNITY CONSULTATION

Aboriginal community consultation for the Project (in relation to cultural heritage assessment) is proceeding in accordance with the *Consultation Requirements* which involves the following four key steps:

- **Stage 1:** Notification of project proposal and registration of interest;
- **Stage 2:** Presentation of information about the proposed project;
- **Stage 3:** Gathering information about cultural significance; and
- **Stage 4:** Review of draft cultural heritage assessment report.

**Stage 1** has been completed and included the following steps:

- Placement of a public advertisement in the local shopping center as no local newspaper exists in Broken Hill currently. ERM confirmed with Heritage NSW on 12 July 2024<sup>3</sup> that Stage 1 on the consultation for the Hay region was not required and that the existing list of registered RAPs could be used to notify groups of the current proposed works for the Transport Route ACHAR;
- Liaison with relevant legislative bodies to identify potentially interested parties (Broken Hill only); and
- Liaison with potential interested parties identified to invite them to register an interest in the project (Broken Hill only).

**Stage 2 and Stage 3** is currently underway and includes the preparation of the current document to present information regarding the proposed project and assessment methodology. This document also requests information regarding the cultural significance of the Project Area. Feedback on this document will be requested within 28 days of its issue to RAPs.

<sup>3</sup> Pers comm Alison Lamond, Senior Assessments Officer, via phone.



**Stage 4** would involve the provision of the Draft ACHAR for review. The Draft ACHAR would provide a summary of the identified Aboriginal heritage values identified and the assessed impacts associated with the development. The report would also identify mitigation and management measures. The review of the Draft ACHAR would request feedback to confirm that the cultural values of the Transport Route Activity Area have been adequately identified and that the proposed management and mitigation measures for any impacts are appropriate.

### 4.3 IDENTIFICATION AND ASSESSMENT OF CULTURAL VALUES

The identification and assessment of cultural values would be completed using a combination of consultation with RAPs and field investigation:

- Field investigation for the current project is proposed to involve a field survey component as detailed above;
- Identification of cultural values will be undertaken in consultation with the RAPs. Where possible information on identified cultural values will be supplemented by the identification of cultural values through the review of previous reporting and publicly available information, and through verification by the RAPs; and
- Assessment of cultural values will include consideration of Social, Historical, Aesthetic and Scientific values within the Project Area.

### 4.4 ASSESSMENT OF HARM

Following the identification of Aboriginal cultural values for the Transport Route Activity Areas, an impact assessment will be completed to identify whether any Aboriginal Objects, Places or cultural values will be harmed by the proposed works.

Where harm is identified which cannot be avoided, recommendations to manage and mitigate the harm will be proposed.

Harm would only be authorised as part of the Project's Conditions of Approval.

## 5. FEEDBACK

ERM requests that you review and provide feedback on this information package and express your interest in participating in the fieldwork program by **31 October 2024**.

As part of your response ERM asks you to consider:

- a) Whether there are any Aboriginal objects of cultural value to Aboriginal people in the Transport Route Activity Areas or surrounds; and
- b) Whether there are any places of cultural value to Aboriginal people in the Transport Route Activity Areas or surrounds.

Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

If you wish to be involved in the site survey, please include copies of your public liability and worker's compensation insurance as part of your expression of interest.

Please provide feedback to **Charles Barnett** at the following contact details:

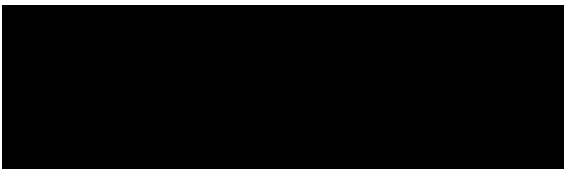
**Post: Level 14, 207 Kent Street Sydney, NSW 2000**

**Phone:** [REDACTED]

**Email:** [REDACTED]

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



**Charles Barnett**

Project Archaeologist

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## APPENDIX A      ARES ROUTE ASSESSMENT

DAEF

D



# The Plains R.E.P.

## OSOM Route Study

Date: February 2024  
Client: Aref Taleb  
Engie Aust & NZ  
Type: Physical Survey  
Rev: 5

#### Silverton WF

Silverton WF is located 600 kms from the Port of Entry and had several challenges, including gradients in excess of 25 degrees.

## The Plains R.E.P.

Route Study

“

The Plains Renewable Energy Park is a newly proposed large-scale development that aims to harness wind and solar energy to provide cheap, reliable and clean electricity for homes and businesses in NSW. The renewable energy park will include the construction of an integrated wind and solar farm and will operate alongside agricultural activities.

— [engie.com.au/home/assets/wind/the-plains](https://engie.com.au/home/assets/wind/the-plains)

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## Transport Methodology

The Plains will feature next generation wind turbines with some of the largest blades and tower sections in the market.

### Cargo Dimensions

The transport envelope assumed for this route survey will be as follows:

- Length: 86m (GW86 Blade)
- Width & Height: 6.31m (Tower)

This represents the blade size of the Baldwind GW175 BMW wind turbine platform, along with the anticipated diameter of a steel tower for this larger machine. By comparison, the current generation of wind turbines has blades at around 80m long and towers at less than 6m in diameter.

A key assumption here is that the blade will have its tip support frame positioned at 50m from the blade root, based on the information provided by the client and OEM. This will result in quite a large rear overhang of 36m.

### Equipment

The change in cargo size is relatively small compared with current wind turbines and hence equipment required to transport them should be readily available.

Blades can be transported on extendable trailers which are currently being used, although if the tip frame spacing changes to something larger than about 55m then these trailers would need to be modified.

Other options for blade transport include a jinker style

trailer or a fixed length blade trailer with removeable extension beams. A key criteria for blade trailer selection will be overall height, especially for the Newcastle route which has a height restriction of 5.0m at the NorthConnex tunnel. It will be assumed for the purposes of this report that the blade is transported at less than 5.0m high.

The towers at a diameter of up to 6.31m will pose issues especially with respect to height. Adelaide is the only feasible route to bring towers out of, with the Newcastle option hampered by non-bypassable overhead obstructions throughout the route.

Towers will be transported on either "bookend" style trailers or low platform trailers to keep overall height as low as possible - this will minimize the amount of power lines which will need to be lifted.

### Pilots and Escorts

The blades will require 2 police escorts and at least 3 pilot vehicles in both South Australia and New South Wales (subject to confirmation from transport permitting process). A handover will be required at the border (Cockburn) between SA and NSW police.

In South Australia, conveying of 2 blades may be permitted subject to approval from the SA authorities. This would save on police escort resources. In NSW this is not allowed and each blade will have to travel separately with their own set of escorts once across the border.



Above: Bookend Trailers being used by ARES for Murra Warra's 5.8m towers

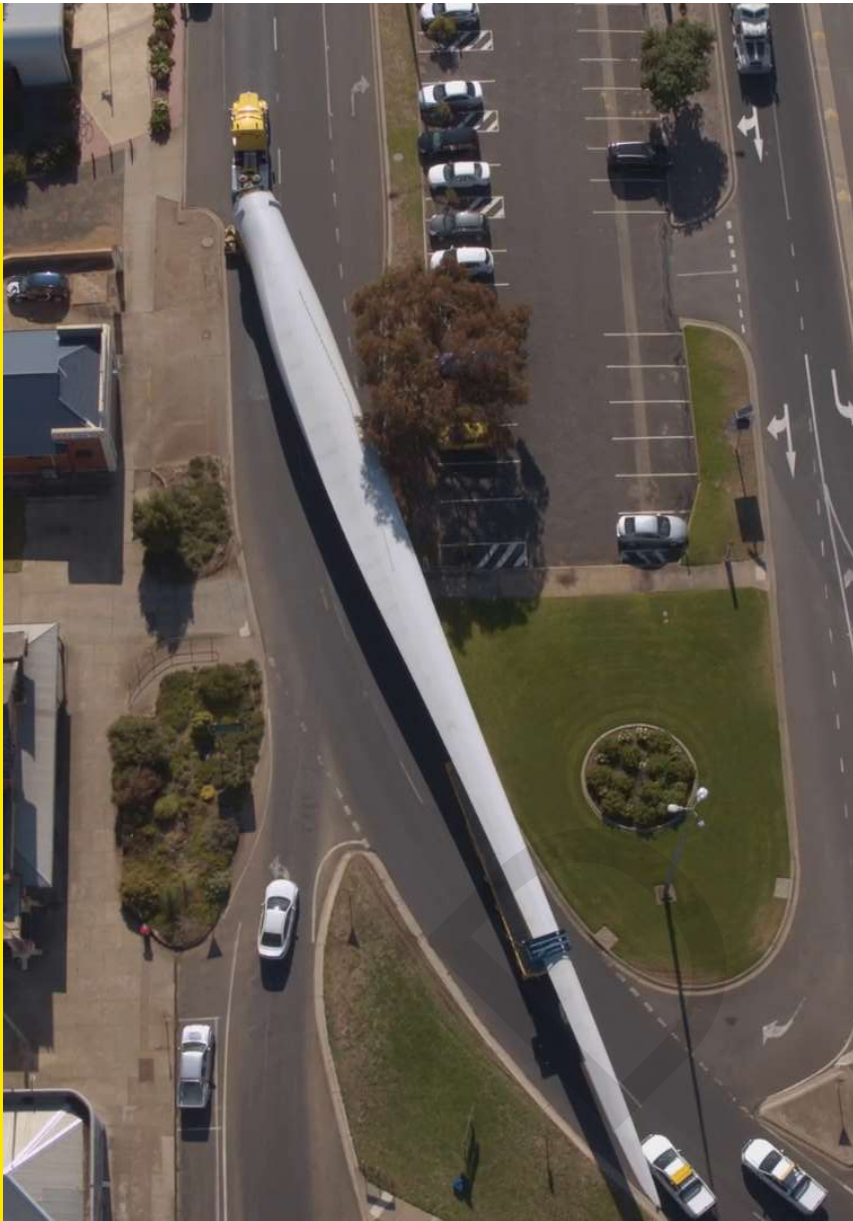


Above: Schematic of proposed blade jinker trailers



Above: 75m-long blades loaded on extendable blade trailers for the Yandin Wind Farm project





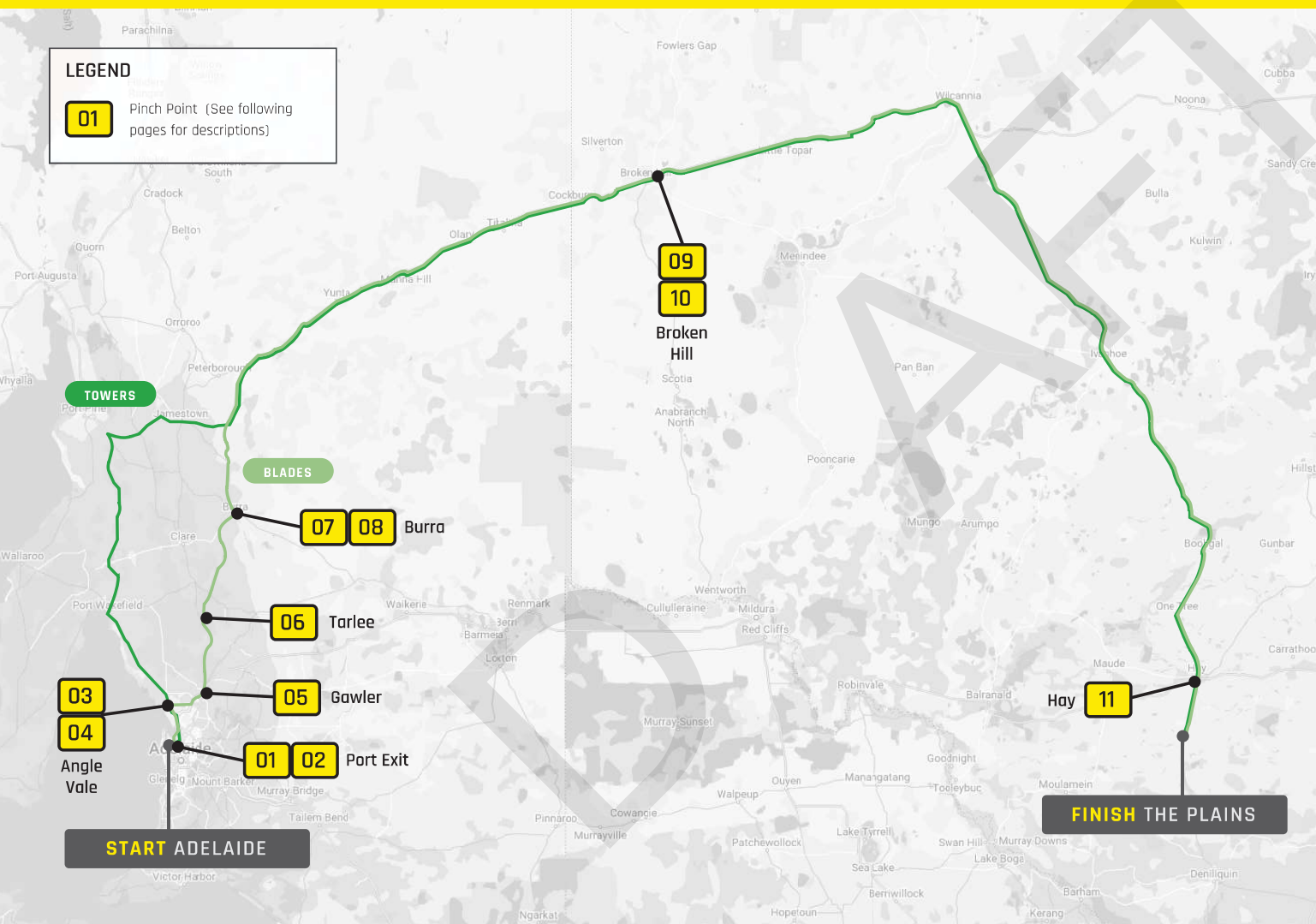
# 02

## Adelaide to The Plains REP

### Murra Warra WF

A blade trailer loaded with a 70m Senwion blade skilfully negotiates the township of Nhill for the Murra Warra Stage 1 Wind Farm.

## Adelaide to The Plains - Overview



### BLADE ROUTE

|                   |                                |
|-------------------|--------------------------------|
| 0.0 KM            | <b>START - Port Adelaide</b>   |
| 0.1 KM            | Ocean Steamers Rd              |
| 1.0 KM            | Eastern Pde                    |
| 4.4 KM            | Port River Expy                |
| 19.3 KM           | North-South Mwy                |
| 26.8 KM           | Port Wakefield Hwy             |
| 39.7 KM           | Angle Vale Rd                  |
| 49.9 KM           | North-South Mwy                |
| 89.9 KM           | Horrocks Hwy                   |
| 156.3 KM          | Barrier Hwy                    |
| 160.3 KM          | (Burra bypass)                 |
| 510.9 KM          | Barrier Hwy                    |
| 515.1 KM          | (Broken Hill bypass)           |
| 729.1 KM          | Barrier Hwy                    |
| 729.1 KM          | Cobb Hwy                       |
| <b>1,133.8 KM</b> | <b>FINISH - The Plains REP</b> |

### TOWER ROUTE

|                   |                                |
|-------------------|--------------------------------|
| 0.0 KM            | <b>START - Port Adelaide</b>   |
| 0.1 KM            | Ocean Steamers Rd              |
| 1.0 KM            | Eastern Pde                    |
| 1.0 KM            | Port River Expy                |
| 9.4 KM            | Port Wakefield/Augusta Hwy     |
| 201.7 KM          | Wilkins Hwy                    |
| 249.0 KM          | (Jamestown Bypass)             |
| 254.0 KM          | Wilkins Hwy                    |
| 254.8 KM          | Jamestown-Yarcowie/Whyte Rd    |
| 279.8 KM          | Barrier Hwy                    |
| 576.8 KM          | (Broken Hill bypass)           |
| 582.6 KM          | Barrier Hwy                    |
| 796.6 KM          | Cobb Hwy                       |
| <b>1,201.3 KM</b> | <b>FINISH - The Plains REP</b> |

# Adelaide to The Plains REP

## General Route Notes

### Road Quality

Almost the entire transport route will be along state highways, which are generally designed to a higher specification and able to handle heavier and higher volumes of traffic.

The routes will be entirely on asphalt. There are sections of the Cobb Hwy between Wilcannia and Ivanhoe which are currently being upgraded from gravel to asphalt - this is scheduled to be complete in 2023-24 and well ahead of any deliveries for The Plains.

Width-wise there is only one area of note which will require extra vigilance - sections of the Cobb Hwy either side of Ivanhoe are quite narrow with negligible shoulders. With loads at up to 6.3m wide, oncoming traffic will have to pull off the road surface completely to let loads past. If there have been recent rains, the ground may be soft and cars may become bogged.

### Rest Stops

Being on main highways, there are ample truck parking areas and service areas for rest breaks along the routes (refer to following page). However, it is worth noting that the section between Broken Hill and Hay is quite remote with limited amenities and mobile phone coverage. We recommend that a service vehicle with spare parts, tyres etc. accompanies the larger loads to ensure any breakdowns can be addressed in a timely manner.

### Overhead Structures

There are only a few overhead structures of note along the overheight route for towers:

- Hanson Rd overpass of Port River Expy (6.0m clearance, bypass via off- and on-ramps)
- N-S Motorway overpass of Port River Expy (7.2m clearance - no issues)
- Gantries for highway VMS signboards at various locations in Adelaide metro (bypassable)
- Copper Coast Hwy overpass of Augusta Hwy at Port Wakefield (7.6m clearance - no issues)

For the blades, which are expected to be around 5.0m loaded height, there are two bridges on the North-South Motorway which are at around 5.3m height. These can be bypassed by taking Port Wakefield Rd and then Angle Vale Rd.

### Overhead Power Lines

In general, a travel height below around 5.5m is not an issue with respect to power lines. For this project, most towers will be travelling at more than 6m so there will likely need to be quite a few lines requiring permanent lifting, subject to detailed surveys from the power authorities (SA Power Networks, Endeavour Energy, Essential Energy). High load escorts will also likely be required to accompany these loads.

### Bridges and Culverts

Axle loads will be limited to 14 tons per axle by South Australian regulations. This should be well within design specifications for bridges, culverts and other structures on major state roads and highways. There are small sections of the route which deviate off state roads, such as the Burra and Jamestown bypasses. These will need liaison with the local council to ascertain any load limits on structures that are crossed.



Above: Typical construction of Cobb Hwy with minimal shoulder.

### Rail Crossings

There are numerous rail crossings along the route. These will need written approval from the rail authority or asset owner before they can be crossed. Due to the length and nature of the cargo, there is a high chance that a track protection officer (TPO) will be required to accompany each load.

### Approvals

Works on major arterial highways in South Australia require engineering design by an engineering consultant (from a pre-approved list) and final sign off by Department of Infrastructure and Transport (DIT).

Modifications to NSW State Roads will require a Works Authorisation Deed (WAD) signed between the project developer and Transport for NSW (TfNSW). Designs will need to be done by a pre-approved engineering consultant and signed off by TfNSW prior to construction.



Above:

Hanson Rd overpass of Port River Expressway - 6.0m clearance.

Below:

Penfield Rd overpass (Hamel Bridge) on North-South Motorway - 5.3m clearance.



## Adelaide to The Plains - Rest Stops

### LEGEND

01

Pinch Point (See following pages for descriptions)

TOWERS

BLADES

FINISH THE PLAINS

START ADELAIDE

### BLADE ROUTE

| KP   | Rest Stop Name                   |
|------|----------------------------------|
| 106  | Parking Bay north of Saddleworth |
| 161  | Parking Area near Goyder Hwy     |
| 222  | Woodcutters Rd Parking Area      |
| 257  | Barrier Hwy Parking, Nackara     |
| 311  | Yunta Rest Area                  |
| 371  | Truck Parking, Outalpa           |
| 418  | Barrier Hwy Parking, Tikalina    |
| 460  | Cockburn Rest Stop               |
| 473  | Thackaringa Hills Rest Stop      |
| 514  | Round Hills Rest Stop            |
| 542  | Mount Gipps Rest Stop            |
| 644  | Dala Hills Rest Stop             |
| 704  | Wilcannia                        |
| 724  | Cobb Hwy Parking                 |
| 796  | Half Way Tree                    |
| 896  | Cobb Hwy, Abbotsford Bore        |
| 1006 | Bairds Truck Stop                |

### TOWER ROUTE

| KP  | Rest Stop Name                       |
|-----|--------------------------------------|
| 76  | Parking Area south of Inkeram        |
| 93  | Parking Area north of Port Wakefield |
| 151 | Truck Parking, Hope Gap              |
| 183 | Truck Parking, Merriton              |
| 201 | Wilkins Hwy Parking                  |



Pinch Point

01

RIGHT TURN  
Ocean Steamers Rd  
& Eastern Pde

Blades will have to exit from the existing gate on the north-east side of the Berth 18/20 storage area. This gate will need to be widened or fence made removeable (see red segment on diagram) to accommodate the longer blades. Flinders Port approval will be required for these works. Cargo will have to be stored away from the gate to allow room for blades to manoeuvre.

The turn will need to be made very carefully due to close clearances to traffic furniture on all sides and to be able to straighten up sufficiently for the railway crossing, but no other modifications are required.



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DRAWN DATE:

CHECKED BY:

CUSTOMER: Engie

PROJECT: The Plains R.E.P.

DRAWING TITLE: SWEEP PATH DRAWING

DRAWING NAME: Route Survey

SIZE:

SCALE: NTS

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ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

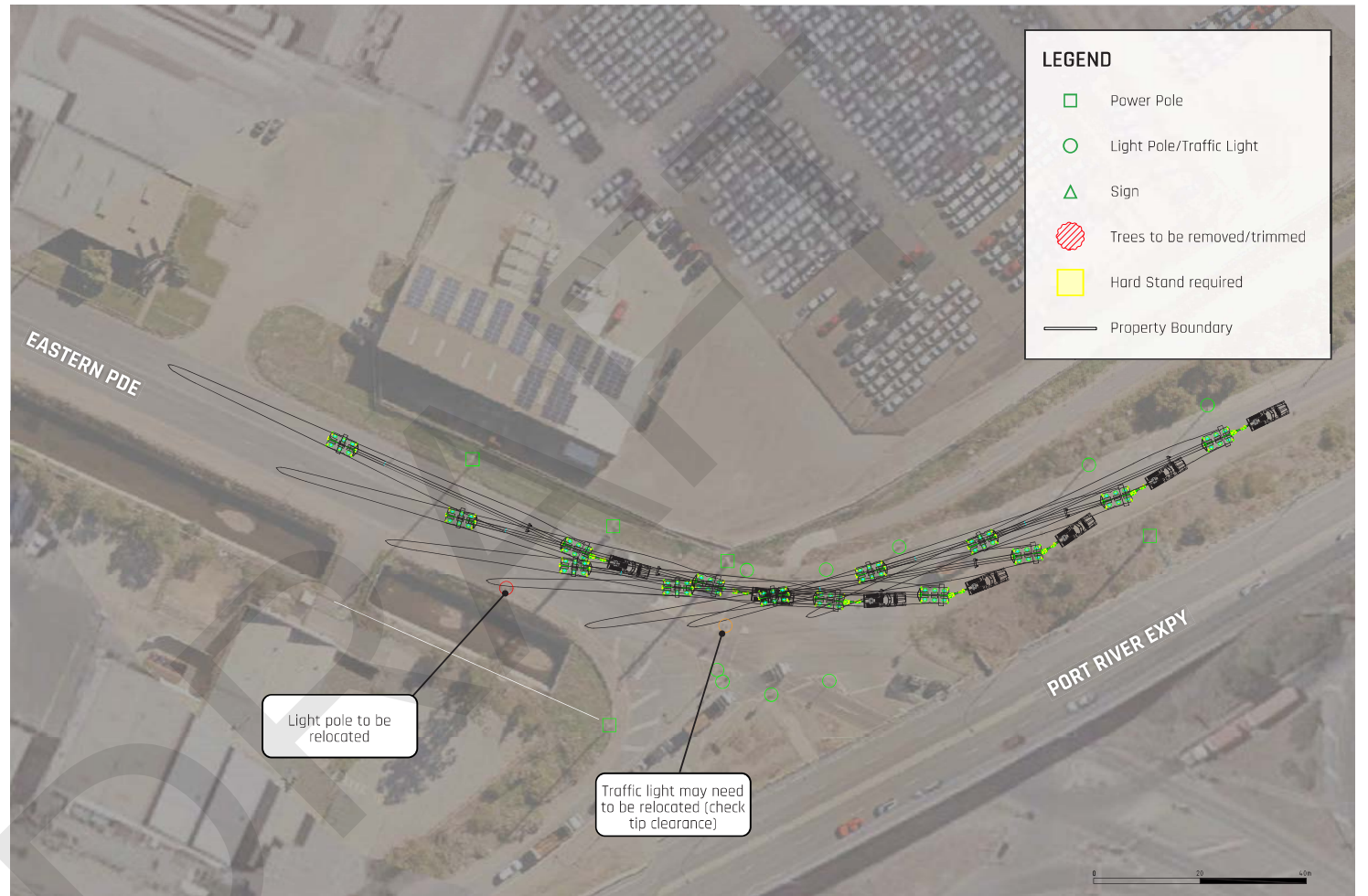
Pinch Point

02

LEFT TURN  
Eastern Pde &  
Port River Expy

The turn onto Port River Expressway is very tight with some tall powerlines and poles in the vicinity which are to be avoided. The rear of the blade trailer will run out very wide onto the opposite footpath, requiring the relocation of one light pole as well as the possible relocation of one of the traffic lights in the intersection.

The blade tip can be kept clear of the trees to the south and will not stray into private property.

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DRAWN DATE:

CHECKED BY:

CUSTOMER: Engie

PROJECT: The Plains R.E.P.

DRAWING TITLE: SWEEP PATH DRAWING

DRAWING NAME: Route Survey

SIZE:

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ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

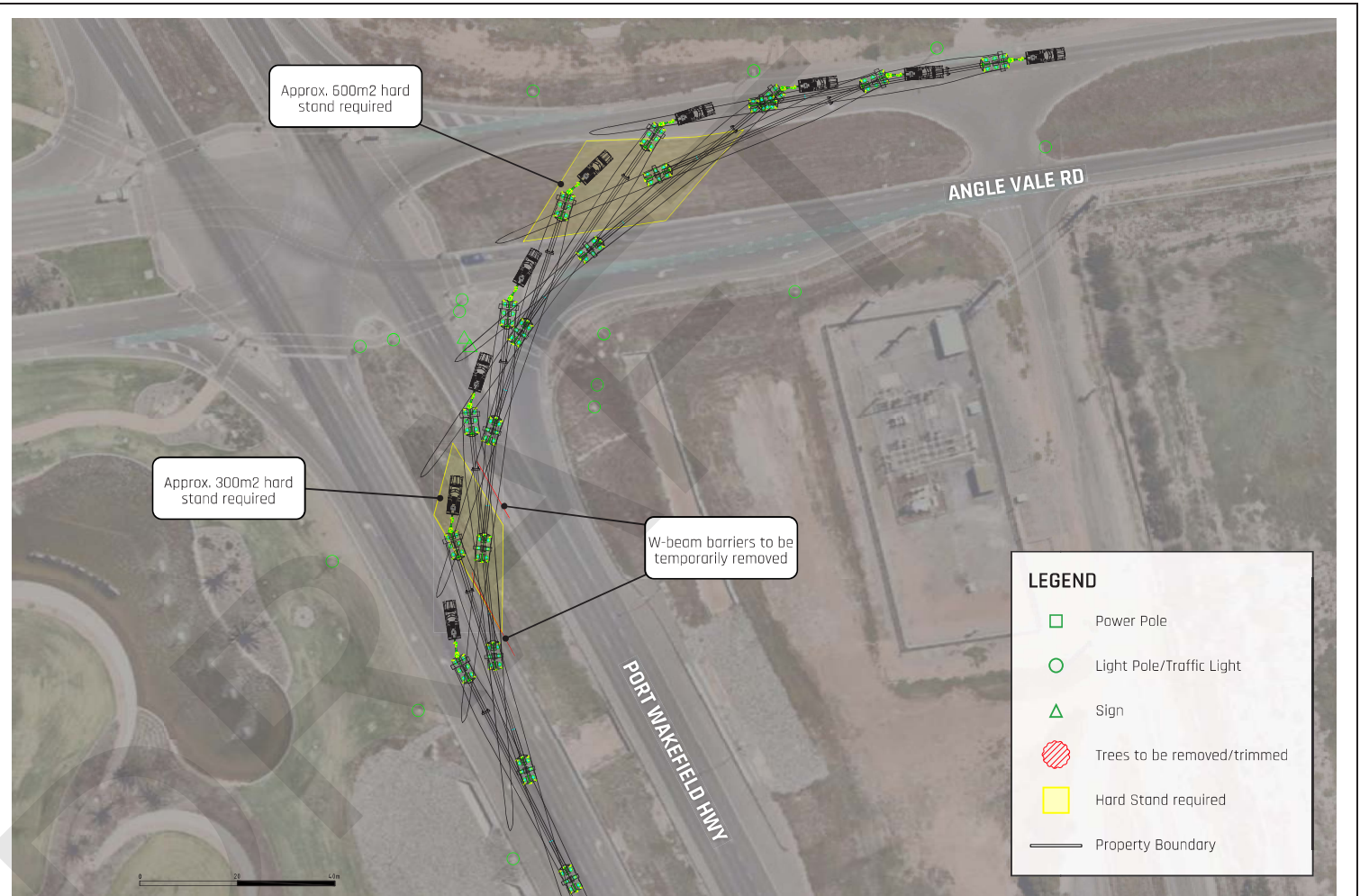
Pinch Point

03

RIGHT TURN  
Port Wakefield Hwy  
& Angle Vale Rd

This intersection has recently been upgraded to make Angle Vale Rd dual carriageway, giving a bit more room for blades making the turn. W-beam barriers will need to be removed along Port Wakefield Hwy to allow blades to cut across the median strip, taking care to avoid the drain in the middle. The blade will then cut across the median strip on Angle Vale Rd to cross over to the correct side of the road.

Minor civil works will be required to make the median strips trafficable for truck and trailer wheels as shown in yellow on the right.



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CHECKED BY:

CUSTOMER: Engie

PROJECT: The Plains R.E.P.

DRAWING TITLE: SWEEP PATH DRAWING

DRAWING NAME: Route Survey

SIZE:

SCALE NTS

SHEET NO:

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Pinch Point

04

LEFT TURN  
Angle Vale Rd  
& North-South Mwy

This combination of corners to get back onto the North-South Motorway is quite tight and will require traffic to be stopped in both directions, but can be done with only minimal modifications.

Care will be required on the approach as there are power poles and trees to the south of Angle Vale Rd which need to be avoided. The rear trailer will have to be manually steered to keep it on the road surface as it navigates around the roundabout and to avoid the light poles.

A sign will need to be made removeable and another two (in orange) checked during a trial run for blade tip clearance.

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Pinch Point

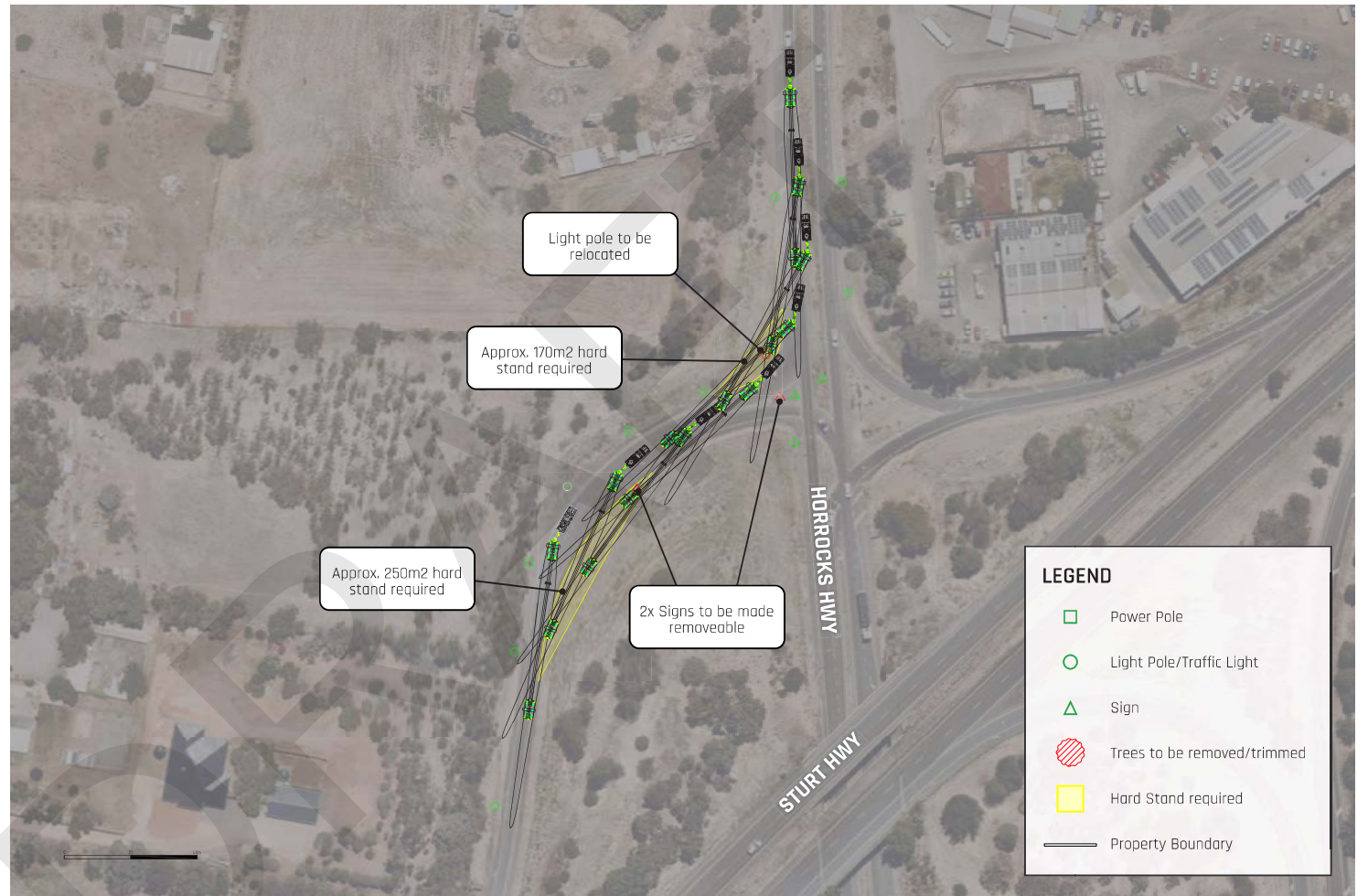
05

LEFT TURN  
Sturt Hwy &  
Horrocks Hwy

The offramp into this intersection has a moderate downhill gradient with embankments on either side. The blade trailer's rear wheels will have to travel on the eastern embankment, meaning hard stand material will need to be put down with possible earthworks required to level the ground. Further hardstand is required on the inside of the corner merging onto Horrocks Hwy.

Rear tip clearance with the ground will need to be checked during a trial run, if this is an issue the tip frame can be put onto spacers for additional clearance.

One light pole and a few signs will need to be relocated or removed.



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Pinch Point

06

LEFT TURN  
Horrocks Hwy,  
Tarlee

There is a left hand turn at the town of Tarlee on the Horrocks Hwy to cross a disused railway line. This can be taken by blades conventionally with no issues, however the police escorts will have to hold oncoming traffic whilst the blade completes the turn as the combination will take up both lanes.

Tree trimming is likely required on overhanging branches leading up to this turn (not shown).

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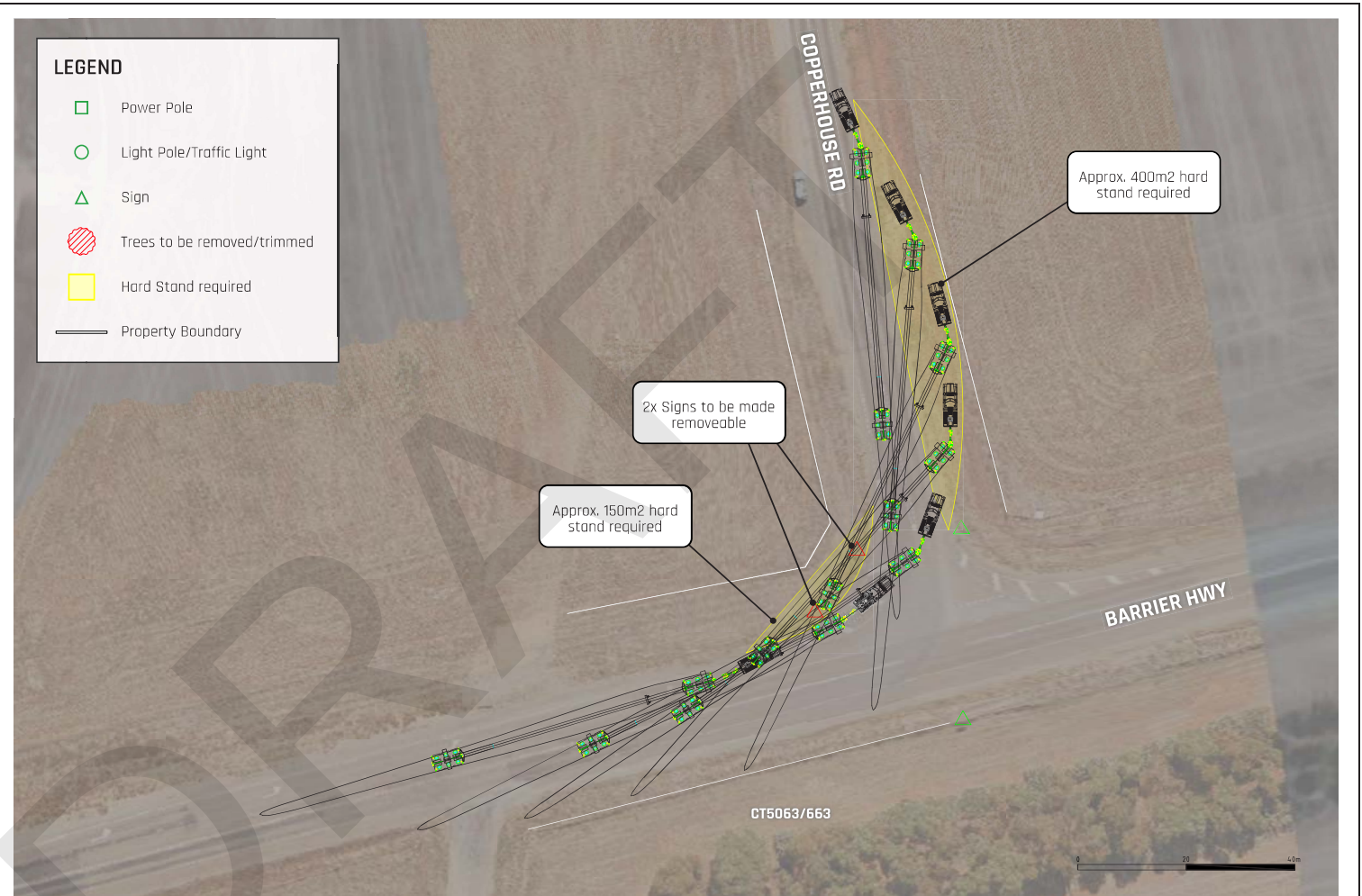
Pinch Point

07

LEFT TURN  
Barrier Hwy &  
Copperhouse Rd

The heavy vehicle bypass of Burra town is via Copperhouse Rd. It is primarily designed for B-double traffic and more work will be required to get the blades around.

Loads will have to hug the inside fenceline on turning in, then swing out as wide as possible to the other side of the road. Hard stand material will need to be placed where the wheels run off the existing road surface. Two signs will need to be made removeable.



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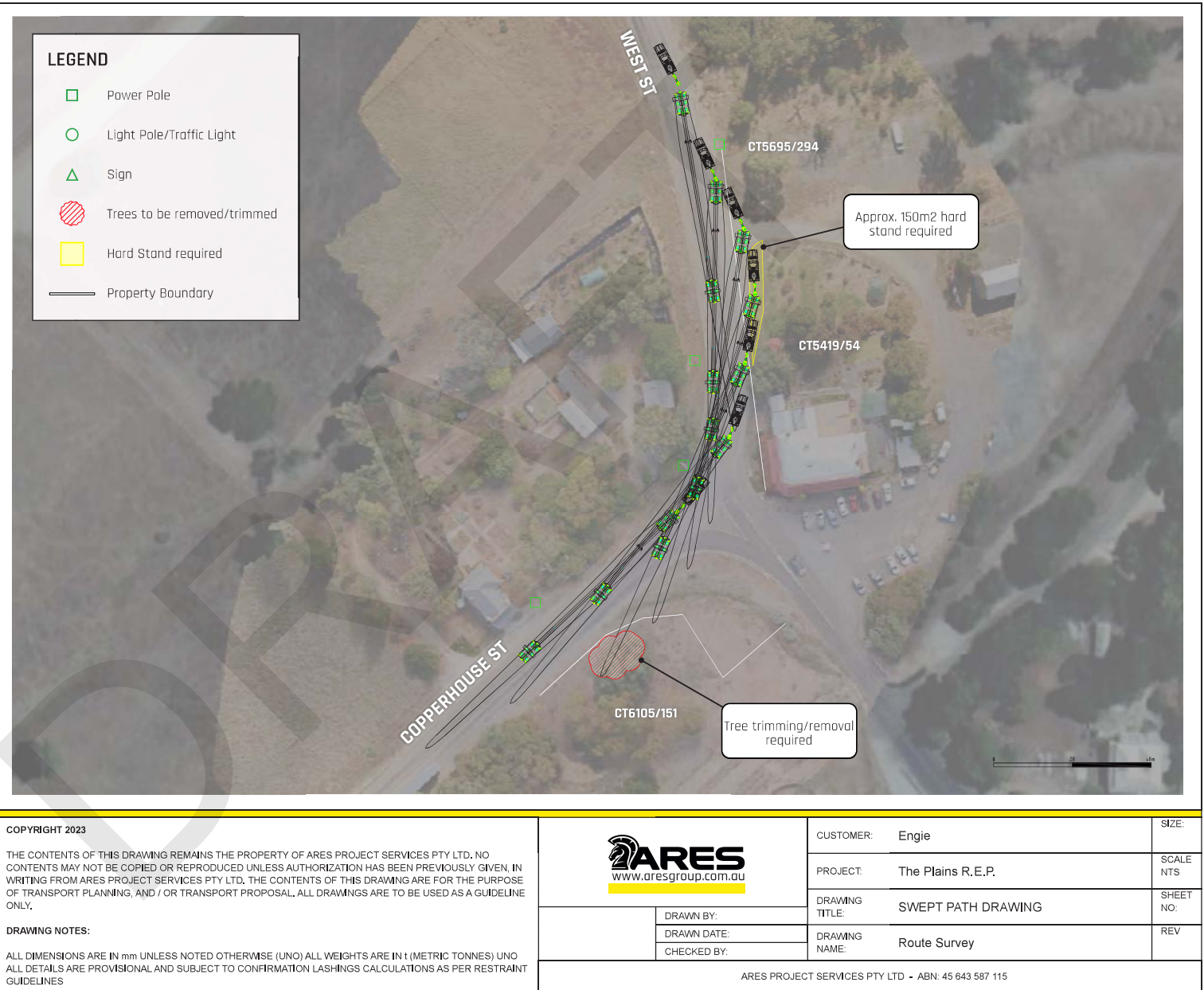
Pinch Point

08

LEFT TURN  
Copperhouse St  
& West St

The left turn at the Bon Accord Hotel on the Burra bypass route will present some problems due to the large rear overhang. Taking this turn conventionally will require tree trimming and/or removal to the south, with the tip swing intruding into private property (CT6105/151).

Some hard stand material is required where the truck and trailer wheels leave the existing road surface. The transport combination may also need permission to travel on private property (Bon Accord Hotel).





Pinch Point

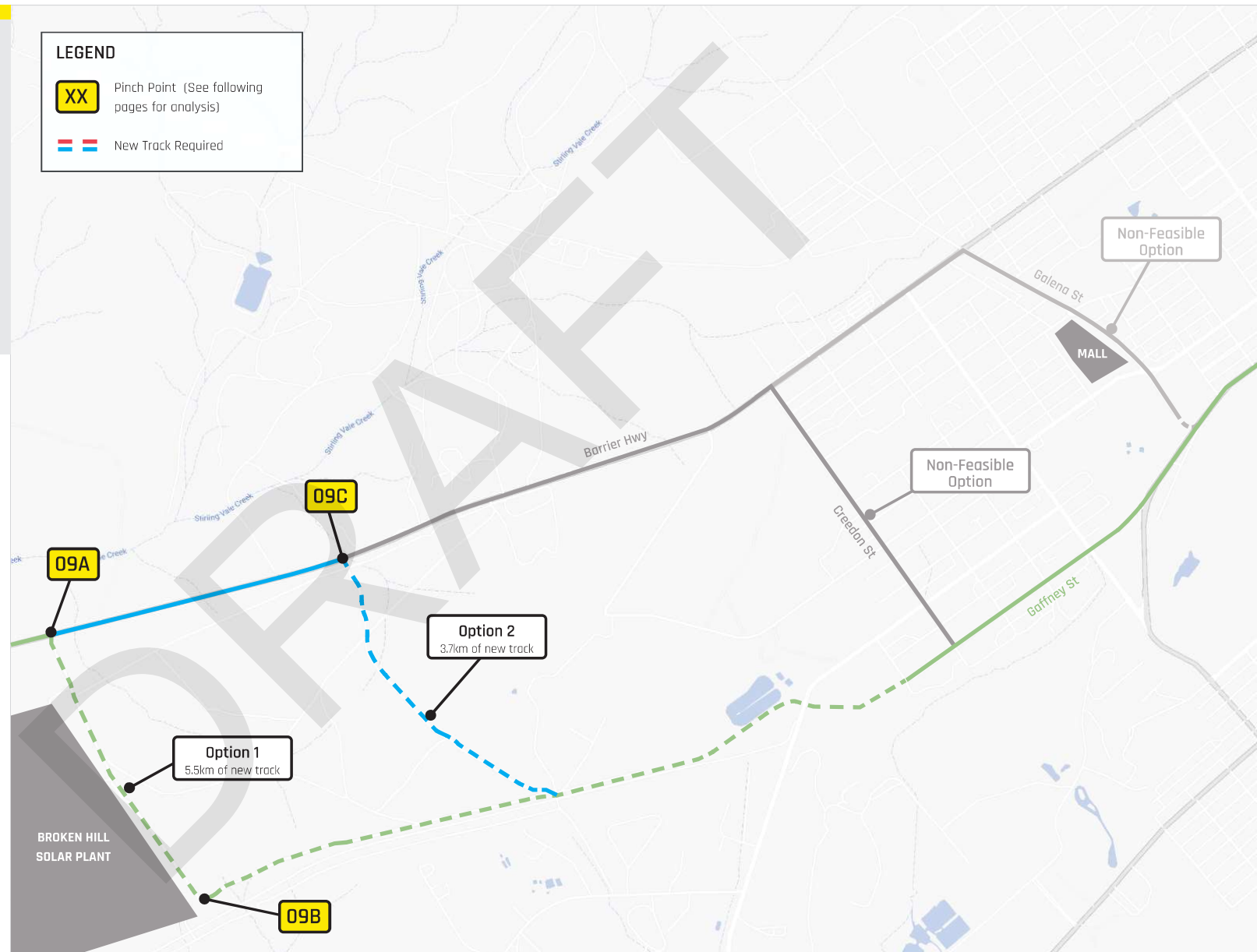
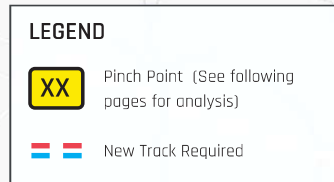
09

MAJOR TOWN  
Route Options  
through Broken Hill

Getting through the town of Broken Hill is a major challenge for this project. Cargo will arrive from the south-west via the Barrier Hwy and needs to exit via the Silver City and Barrier Hwys to the north-east. ARES assessed four main options to get blades through Broken Hill, each with its up and downsides:

- **Option 1:** New track turning off Barrier Hwy at Broken Hill Solar Plant and following existing tracks
- **Option 2:** As above but turning off later at another existing track
- Two options through the town itself were assessed but found to be non-feasible due to swept path issues.

Option 1 uses an existing turn-off to the Solar Plant but passes through an additional landowner and requires around 5.5km of new track (or significant upgrades of existing tracks). Option 2 has less new track required (~3.7km) but will need a brand new turn-off built on the Barrier Hwy.



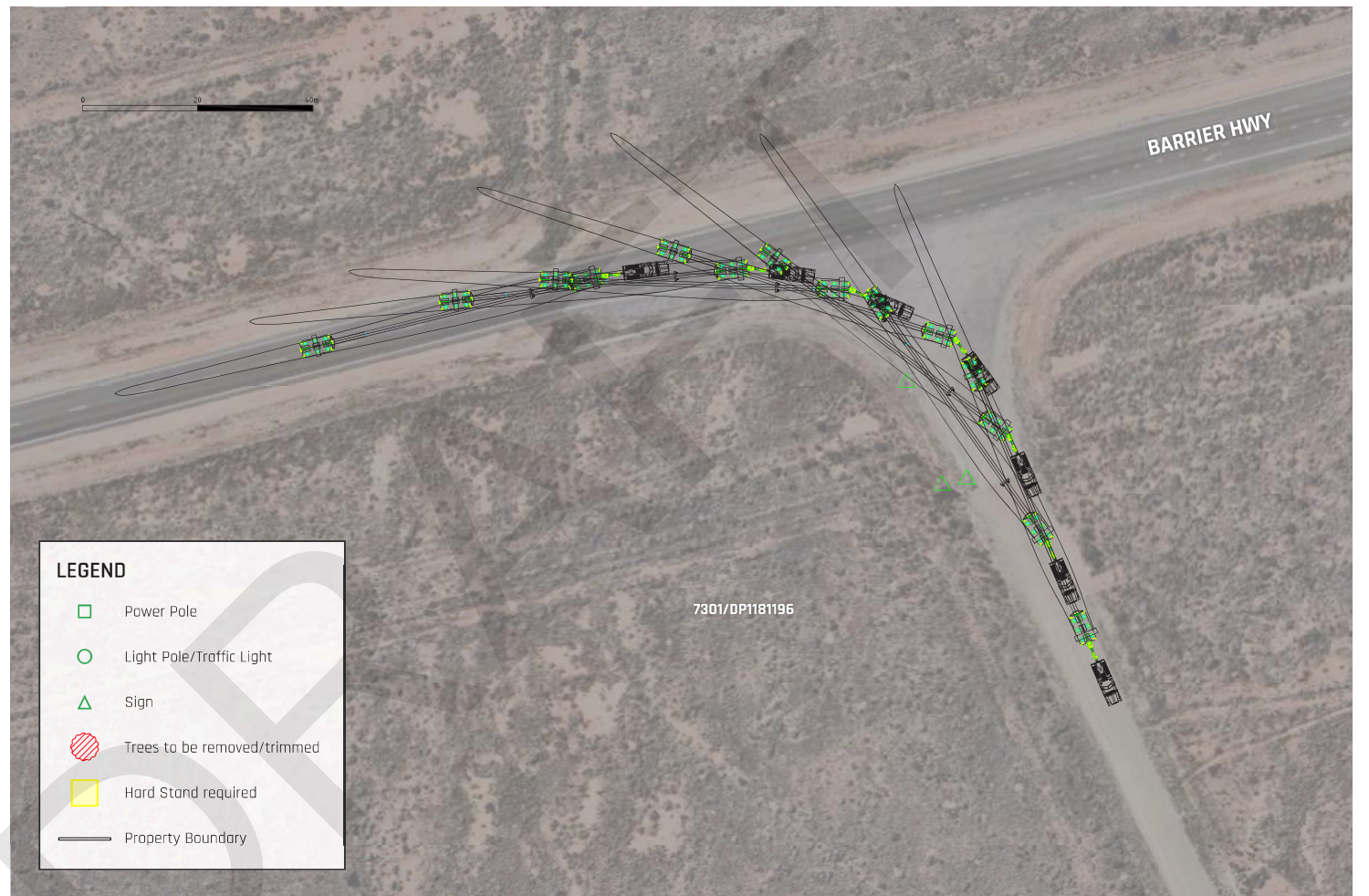
Pinch Point

09A

RIGHT TURN  
Barrier Hwy at  
Broken Hill Solar Plant

## OPTION 1

There is an existing intersection approximately 4km west of Broken Hill on the Barrier Hwy which is currently used to access the Broken Hill Solar Plant. A blade trailer with 86m blade will be able to take this turn with no modifications.



## LEGEND

- Power Pole
- Light Pole/Traffic Light
- △ Sign
- ▨ Trees to be removed/trimmed
- Hard Stand required
- Property Boundary

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Pinch Point

**09B**

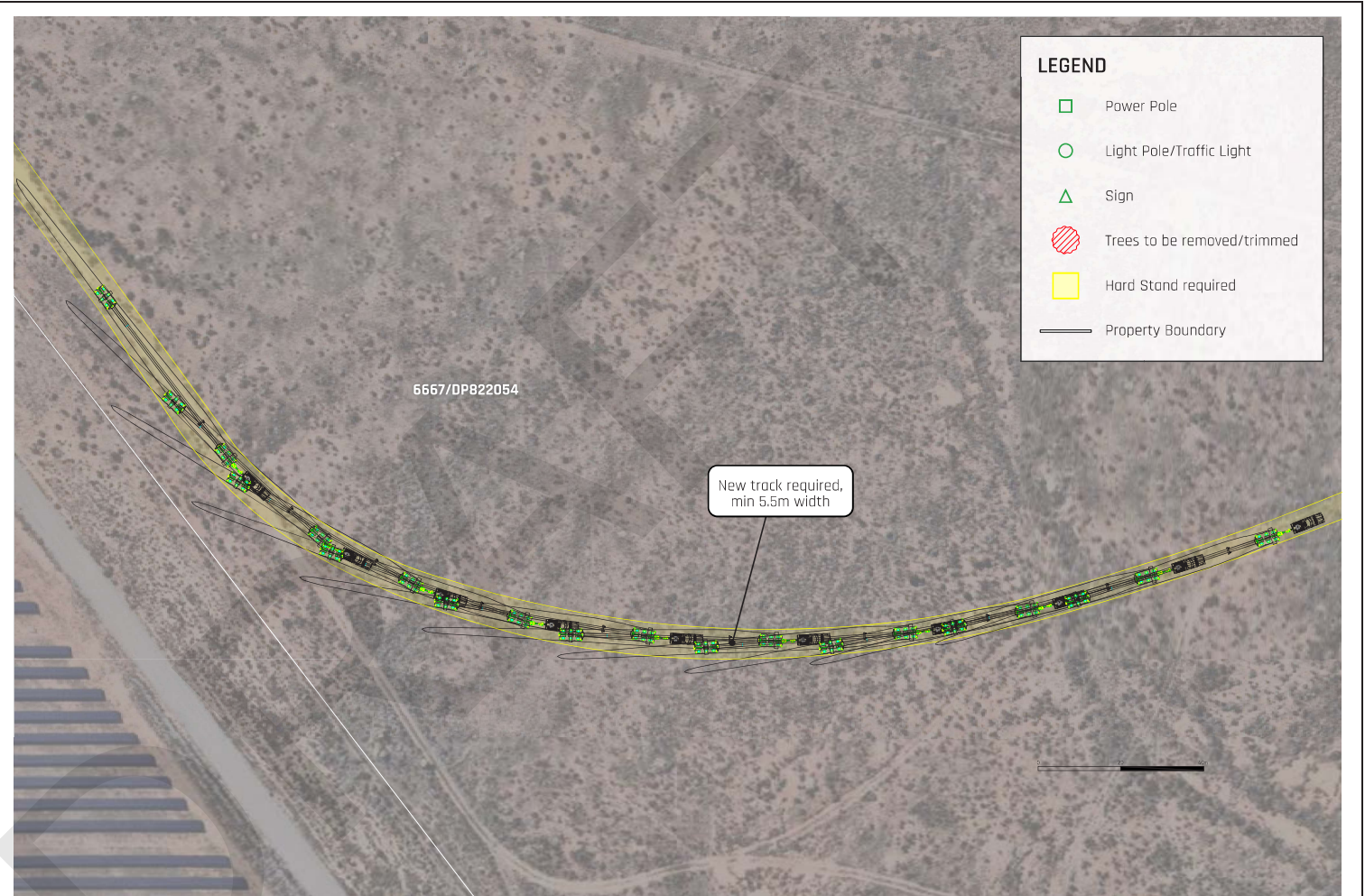
LEFT TURN  
Private Track south of  
Broken Hill Solar Plant

**OPTION 1**

The new track for Option 1 runs through predominantly flat and clear rural land with few obstacles. It will generally follow the alignment of existing farm tracks but will require significant upgrades to cater for heavy vehicle traffic.

There are no sharp corners, with the sharpest one analysed on the right near the south-east corner of the Solar Plant, which can be easily negotiated by the blade trailer. The blade tip can be kept well clear of the Solar Plant fence line.

Typically, the track will be built to a similar specification as a wind farm site road, with nominal width of 5.5m, widening as required on corners. The track would need to withstand axle loads of up to 14 tonnes per axle.

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Pinch Point

**09C**

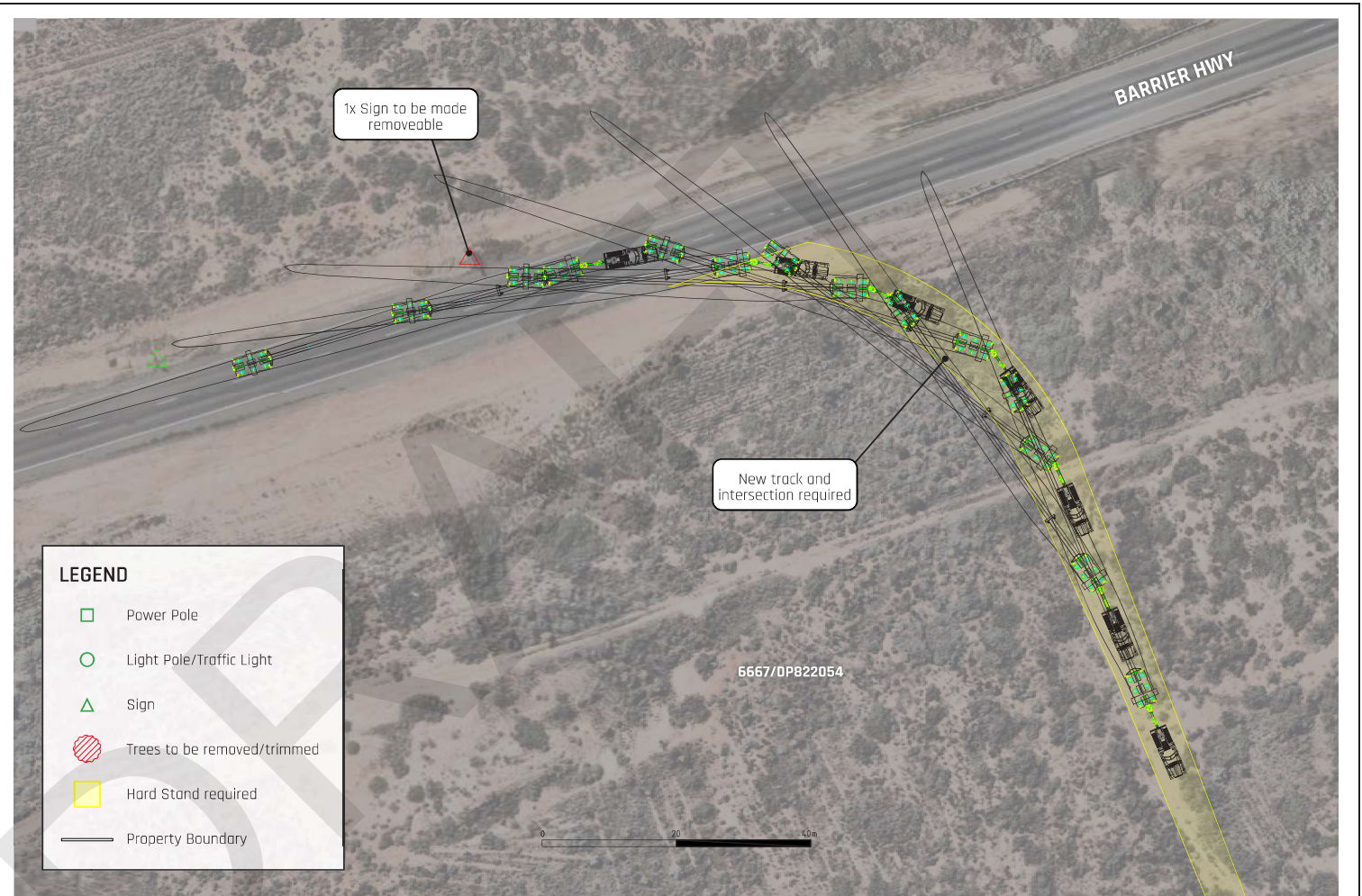
RIGHT TURN  
Barrier Hwy approx.  
2.4km from Broken Hill

**OPTION 2**

Option 2 makes use of existing tracks which come off the Barrier Hwy at around 2.4km west of Broken Hill town. There is no existing intersection and a new one will have to be designed and constructed.

The swept path analysis on the right shows the extent of civil works required for the 86m blade to make this turn. One sign will need to be made removeable.

As the Barrier Hwy is a state-controlled road, the design and construction of this intersection will require a Works Authorisation Deed (WAD) and approvals from Transport for NSW.

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Pinch Point

**10**

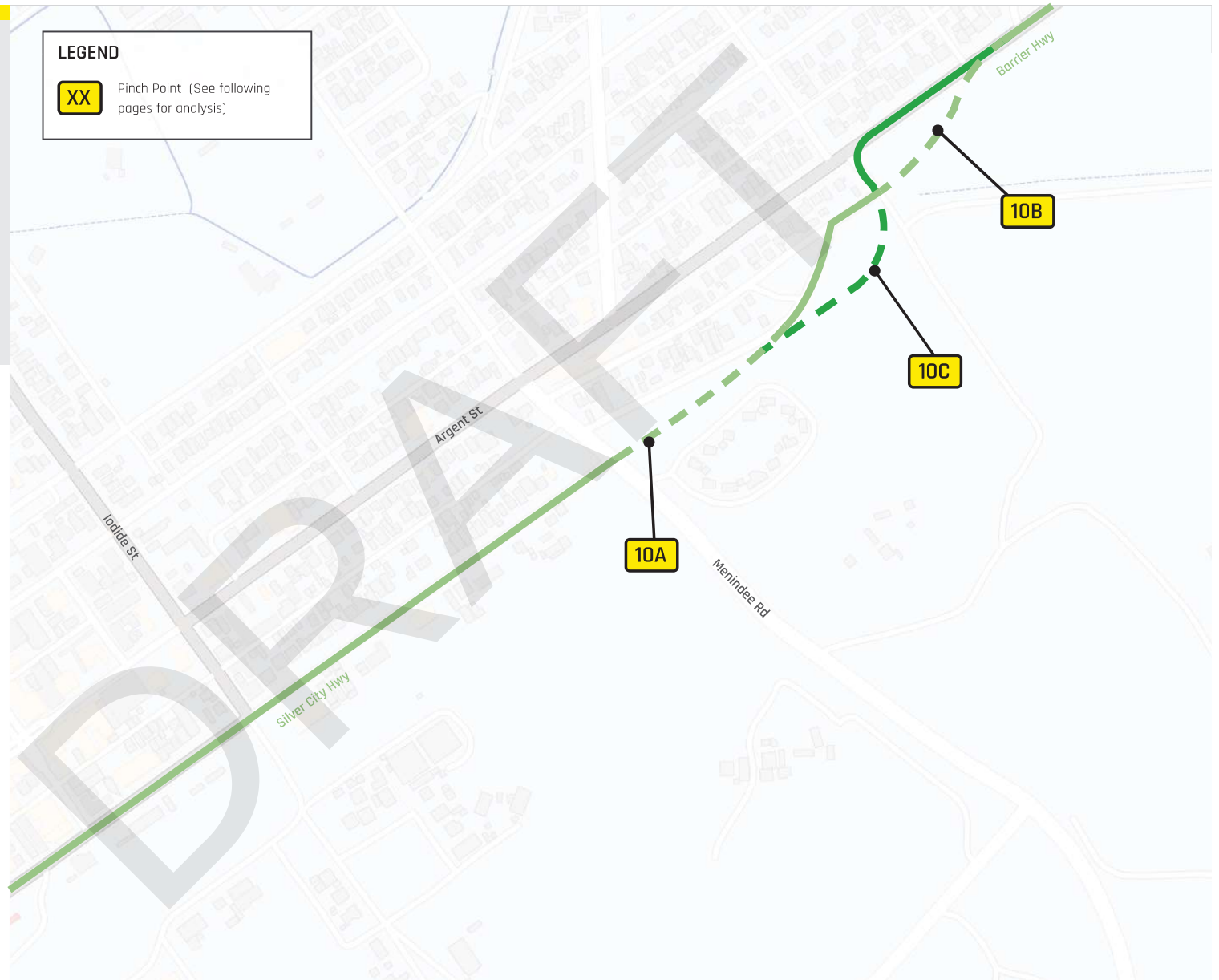
RIGHT TURN  
Silver City Hwy &  
Barrier Hwy

Regardless of which option is chosen from Pinch Point 9, to get back onto the Barrier Hwy to the north-east will require a new track to be built to Sturt St (Pinch Point **10A**), and then a couple of options to get back onto the Barrier Hwy (Pinch Points **10B** and **10C**).

The pinch points are explored in detail in the following pages.

**LEGEND**

Pinch Point (See following pages for analysis)



Pinch Point

**10A**RIGHT TURN  
Crystal St  
& Sturt St

The blades will require a temporary track to link the end of Crystal St with Sturt St across Menindee Rd. This will pass through Crown land and will require a moderate amount of civil works to make the surface suitable for a road base.

There is a power pole which can be avoided, and the road sign can be relocated away from the path of the transporter.

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Pinch Point

**10B**

RIGHT TURN  
Chettle St  
& Barrier Hwy

A temporary track will need to be built to link the end of Chettle St to the Barrier Hwy/Argent St. This will pass through Crown land near the Junction Mine, which is non-operational.

The terrain is relatively flat and suitable for a temporary road. There is an existing double gate at the end of Chettle St which may be utilised to access the property. A new gate will have to be put in at the exit point into Barrier Hwy/Argent St.

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Pinch Point

10C

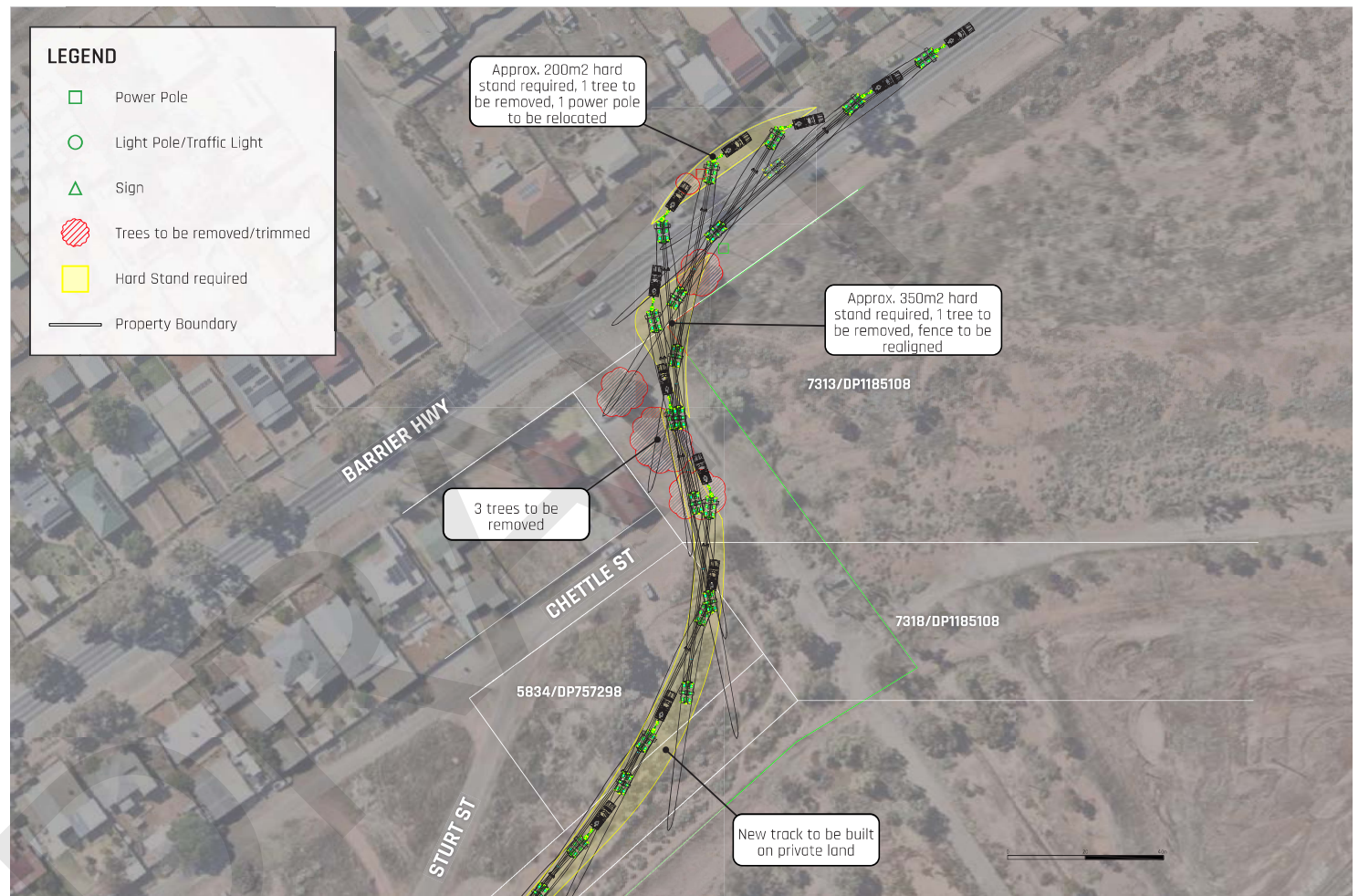
RIGHT TURN  
Sturt/Chettle St  
& Barrier Hwy

As an alternative to Pinch Point 10B, blades can take a sharper turn to avoid entering into the Junction Mine-affiliated property (Lot 7313 of DP1185108) as much as possible. Significantly more civil works are required to extend a track from Sturt St, and also at Barrier Hwy.

4-5 trees will also need to be removed, and a power pole will need to be moved.

The track from Sturt St will pass through a separate private property (Lot 5834 of DP757298). Permission will be required from this landowner to build on and transport through their land.

The Junction Mine property cannot be avoided entirely but the impact will be limited to a small corner of the lot. The fence should be realigned to allow blades to pass through.



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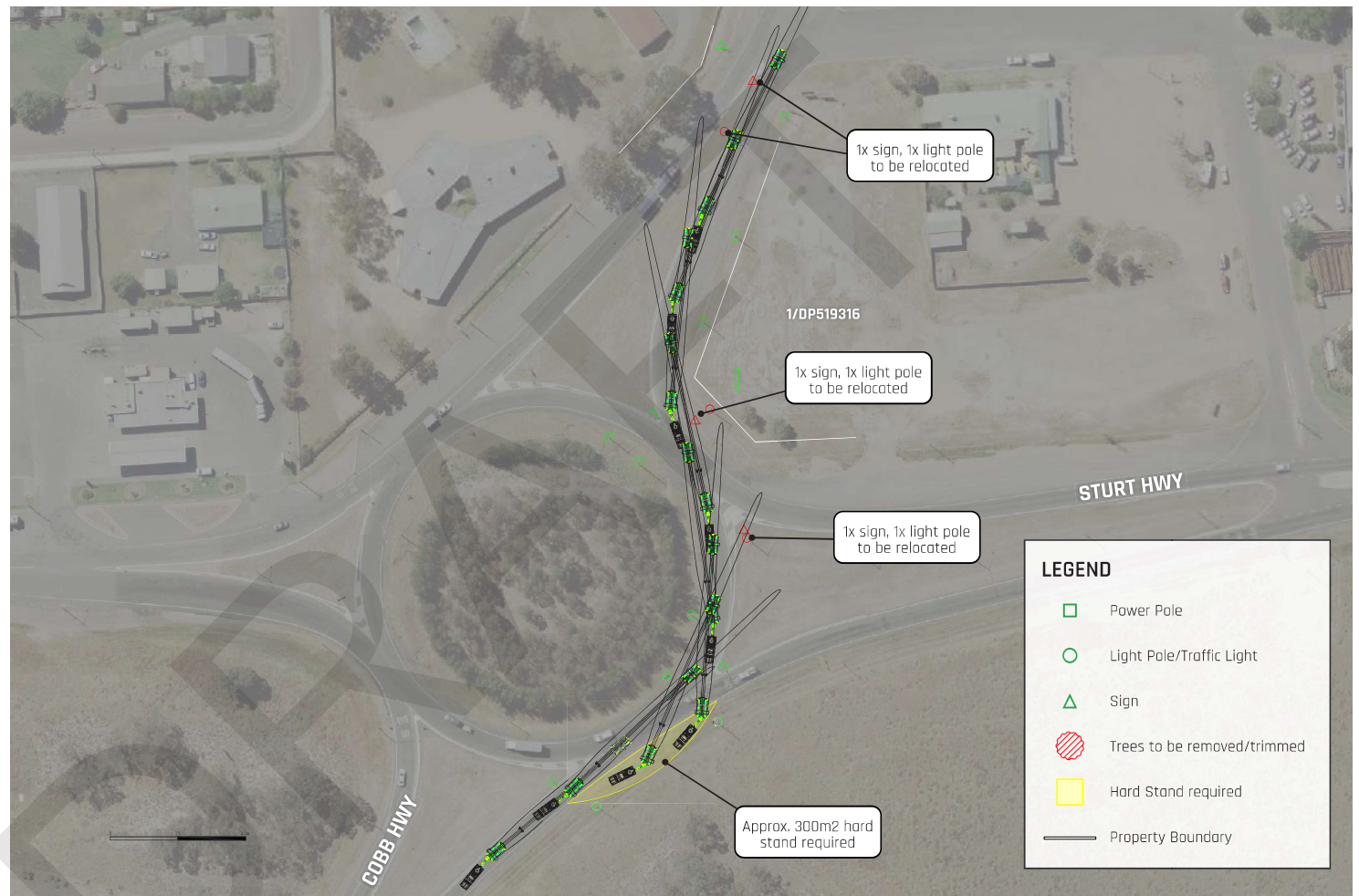
11

ROUNDBABOUT  
Cobb Hwy  
& Sturt Hwy

The roundabout south of Hay will require a moderate amount of work prior to blade transport. Three light poles will need to be removed or relocated, and a number of signs made removeable.

The blade swing slightly overpasses the private property to the east (Lot 1 of DP519316) which is a proposed service station currently under development. ARES reviewed the development plans and the blade tip should miss the 12m high signboard indicated on the plans.

There is also an option to take the wrong side of the roundabout, but after assessment this results in a similar amount of modifications but with a contraflow movement, which is not desirable. We recommend using the correct side as shown.



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## List of Affected Landowners

The lots which either need to be accessed directly by trucks and trailers, or which are in the blade swept path, are listed below.

As part of our scope of work, we have run title searches on all properties or lots that will be affected by the transport route, as noted in the individual Pinch Points on preceding pages. South Australian Certificates of Title were obtained from the SA Integrated Land Information System (SAILIS). New South Wales Certificates of Title were obtained from the NSW Land Registry Services via Infocert.

Land owners are a mixture of the Crown, corporations and individuals.

All Certificates of Title will be provided separately to this report as an Appendix.

### South Australia

| Title Reference | Address                  | Pinch Point | Owner(s)                                    |
|-----------------|--------------------------|-------------|---------------------------------------------|
| CT5063/563      | 19 Springbank Rd, Burra  | 07          | Hickick Breeding Company P/L                |
| CT6105/151      | 44 Copperhouse St, Burra | 08          | SA Government (DIT)                         |
| CT5419/54       | LOT98 West St, Burra     | 08          | Colin Alfred Phillips<br>& Pauline Phillips |
| CT5695/294      | LOT98 Cooper St, Burra   | 08          | Regional Council of Goyder                  |

### New South Wales

| Title Reference | Address                   | Pinch Point | Owner(s)              |
|-----------------|---------------------------|-------------|-----------------------|
| 7301/DP1181195  | Barrier Hwy, Broken Hill  | 09A         | TBC                   |
| 6667/DP822054   | Pinnacles Rd, Broken Hill | 09B/09C     | Willyama Common Trust |
| 302/DP1242250   | Barrier Hwy, Broken Hill  | 09          | Willyama Common Trust |
| 7307/DP1179131  | Barrier Hwy, Broken Hill  | 09          | State of NSW          |
| 7400/DP1179151  | Kanandah Rd, Broken Hill  | 09          | State of NSW          |
| 7401/DP1179151  | Kanandah Rd, Broken Hill  | 09          | State of NSW          |
| 7313/DP1185108  | Menindee Rd, Broken Hill  | 10A/10B/10C | State of NSW          |



| Title Reference | Address                  | Pinch Point | Owner(s)     |
|-----------------|--------------------------|-------------|--------------|
| 7318/DP1185108  | Menindee Rd, Broken Hill | 10C         | State of NSW |
| 5834/DP757298   | Chettle St, Broken Hill  | 10C         | TBC          |
| 1/DP519316      | 397 Maama St, Hay South  | 11          | APC Hay P/L  |

In the course of our searches we also noted a number of lots which seemed to be historical as they laid across existing roads. We have not performed title searches on these but have listed them for completeness below.

| Title Reference                | Address                            | Pinch Point |
|--------------------------------|------------------------------------|-------------|
| CT6144/634                     | 12 Bishopstone Rd, Davoren Park    | 04          |
| CT6144/635                     | 12 Bishopstone Rd, Angle Vale      | 04          |
| CT6144/636                     | LOT603 Angle Vale Rd, Angle Vale   | 04          |
| CT5431/458                     | LOT1 Gawler North Ramp to Adelaide | 05          |
| 7320/DP1185108                 | Menindee Rd, Broken Hill           | 10A         |
| Lots 5653 to 5658,<br>DP757298 | Sturt St, Broken Hill              | 10A/10B     |



APPENDIX B

AHIMS RESULTS

DRAFT

| SiteID    | SiteName                 | Datum                     | Zone                                | Easting | Northing | Context   | Site Status ** | SiteFeatures                                                                                             | SiteTypes | Reports |
|-----------|--------------------------|---------------------------|-------------------------------------|---------|----------|-----------|----------------|----------------------------------------------------------------------------------------------------------|-----------|---------|
| 48-5-0105 | 16 Mile Gums 1           | AGD                       | 55                                  |         |          | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0106 | 16 Mile Gums 2           | AGD                       | 55                                  |         |          | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0107 | 16 Mile Gums 3           | AGD                       | 55                                  |         |          | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0108 | 16 Mile Gums 4           | AGD                       | 55                                  |         |          | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0109 | 16 Mile Gums 5           | AGD                       | 55                                  |         |          | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0070 | Sandy Point 1            | GDA                       | 55                                  |         |          | site      | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-, Aboriginal<br>Resource and<br>Gathering : -, Artefact<br>:- |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Sarah Martin,Mr.Peter Ingram |         |          |           |                |                                                                                                          |           |         |
| 48-5-0124 | Hay State Forest 100     | GDA                       | 55                                  |         |          | Open site | Valid          | Conflict : -, Habitation<br>Structure : -, Shell : -                                                     |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0125 | Hay state forest 102     | GDA                       | 55                                  |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0128 | Hay State Forest 101     | GDA                       | 55                                  |         |          | Open site | Valid          | Shell : -                                                                                                |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0191 | Hay Bridge Canoe tree 1  | GDA                       | 55                                  |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Mark Saddler                     |         |          |           |                |                                                                                                          |           |         |
| 48-5-0192 | Hay Bridge Ring tree 1   | GDA                       | 55                                  |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Mark Saddler                     |         |          |           |                |                                                                                                          |           |         |
| 48-5-0205 | Bushy Bend-Sandy Point 5 | GDA                       | 55                                  |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Peter Ingram                     |         |          |           |                |                                                                                                          |           |         |



| SiteID    | SiteName                  | Datum            | Zone                                                                 | Easting | Northing | Context   | Site Status ** | SiteFeatures                                                   | SiteTypes | Reports |
|-----------|---------------------------|------------------|----------------------------------------------------------------------|---------|----------|-----------|----------------|----------------------------------------------------------------|-----------|---------|
| 48-5-0208 | Sandy Point 3.            | GDA              | 55                                                                   |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                    |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |         |          |           |                |                                                                |           |         |
| 48-5-0209 | Sandy Point 4             | GDA              | 55                                                                   |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                    |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |         |          |           |                |                                                                |           |         |
| 48-5-0210 | Bushy Bend/Sandy Point 4. | GDA              | 55                                                                   |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                    |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |         |          |           |                |                                                                |           |         |
| 48-5-0211 | Bushy Bend/Sandy Point 3. | GDA              | 55                                                                   |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                    |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |         |          |           |                |                                                                |           |         |
| 48-5-0212 | Bushy Bend-Sandy Point 2  | GDA              | 55                                                                   |         |          | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                    |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |         |          |           |                |                                                                |           |         |
| 48-5-0505 | PREP SU G 07              | GDA              | 55                                                                   |         |          | Open site | Valid          | Artefact : -, Potential<br>Archaeological<br>Deposit (PAD) : - |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Environmental Resources Management - Melbourne, Miss.Meghyn Mathison |         |          |           |                |                                                                |           |         |
| 48-5-0694 | Hay State Forest 102      | GDA              | 55                                                                   |         |          | Open site | Valid          | Shell : -                                                      |           |         |
|           | <u>Contact</u>            | <u>Recorders</u> | Mr.Rene Woods                                                        |         |          |           |                |                                                                |           |         |

### \*\* Site Status

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Plains - Broken Hill

Client Service ID : 928978

| SiteID    | SiteName                                                        | Datum                     | Zone                                                                            | Easting | Northing | Context   | Site Status ** | SiteFeatures                          | SiteTypes | Reports                            |
|-----------|-----------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------|---------|----------|-----------|----------------|---------------------------------------|-----------|------------------------------------|
| 23-4-0082 | AS3                                                             | AGD                       | 54                                                                              |         |          | Open site | Valid          | Aboriginal Resource and Gathering : - |           | 98177,102768, 102793               |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0083 | AS4                                                             | AGD                       | 54                                                                              |         |          | Open site | Valid          | Stone Quarry : -, Artefact : -        |           | 98177,102768, 102793               |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0084 | AS5                                                             | AGD                       | 54                                                                              |         |          | Open site | Destroyed      | Artefact : -                          |           | 98177,99660,1 01767,102768, 102793 |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0088 | AS9                                                             | AGD                       | 54                                                                              |         |          | Open site | Destroyed      | Artefact : -                          | 1782,1783 | 98177,99659,1 02768,102793         |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0089 | AS10                                                            | AGD                       | 54                                                                              |         |          | Open site | Destroyed      | Artefact : -                          |           | 98177,99660,1 01767,102768, 102793 |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0090 | AS12                                                            | AGD                       | 54                                                                              |         |          | Open site | Destroyed      | Stone Quarry : -, Artefact : -        |           | 98177,99660,1 01767,102768, 102793 |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0111 | AS11                                                            | AGD                       | 54                                                                              |         |          | Open site | Destroyed      | Artefact : -                          |           | 98177,99660,1 01767,102768, 102793 |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Ms.Louise Gay                                                                   |         |          |           |                |                                       |           |                                    |
| 23-4-0615 | SU278/L9                                                        | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : 1                          |           | 102768,10279 3                     |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Doctor.Julie Dibden                                                             |         |          |           |                |                                       |           |                                    |
| 23-4-0626 | Broken Hill Solar - Site #11                                    | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : 1                          |           | 102961                             |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | OzArk Environmental and Heritage Management - Dubbo                             |         |          |           |                |                                       |           |                                    |
| 23-4-0637 | Mawsons Quarry Isolated Find 1                                  | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : 1                          |           | 102982                             |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Doctor.Jodie Benton                                                             |         |          |           |                |                                       |           |                                    |
| 23-4-0639 | Mawsons Quarry Open Site 1                                      | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : 1                          |           | 102982                             |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Doctor.Jodie Benton                                                             |         |          |           |                |                                       |           |                                    |
| 23-4-0640 | Broken Hill (A-CAES) Kanandah 1 (BH Site 33) & AHIMS #23-4-0641 | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : -, Hearth : -              |           |                                    |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Doctor.Matt Cupper,Doctor.Rebecca Parkes,LandScape - Natural & Cultural Heritag |         |          |           |                |                                       |           |                                    |
| 23-4-0641 | Kanandah 2                                                      | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : -                          |           |                                    |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Doctor.Matt Cupper,LandScape - Natural & Cultural Heritage Management           |         |          |           |                |                                       |           |                                    |
| 23-4-0691 | BESS-AS1-21                                                     | GDA                       | 54                                                                              |         |          | Open site | Valid          | Artefact : -                          |           |                                    |
|           | <a href="#">Contact</a>                                         | <a href="#">Recorders</a> | Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney                               |         |          |           |                |                                       |           |                                    |

Report generated by AHIMS Web Service on 10/09/2024 for Charles Barnett for the following area at Search using shape-file PP9a\_PP10abc\_HaulrouteCorridor\_BuffersMerged with a buffer of 0 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 14

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Plains - Broken Hill

Client Service ID : 928978

| <u>SiteID</u> | <u>SiteName</u> | <u>Datum</u> | <u>Zone</u> | <u>Easting</u> | <u>Northing</u> | <u>Context</u> | <u>Site Status **</u> | <u>SiteFeatures</u> | <u>SiteTypes</u> | <u>Reports</u> |
|---------------|-----------------|--------------|-------------|----------------|-----------------|----------------|-----------------------|---------------------|------------------|----------------|
|---------------|-----------------|--------------|-------------|----------------|-----------------|----------------|-----------------------|---------------------|------------------|----------------|

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Report generated by AHIMS Web Service on 10/09/2024 for Charles Barnett for the following area at Search using shape-file PP9a\_PP10abc\_HaulrouteCorridor\_BuffersMerged with a buffer of 0 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 14

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| Germany    | South Africa    |
| Ghana      | South Korea     |
| Guyana     | Spain           |
| Hong Kong  | Switzerland     |
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| Indonesia  | Tanzania        |
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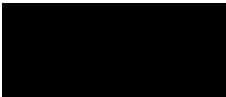
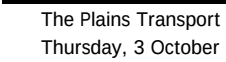
Level 14

207 Kent Street, Sydney  
NSW, 2000

T: +61 2 8584 8888

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**From:**   
**To:**   
**Cc:**   
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:19:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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The document also requests any feedback you may have on the assessment procedure including any cultural values or areas of significance within the project area. We request that any feedback is provided by **31<sup>st</sup> October 2024**.

You received a link in a separate email a few minutes ago to the methodology file. Please let me know if you have any issues accessing.

If you have any queries, please let us know.

Kind regards,

**Charles Barnett**  
Senior Consultant

---

Sydney  


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**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:18:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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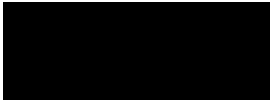
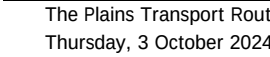
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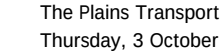
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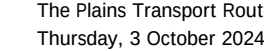
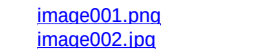
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[image002.jpg](#)

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The document also requests any feedback you may have on the assessment procedure including any cultural values or areas of significance within the project area. We request that any feedback is provided by **31<sup>st</sup> October 2024**.

You received a link in a separate email a few minutes ago to the methodology file. Please let me know if you have any issues accessing.

If you have any queries, please let us know.

Kind regards,

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](http://erm.com)

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:**  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:15:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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Sydney  
[REDACTED]

[erm.com](http://erm.com)

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:**  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:14:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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Thanks for registering your interest in The Plains Transport Route ACHAR project, located between the Broken Hill and Hay Plains regions. In accordance with Stage 2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, you have been sent the project methodology. This has information regarding the project, location and potential impacts of the project to registered AHIMS sites and includes details on how the field assessment and the ACHAR are proposed to be undertaken.

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**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:14:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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Sydney  
[REDACTED]

[erm.com](http://erm.com)



**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:13:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](http://erm.com)

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:12:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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Thanks for registering your interest in The Plains Transport Route ACHAR project, located between the Broken Hill and Hay Plains regions. In accordance with Stage 2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, you have been sent the project methodology. This has information regarding the project, location and potential impacts of the project to registered AHIMS sites and includes details on how the field assessment and the ACHAR are proposed to be undertaken.

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Senior Consultant

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Sydney  
[REDACTED]

[erm.com](http://erm.com)

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:12:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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If you have any queries, please let us know.

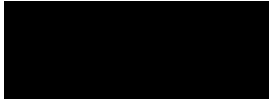
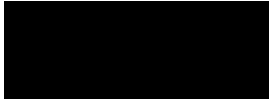
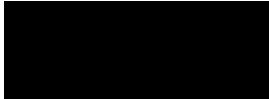
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---

Sydney  
[REDACTED]

[erm.com](http://erm.com)

**From:**   
**To:**   
**Cc:**   
**Subject:** The Plains Transport Route, NSW - ACHAR Methodology  
**Date:** Thursday, 3 October 2024 11:11:00 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)

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---

Sydney  


[erm.com](http://erm.com)





## APPENDIX I    AHIMS SEARCH RESULTS

| SiteID    | SiteName                                                        | Datum | Zone | Easting | Northing | Context   | Site Status ** | SiteFeatures                          | SiteTypes | Reports                            |
|-----------|-----------------------------------------------------------------|-------|------|---------|----------|-----------|----------------|---------------------------------------|-----------|------------------------------------|
| 23-4-0082 | AS3                                                             | AGD   | 54   |         |          | Open site | Valid          | Aboriginal Resource and Gathering : - |           | 98177,102768, 102793               |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0083 | AS4                                                             | AGD   | 54   |         |          | Open site | Valid          | Stone Quarry : -, Artefact : -        |           | 98177,102768, 102793               |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
|           |                                                                 |       |      |         |          |           |                |                                       |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        | 1782,1783 |                                    |
|           |                                                                 |       |      |         |          |           |                |                                       |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        | 1782,1783 |                                    |
|           |                                                                 |       |      |         |          |           |                |                                       |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        | 1782,1783 |                                    |
|           |                                                                 |       |      |         |          |           |                |                                       |           |                                    |
| 23-4-0111 | AS11                                                            | AGD   | 54   |         |          | Open site | Destroyed      | Artefact : -                          |           | 98177,99660,1 01767,102768, 102793 |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        | 1782,1783 |                                    |
|           |                                                                 |       |      |         |          |           |                |                                       |           |                                    |
| 23-4-0615 | SU278/L9                                                        | GDA   | 54   |         |          | Open site | Valid          | Artefact : 1                          |           | 102768,10279 3                     |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0626 | Broken Hill Solar - Site #11                                    | GDA   | 54   |         |          | Open site | Valid          | Artefact : 1                          |           | 102961                             |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0637 | Mawsons Quarry Isolated Find 1                                  | GDA   | 54   |         |          | Open site | Valid          | Artefact : 1                          |           | 102982                             |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0639 | Mawsons Quarry Open Site 1                                      | GDA   | 54   |         |          | Open site | Valid          | Artefact : 1                          |           | 102982                             |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0640 | Broken Hill (A-CAES) Kanandah 1 (BH Site 33) & AHIMS #23-4-0641 | GDA   | 54   |         |          | Open site | Valid          | Artefact : -, Hearth : -              |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0641 | Kanandah 2                                                      | GDA   | 54   |         |          | Open site | Valid          | Artefact : -                          |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |
| 23-4-0691 | BESS-AS1-21                                                     | GDA   | 54   |         |          | Open site | Valid          | Artefact : -                          |           |                                    |
|           | <u>Contact</u>                                                  |       |      |         |          |           |                | <u>Permits</u>                        |           |                                    |



# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Plains - Broken Hill

Client Service ID : 928978

| <u>SiteID</u> | <u>SiteName</u> | <u>Datum</u> | <u>Zone</u> | <u>Easting</u> | <u>Northing</u> | <u>Context</u> | <u>Site Status **</u> | <u>SiteFeatures</u> | <u>SiteTypes</u> | <u>Reports</u> |
|---------------|-----------------|--------------|-------------|----------------|-----------------|----------------|-----------------------|---------------------|------------------|----------------|
|---------------|-----------------|--------------|-------------|----------------|-----------------|----------------|-----------------------|---------------------|------------------|----------------|

### **\*\* Site Status**

**Valid** - The site has been recorded and accepted onto the system as valid

**Destroyed** - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

**Partially Destroyed** - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

**Not a site** - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 10/09/2024 for Charles Barnett for the following area at Search using shape-file PP9a\_PP10abc\_HaulrouteCorridor\_BuffersMerged with a buffer of 0 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 14

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.



# AHIMS Web Services (AWS)

## Search Result

Your Ref/PO Number : Plains - Broken Hill

Client Service ID : 928978

Environmental Resources Management - Melbourne

Date: 10 September 2024

Level 6 99 King Street

Melbourne Victoria 3000

Attention: Charles Barnett

Email: [REDACTED]

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Search using shape-file**

**PP9a PP10abc HaulrouteCorridor BuffersMerged with a buffer of 0 meters. Additional Info :**

**Archaeological Assessment, conducted by Charles Barnett on 10 September 2024.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown



**If your search shows Aboriginal sites or places what should you do?**

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(https://www.legislation.nsw.gov.au/gazette\)](https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

**Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

| SiteID    | SiteName                 | Datum                     | Zone                                | Easting | Northing | Context   | Site Status ** | SiteFeatures                                                                                             | SiteTypes | Reports |
|-----------|--------------------------|---------------------------|-------------------------------------|---------|----------|-----------|----------------|----------------------------------------------------------------------------------------------------------|-----------|---------|
| 48-5-0105 | 16 Mile Gums 1           | AGD                       | 55                                  | 297174  | 6153140  | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0106 | 16 Mile Gums 2           | AGD                       | 55                                  | 297180  | 6153175  | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0107 | 16 Mile Gums 3           | AGD                       | 55                                  | 297226  | 6153228  | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0108 | 16 Mile Gums 4           | AGD                       | 55                                  | 297240  | 6153237  | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0109 | 16 Mile Gums 5           | AGD                       | 55                                  | 297247  | 6153149  | Open site | Valid          | Hearth : -                                                                                               |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Colin Pardoe                 |         |          |           |                |                                                                                                          |           |         |
| 48-5-0070 | Sandy Point 1            | GDA                       | 55                                  | 301846  | 6178556  | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-, Aboriginal<br>Resource and<br>Gathering : -, Artefact<br>:- |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Doctor.Sarah Martin,Mr.Peter Ingram |         |          |           |                |                                                                                                          |           |         |
| 48-5-0124 | Hay State Forest 100     | GDA                       | 55                                  | 302631  | 6178627  | Open site | Valid          | Conflict : -, Habitation<br>Structure : -, Shell : -                                                     |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0125 | Hay state forest 102     | GDA                       | 55                                  | 302462  | 6178802  | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0128 | Hay State Forest 101     | GDA                       | 55                                  | 302595  | 6178685  | Open site | Valid          | Shell : -                                                                                                |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Rene Woods                       |         |          |           |                |                                                                                                          |           |         |
| 48-5-0191 | Hay Bridge Canoe tree 1  | GDA                       | 55                                  | 301864  | 6178536  | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Mark Saddler                     |         |          |           |                |                                                                                                          |           |         |
| 48-5-0192 | Hay Bridge Ring tree 1   | GDA                       | 55                                  | 301847  | 6178556  | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Mark Saddler                     |         |          |           |                |                                                                                                          |           |         |
| 48-5-0205 | Bushy Bend-Sandy Point 5 | GDA                       | 55                                  | 302046  | 6178724  | Open site | Valid          | Modified Tree<br>(Carved or Scarred) :<br>-                                                              |           |         |
|           | <a href="#">Contact</a>  | <a href="#">Recorders</a> | Mr.Peter Ingram                     |         |          |           |                |                                                                                                          |           |         |

| <u>SiteID</u> | <u>SiteName</u>           | <u>Datum</u>     | <u>Zone</u>                                                          | <u>Easting</u> | <u>Northing</u> | <u>Context</u> | <u>Site Status **</u> | <u>SiteFeatures</u>                                            | <u>SiteTypes</u> | <u>Reports</u> |
|---------------|---------------------------|------------------|----------------------------------------------------------------------|----------------|-----------------|----------------|-----------------------|----------------------------------------------------------------|------------------|----------------|
| 48-5-0208     | Sandy Point 3.            | GDA              | 55                                                                   | 301857         | 6178532         | Open site      | Valid                 | Modified Tree<br>(Carved or Scarred) :<br>-                    |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |                |                 |                |                       |                                                                |                  |                |
| 48-5-0209     | Sandy Point 4             | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Modified Tree<br>(Carved or Scarred) :<br>-                    |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |                |                 |                |                       |                                                                |                  |                |
| 48-5-0210     | Bushy Bend/Sandy Point 4. | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Modified Tree<br>(Carved or Scarred) :<br>-                    |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |                |                 |                |                       |                                                                |                  |                |
| 48-5-0211     | Bushy Bend/Sandy Point 3. | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Modified Tree<br>(Carved or Scarred) :<br>-                    |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |                |                 |                |                       |                                                                |                  |                |
| 48-5-0212     | Bushy Bend-Sandy Point 2  | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Modified Tree<br>(Carved or Scarred) :<br>-                    |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Peter Ingram                                                      |                |                 |                |                       |                                                                |                  |                |
| 48-5-0505     | PREP SU G 07              | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Artefact : -, Potential<br>Archaeological<br>Deposit (PAD) : - |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Environmental Resources Management - Melbourne, Miss.Meghyn Mathison |                |                 |                |                       |                                                                |                  |                |
| 48-5-0694     | Hay State Forest 102      | GDA              | 55                                                                   |                |                 | Open site      | Valid                 | Shell : -                                                      |                  |                |
|               | <u>Contact</u>            | <u>Recorders</u> | Mr.Rene Woods                                                        |                |                 |                |                       |                                                                |                  |                |

**\*\* Site Status**

**Valid** - The site has been recorded and accepted onto the system as valid

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# AHIMS Web Services (AWS)

## Search Result

Your Ref/PO Number : Plains - Hay

Client Service ID : 928937

Environmental Resources Management - Melbourne

Date: 10 September 2024

Level 6 99 King Street  
Melbourne Victoria 3000

Attention: Charles Barnett

Email: [REDACTED]

Dear Sir or Madam:

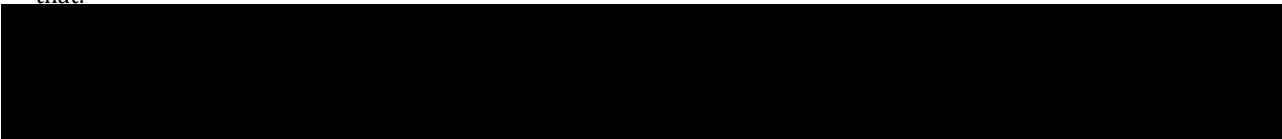
AHIMS Web Service search for the following area at Search using shape-file

PP11 SiteEntrances BuffersMerged with a buffer of 0 meters. Additional Info : Archaeological

Assessment, conducted by Charles Barnett on 10 September 2024.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:





**If your search shows Aboriginal sites or places what should you do?**

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(https://www.legislation.nsw.gov.au/gazette\)](https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

**Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.



## APPENDIX J     DRAFT ACHAR REPORT CONSULTATION

---

## The Plains Transport Route ACHAR

---

From Charles Barnett [REDACTED]

Date Fri 12/20/2024 3:19 PM

To [REDACTED]

Hi Sir/Madam,

Thanks for registering your interest to be kept updated for The Plains Transport Route ACHAR project. We have finished drafting the ACHAR and it is ready for review. If you have any comments you would like included in the report or you have any queries about the document, please let us know by Friday 17<sup>th</sup> January 2025.

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[Plains Transport Route ACHAR](#)

Please let us know if you have any issues accessing the file.

Kind regards,



**ERM**

Sustainability is our business

**Charles Barnett**  
Senior Consultant

---

Sydney  
[REDACTED]

[erm.com](https://erm.com)

---

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From Charles Barnett [REDACTED]

Date Fri 12/20/2024 3:20 PM

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## APPENDIX K    ARES ROUTE STUDY (2024)



# The Plains R.E.P.

## OSOM Route Study

Date: March 2024  
Client: Aref Taleb  
Engie Aust & NZ  
Type: Physical Survey  
Rev: 6



## Silverton WF

Silverton WF is located 600 klms from the Port of Entry and had several challenges, including gradients in excess of 25 degrees.

# The Plains R.E.P.

Route Study

“

The Plains Renewable Energy Park is a newly proposed large-scale development that aims to harness wind and solar energy to provide cheap, reliable and clean electricity for homes and businesses in NSW. The renewable energy park will include the construction of an integrated wind and solar farm and will operate alongside agricultural activities.

— [engie.com.au/home/assets/wind/the-plains](https://engie.com.au/home/assets/wind/the-plains)

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© 2022-23



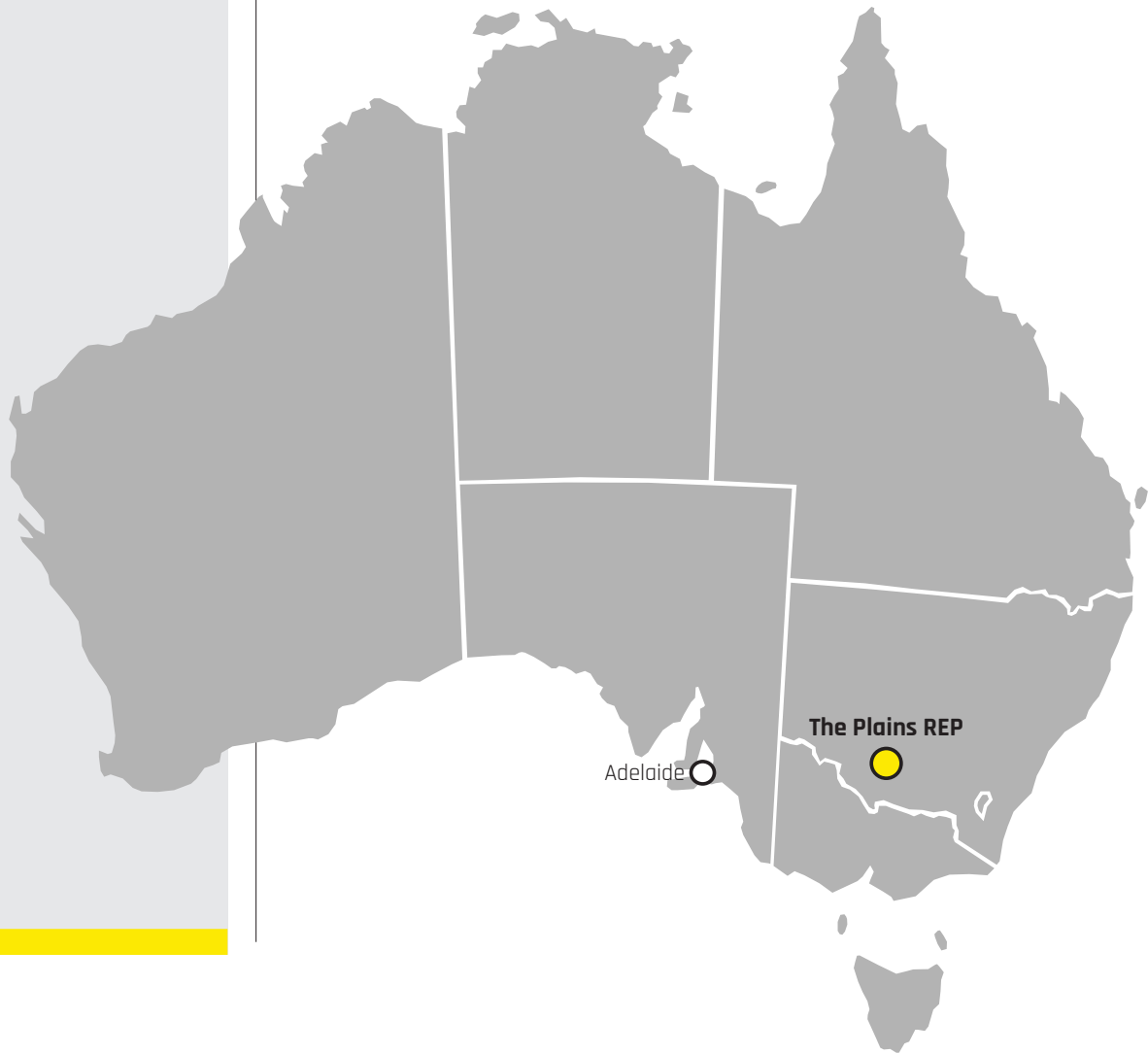
# Introduction

The Plains Renewable Energy Park (REP) is a proposed renewable energy development located in the south western part of New South Wales. The Wind Farm will have a maximum installed capacity of up to 1.5GW as well as up to 400MWac of solar and up to 4hr at 400MW of battery storage.

The proposed project is located roughly 10km south of Hay, in the NSW South-West Renewable Energy Zone (REZ) which lies alongside the future Project EnergyConnect (Robertstown-to-Wagga Wagga) 330kV transmission line.

Following the Desktop Survey, Ares have been tasked to undertake physical Route Surveys from the chosen port of Adelaide to site. The purpose of the study is to determine the pinch points along the route, perform swept path analysis and give best estimates of modifications and works required to enable cargo to be brought to site.

The study is designed for those involved in the project that have a limited knowledge of transportation, including a comprehensive outline of the routes and actions required to achieve delivery.



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# 01

## Overview

### Biala WF

Two prime movers transporting a Base Tower Section for the Biala Wind Farm.



## Project Overview

The Plains Renewable Energy Park is a proposed renewable energy development located in the south western region of New South Wales. The Project will consist of up to 1.5GW of wind turbines in the South West Renewable Energy Zone.

### Scope of Survey

The Plains REP is located in the western Riverina region of New South Wales, approximately 10 kilometres south of the town of Hay.

Following the initial Desktop Survey, the preferred port of import was identified as the **Port of Adelaide**. ARES was commissioned to physically drive the routes to identify, check and measure any pinch points en route, including any new issues or route options that were not apparent in the desktop analysis.

The physical route survey for Adelaide was conducted between April 18-21. The entire blade route was driven and examined except for the section of Cobb Hwy between Mossiel and Booligal, which was closed by TfNSW due to recent flooding and associated repair works. (This is noted in the report.) The tower route was then driven from Adelaide to Whyte Yarcowie, whereupon it joins up with the blade route.

Following the physical examination of the routes, ARES performed swept path analyses of the critical pinch points along the routes using a combination of drone imagery shot during the survey and aerial imagery from Nearmap. The aim of the swept paths is to highlight the extent of any modifications required at each pinch point as well as any encroachment into private land by either the equipment or the cargo (e.g. blade tip).

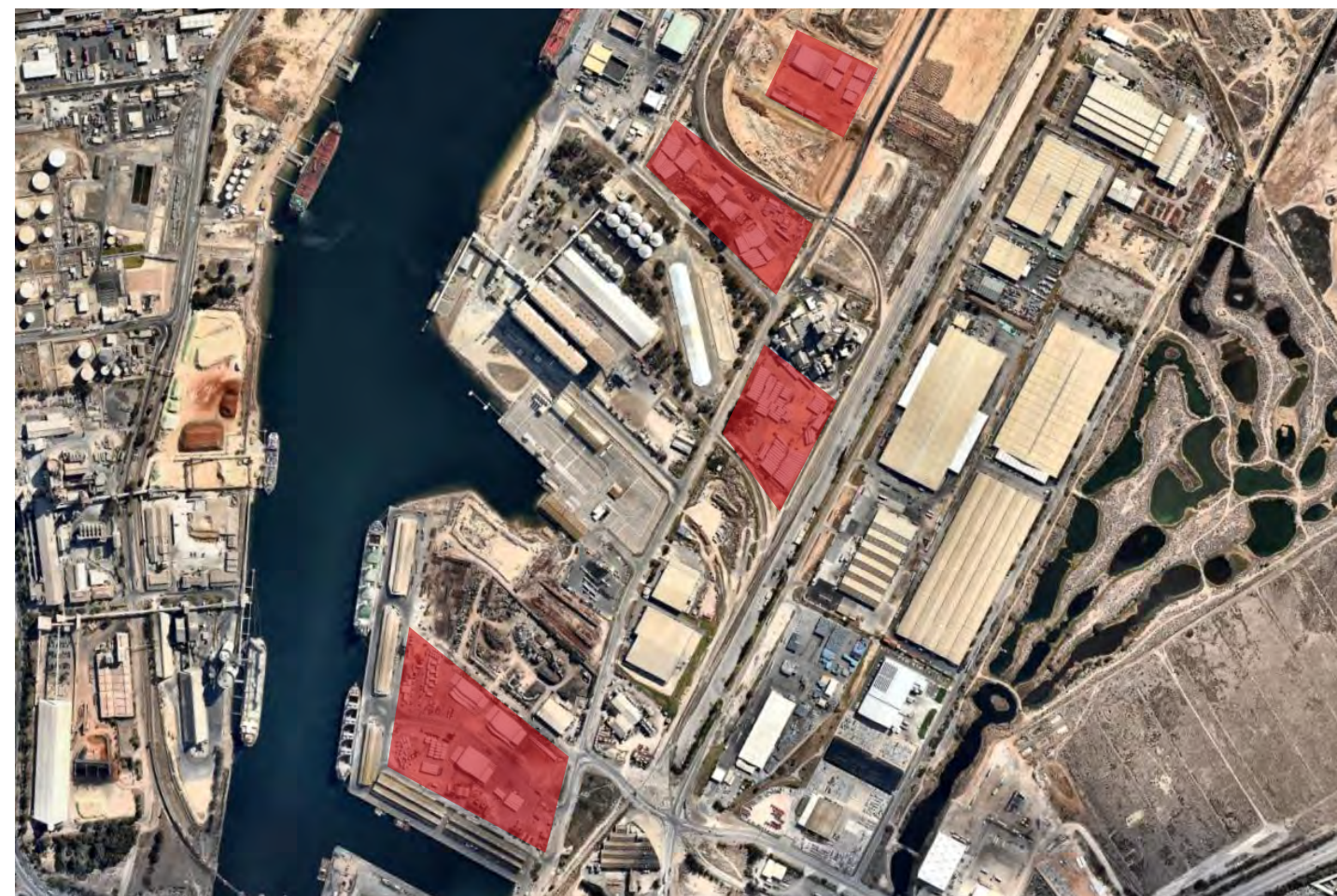
### Ports of Import

The Port of Adelaide has seen several large wind farm projects pass through it in recent years, including Port Augusta and Silverton, and is currently being used for the Goyder project. It has a proven capability to handle large break bulk vessels such as those used for wind projects.

Storage is available in various areas around the port, as depicted on the right. Blades will need to be stored at Berths 18/20 due to their length. The storage areas are fenced and security is provided by the port.

One of the biggest advantages of Adelaide Port is its connections to the road network. Port River Expressway is only a kilometre away, with links to the North-South Motorway (able to take most oversize loads north out of Adelaide Metro) and Port Wakefield Rd (designated overheight route). The routes out are relatively clear of obstructions and cater well for truck traffic.

The only downside to the use of Adelaide for wind farm cargo is that the region north of Adelaide has a number of proposed wind projects likely to also utilise Adelaide as their port of import - e.g. Goyder Stage 2, Carmody's Hill, Twin Creek, Crystal Brook. Depending on the timing of The Plains REP, the port may become congested when playing host to more than a single wind farm at a time.



**Above:** Storage areas at Adelaide Port (in red). **Below:** Components stored at Adelaide Port by ARES for the Silverton WF project.





# Transport Methodology

The Plains will feature next generation wind turbines with some of the largest blades and tower sections in the market.

## Transport Envelope

The cargo dimensions assumed for this project are listed on the opposing page. These represent the Goldwind GWH175 8MW wind turbine platform with its 86m blade, along with the anticipated diameter (6.31m) of a steel tower for this larger machine. By comparison, the current generation of wind turbines has blades at around 80m long and towers at less than 6m in diameter.

A key assumption here is that the blade will have its tip support frame positioned at 50m from the blade root, based on the information provided by the client and OEM. This will result in quite a large rear overhang of 36m. Should this tip frame position change, the swept paths of the blades will need to be re-assessed.

Tower sizes and dimensions are usually not finalised until a much later stage of the project. We have provided estimates for the largest base tower section as well as the longest top tower section that can be reasonably expected for a wind turbine of this size. The mid tower section dimensions will fall somewhere in between these extremes.

Besides the wind turbine components, there will be a few other oversize overmass deliveries to the wind farm, particularly the main transformers for the substations. These tend to be overmass loads ranging from 150 to 300 ton depending on size. No sizing information is available at present for the transformers and hence we have not considered these any further at this stage.

## Equipment

The change in cargo size is relatively small compared with current wind turbines and hence equipment required to transport them should be readily available.

Blades can be transported on extendable trailers which are currently being used, although if the tip frame spacing changes to something larger than about 55m then these trailers would need to be modified.

Other options for blade transport include a jinker style trailer or a fixed length blade trailer with removeable extension beams, both of which are in relatively common use for overlength applications. A blade lifter/ manipulator trailer has not been considered in this report as the approval pathway to use such a trailer on the road is unknown and considered too risky.

The base towers at a diameter of up to 6.31m will pose issues especially with respect to height. These will have to be transported on either “bookend” style trailers or low platform trailers to keep overall height as low as possible - this will minimize the amount of power lines which will need to be lifted.

The top tower sections are expected to be very similar to those currently in the market and should pose no issues for transport.

## Cargo Dimensions

| Component  | Qty | Length (m) | Width (m) | Height (m) | Weight (t) |
|------------|-----|------------|-----------|------------|------------|
| Nacelle    | 188 | 9.9        | 5.0       | 4.2        | 41.6       |
| Drivetrain | 188 | 8.2        | 4.1       | 4.2        | 106.0      |
| Hub        | 188 | 5.1        | 4.5       | 4.2        | 52.0       |
| Blade      | 564 | 86.0       | 4.8       | 3.7        | 32.0       |
| Tower Base | 188 | 10.0       | 6.3       | 6.3        | 110.0      |
| Tower Top  | 188 | 36.0       | 4.3       | 4.3        | 80.0       |

**Note:** mid tower sections will typically fall in between the weights and dimensions of the base and top sections. There will likely be 5-6 of these mid sections per turbine, or an additional 940-1,128 OSOM deliveries for the project.

## Overall Dimensions

| Component  | Equipment             | O/A Length (m) | O/A Width (m) | O/A Height (m) | O/A Weight (t) |
|------------|-----------------------|----------------|---------------|----------------|----------------|
| Nacelle    | PM 2R8 4R8            | 25.9           | 5.0           | 4.9            | 84.0           |
| Drivetrain | PM 10R8               | 31.3           | 4.3           | 5.0            | 168.0          |
| Hub        | PM 2R8 4R8            | 25.9           | 4.5           | 4.9            | 94.0           |
| Blade      | PM 6R8                | 97.4           | 4.8           | 4.7            | 86.0           |
| Tower Base | PM 5R8-5R8 (Bookends) | 39.1           | 6.3           | 6.7            | 192.0          |
| Tower Top  | PM 8R8 EXT            | 45.3           | 4.3           | 5.3            | 143.0          |

**Note:** mid tower sections will be transported on either low loaders or platform trailers.

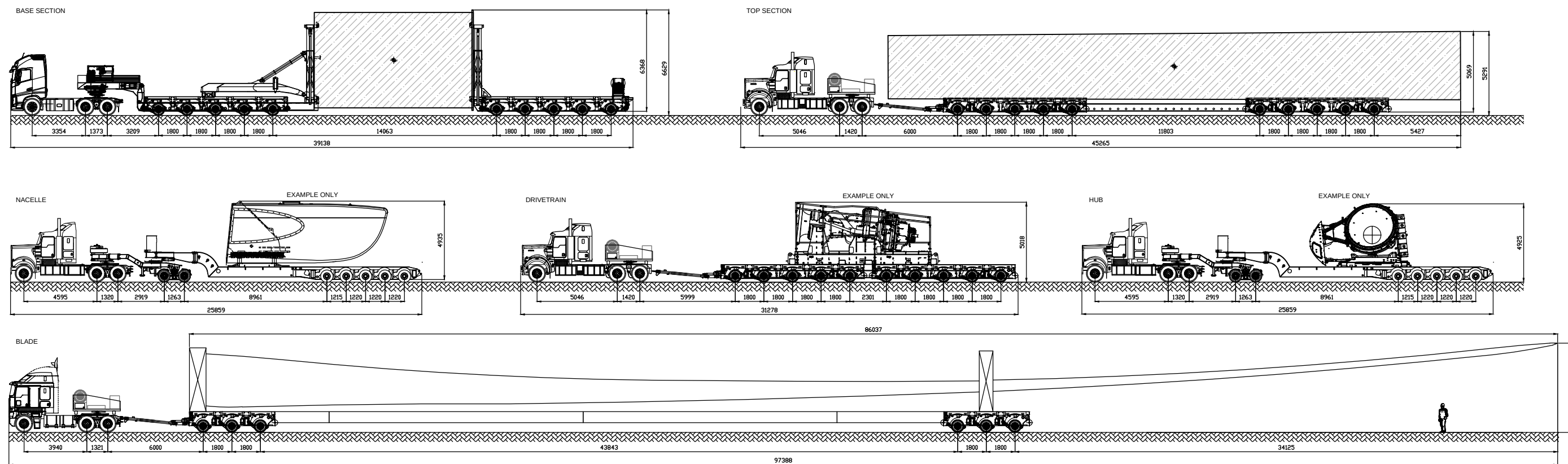
The equipment schematic on the next page shows how these components will be delivered for the project.

## Axle Loads

Axle loads will be up to 14 tons per row at 4.3m width. Axle spacings are shown in the equipment schematic overleaf.

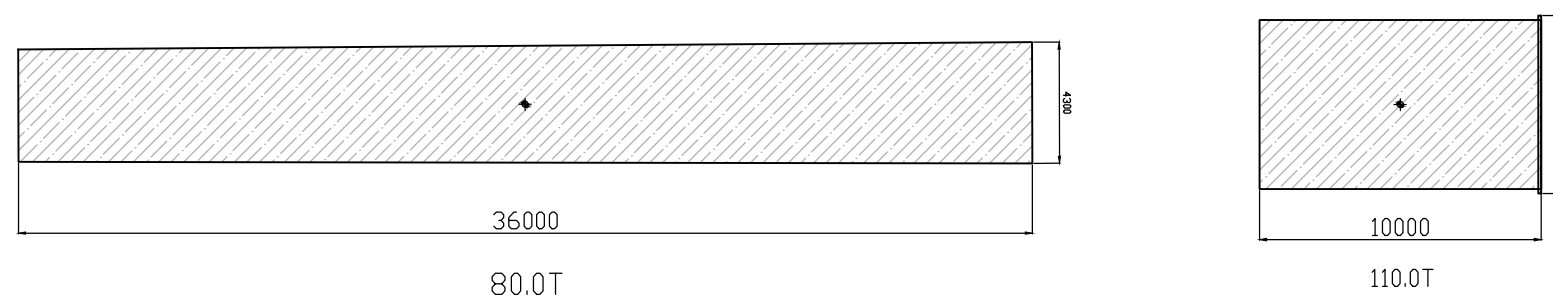


## Equipment Schematic



Note: Goldwind documentation notes blade tip droops by 739mm so transport height will be 4,873mm.

## Tower Specifications

[illegible]



### Daily Schedule

A sample journey is provided below to illustrate how a component would be transported to site.

- 08.30hrs Wilcannia (rest break)
- 11.30hrs Ivanhoe
- 13.30hrs Booligal
- 14.30hrs Layover Hay

● **FINISH: HAY**

Total Distance: 590 km  
Work Time: 9.5 hrs

### Project Timing

The Plains REP is scheduled to commence construction in 2025, with wind turbine component deliveries commencing around **Q4 2027**. Please note, these dates are subject to change and should be treated as indicative at this stage.

The proposed construction run rate is 2 complete turbines per week. We anticipate total duration of OSOM transport to be approximately **2 years**.

With 12-13 major OSOM components per turbine, this would mean a total of up to **26 oversized deliveries per week** or **4-5 deliveries per day** to site, spread over six days (Mon-Sat).

The proposed weekly delivery schedule is shown in the table below (subject to change due to resourcing, operational and permit requirements).

| Component       | Mon | Tue | Wed | Thu | Fri | Sat |
|-----------------|-----|-----|-----|-----|-----|-----|
| Nacelle         | ●   |     |     | ●   |     |     |
| Drivetrain      |     | ●   |     |     | ●   |     |
| Hub             |     |     | ●   |     |     | ●   |
| Blades          | ●   | ●   | ●   | ●   | ●   | ●   |
| Tower Section 1 | ●   |     |     | ●   |     |     |
| Tower Section 2 | ●   |     |     | ●   |     |     |
| Tower Section 3 |     | ●   |     |     | ●   |     |
| Tower Section 4 |     | ●   |     |     | ●   |     |
| Tower Section 5 |     | ●   |     |     | ●   |     |
| Tower Section 6 |     |     | ●   |     |     | ●   |
| Tower Section 7 |     |     | ●   |     |     | ●   |

### Day 1

● **START: PORT ADELAIDE**

- 04.00hrs Depart Port Adelaide
- 05.00hrs Gawler
- 06.30hrs Burra
- 07.30hrs Terowie
- 09.00hrs Yunta (rest break)
- 11.30hrs NSW Border
- 12.30hrs Layover Broken Hill

● **FINISH: BROKEN HILL**

Total Distance: 520 km  
Work Time: 8.5 hrs

### Day 2

● **START: BROKEN HILL**

- 05.00hrs Depart Broken Hill
- 06.00hrs Clear Broken Hill

### Day 3

● **START: HAY**

- 05.30hrs Depart Hay
- 06.00hrs Clear Hay
- 07.00hrs Arrive Site Entrance
- 11.00hrs Component offloaded
- 11.30hrs Return Journey commences

**FINISH: THE PLAINS REP**

Total Distance: 25 km  
Work Time: 6+ hrs

**NOTES:**

- Departure times subject to transport authority and Police approval.
- Return journey via Mildura (subject to permits and approvals)
- Times are indicative only and will change depending on traffic conditions and operational considerations.

# Route Overview

ARES' Desktop Survey assessed routes from a number of different Ports of Import, as depicted in the below Routes Overview. One route was selected for a physical survey and detailed assessment - Adelaide.

The results of the assessments for the selected route is presented in more detail in the following section.

- ROUTE 1

Geelong to The Plains - Distance: 560km - not assessed further
- ROUTE 2

Adelaide to The Plains - Distance: 1,130km
- ROUTE 3

Port Kembla to The Plains - Distance: 715km - not assessed further
- ROUTE 4

Newcastle to The Plains - Distance: 1,024km (blades only)







# 02

## Adelaide to The Plains REP

### Murra Warra WF

A blade trailer loaded with a 70m Servion blade skilfully negotiates the township of Nhill for the Murra Warra Stage 1 Wind Farm.



# Adelaide to The Plains - Overview



## BLADE ROUTE

|            |                                |
|------------|--------------------------------|
| 0.0 KM     | <b>START - Port Adelaide</b>   |
| 0.1 KM     | Ocean Steamers Rd              |
| 1.0 KM     | Eastern Pde                    |
| 4.4 KM     | Port River Expy                |
| 19.3 KM    | North-South Mwy                |
| 26.8 KM    | Port Wakefield Hwy             |
| 39.7 KM    | Angle Vale Rd                  |
| 49.9 KM    | North-South Mwy                |
| 89.9 KM    | Horrocks Hwy                   |
| 156.3 KM   | Barrier Hwy                    |
| 160.3 KM   | (Burra bypass)                 |
| 510.9 KM   | Barrier Hwy                    |
| 515.1 KM   | (Broken Hill bypass)           |
| 729.1 KM   | Barrier Hwy                    |
| 1,133.8 KM | Cobb Hwy                       |
|            | <b>FINISH - The Plains REP</b> |

## TOWER ROUTE

|            |                                |
|------------|--------------------------------|
| 0.0 KM     | <b>START - Port Adelaide</b>   |
| 0.1 KM     | Ocean Steamers Rd              |
| 1.0 KM     | Eastern Pde                    |
| 9.4 KM     | Port River Expy                |
| 201.7 KM   | Port Wakefield/Augusta Hwy     |
| 249.0 KM   | Wilkins Hwy                    |
| 254.0 KM   | (Jamestown Bypass)             |
| 254.8 KM   | Wilkins Hwy                    |
| 279.8 KM   | Jamestown-Yarcowie/Whyte Rd    |
| 576.8 KM   | Barrier Hwy                    |
| 582.6 KM   | (Broken Hill bypass)           |
| 796.6 KM   | Barrier Hwy                    |
| 1,201.3 KM | Cobb Hwy                       |
|            | <b>FINISH - The Plains REP</b> |

# Adelaide to The Plains REP

## General Route Notes

### Road Quality

Almost the entire transport route will be along state highways, which are generally designed to a higher specification and able to handle heavier and higher volumes of traffic.

The routes will be entirely on asphalt. There are sections of the Cobb Hwy between Wilcannia and Ivanhoe which are currently being upgraded from gravel to asphalt - this is scheduled to be complete in 2023-24 and well ahead of any deliveries for The Plains.

Width-wise there is only one area of note which will require extra vigilance - sections of the Cobb Hwy either side of Ivanhoe are quite narrow with negligible shoulders. With loads at up to 6.3m wide, oncoming traffic will have to pull off the road surface completely to let loads past. If there have been recent rains, the ground may be soft and cars may become bogged.

### Rest Stops

Being on main highways, there are ample truck parking areas and service areas for rest breaks along the routes (refer to following page). However, it is worth noting that the section between Broken Hill and Hay is quite remote with limited amenities and mobile phone coverage. We recommend that a service vehicle with spare parts, tyres etc. accompanies the larger loads to ensure any breakdowns can be addressed in a timely manner.

### Overhead Structures

There are only a few overhead structures of note along the overheight route for towers:

- Hanson Rd overpass of Port River Expy (6.0m clearance, bypass via off- and on-ramps)
- N-S Motorway overpass of Port River Expy (7.2m clearance - no issues)
- Gantries for highway VMS signboards at various locations in Adelaide metro (bypassable)
- Copper Coast Hwy overpass of Augusta Hwy at Port Wakefield (7.6m clearance - no issues)

For the blades, which are expected to be around 5.0m loaded height, there are two bridges on the North-South Motorway which are at around 5.3m height. These can be bypassed by taking Port Wakefield Rd and then Angle Vale Rd.

### Overhead Power Lines

In general, a travel height below around 5.5m is not an issue with respect to power lines. For this project, most towers will be travelling at more than 6m so there will likely need to be quite a few lines requiring permanent lifting, subject to detailed surveys from the power authorities (SA Power Networks, Endeavour Energy, Essential Energy). High load escorts will also likely be required to accompany these loads.

### Bridges and Culverts

Axle loads will be limited to 14 tons per axle by South Australian regulations. This should be well within design specifications for bridges, culverts and other structures on major state roads and highways. There are small sections of the route which deviate off state roads, such as the Burra and Jamestown bypasses. These will need liaison with the local council to ascertain any load limits on structures that are crossed.



Above: Typical construction of Cobb Hwy with minimal shoulder.

### Rail Crossings

There are numerous rail crossings along the route which are detailed on pages 28-32. These will need written approval from the rail authority or asset owner before they can be crossed. Current rail authority advice from ARTC and Aurizon on crossing and track supervision requirements has been attached as Appendices to this report.

### Approvals

Works on major arterial highways in South Australia require engineering design by an engineering consultant (from a pre-approved list) and final sign off by Department of Infrastructure and Transport (DIT).

Modifications to NSW State Roads will require a Works Authorisation Deed (WAD) signed between the project developer and Transport for NSW (TfNSW). Designs will need to be done by a pre-approved engineering consultant and signed off by TfNSW prior to construction.



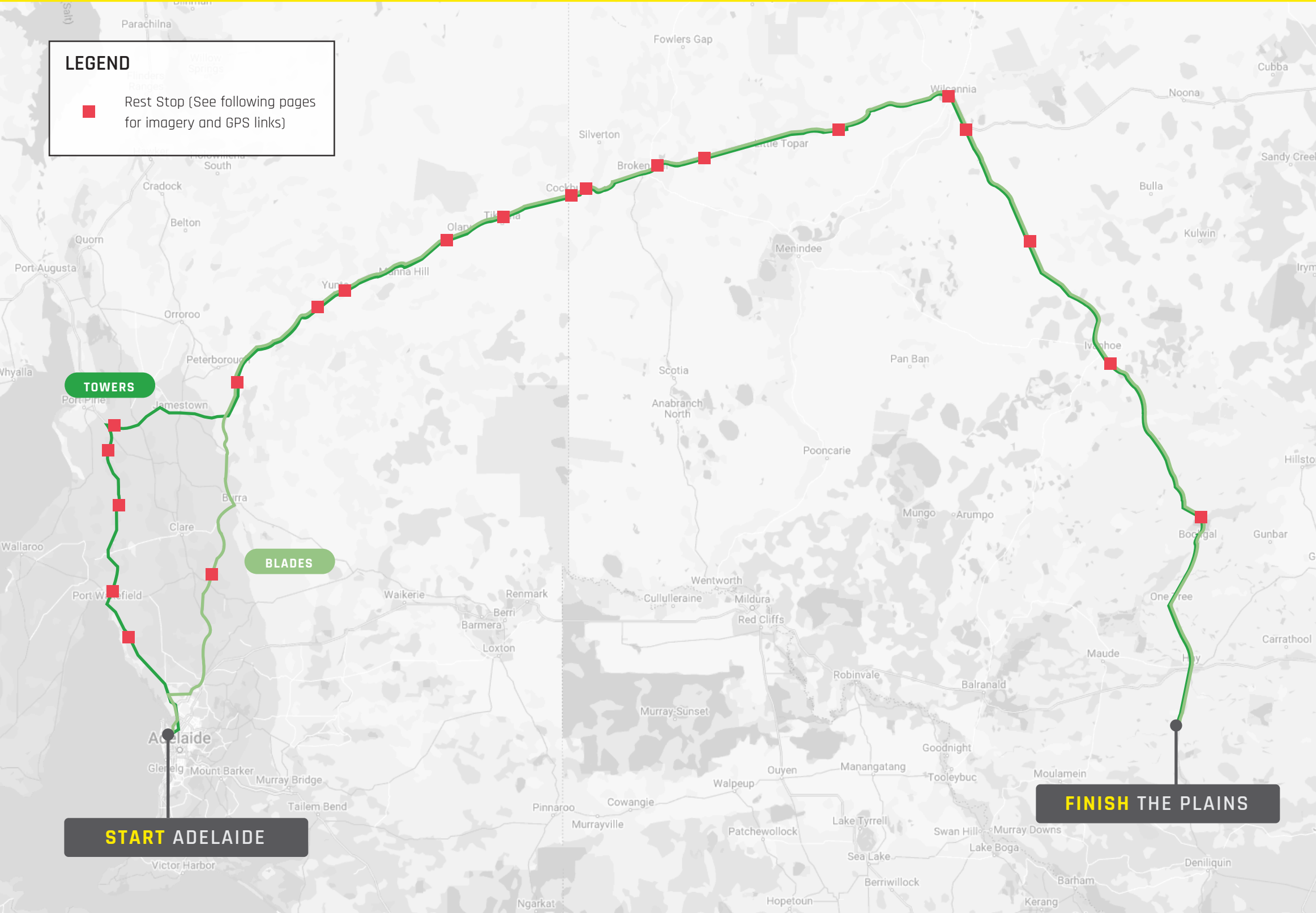
Above:  
Hanson Rd overpass of Port River Expressway - 6.0m clearance.

Below:  
Penfield Rd overpass (Hamel Bridge) on North-South Motorway - 5.3m clearance.





# Adelaide to The Plains - Rest Stops



## BLADE ROUTE

| No. | KP   | Rest Stop Name                   |
|-----|------|----------------------------------|
| 01  | 106  | Parking Bay north of Saddleworth |
| 02  | 222  | Woodcutters Rd Parking Area      |
| 03  | 257  | Barrier Hwy Parking, Nackara     |
| 04  | 311  | Yunta Rest Area                  |
| 05  | 371  | Truck Parking, Outalpa           |
| 06  | 418  | Barrier Hwy Parking, Tikalina    |
| 07  | 460  | Cockburn Rest Stop               |
| 08  | 473  | Thackaringa Hills Rest Stop      |
| 09  | 514  | Round Hills Rest Stop            |
| 10  | 542  | Mount Gipps Rest Stop            |
| 11  | 644  | Dolo Hills Rest Stop             |
| 12  | 704  | Wilcannia                        |
| 13  | 724  | Cobb Hwy Parking                 |
| 14  | 796  | Half Way Tree                    |
| 15  | 895  | Cobb Hwy, Abbotsford Bore        |
| 16  | 1006 | Bairds Truck Stop                |

## TOWER ROUTE

| No. | KP  | Rest Stop Name                       |
|-----|-----|--------------------------------------|
| 17  | 76  | Parking Area south of Inkerman       |
| 18  | 93  | Parking Area north of Port Wakefield |
| 19  | 151 | Truck Parking, Hope Gap              |
| 20  | 183 | Truck Parking, Merriton              |
| 21  | 201 | Wilkins Hwy Parking                  |



01 Saddleworth

GPS: <https://maps.app.goo.gl/amy98A8UPwXED7zz5>



05 Outalpa

GPS: <https://maps.app.goo.gl/dQsSTBXeoML7JGwb7>



09 Round Hills

GPS: <https://maps.app.goo.gl/UUc9gzBhCnwQvJ5d6>



13 Cobb Hwy

GPS: <https://maps.app.goo.gl/Z18L6vR3fdNx0aDh8>



02 Woodcutters Rd

GPS: <https://maps.app.goo.gl/wm1Go6BDxUvZnZfA9>



06 Tikalina

GPS: <https://maps.app.goo.gl/6yz8FFHtiShVZoiC8>



10 Mount Gipps

GPS: <https://maps.app.goo.gl/SjzMWq4X4fZRhwCi8>



14 Half Way Tree

GPS: <https://maps.app.goo.gl/ZRTPS3SjxQt2KuzM6>



03 Nackara

GPS: <https://maps.app.goo.gl/tkR9CTZBoQZWbqgS8>



07 Cockburn

GPS: <https://maps.app.goo.gl/kbJVbTTMhCQLbqLR7>



11 Dolo Hills

GPS: <https://maps.app.goo.gl/s5Bz4N76STjryYcw5>



15 Abbotsford Bore

GPS: <https://maps.app.goo.gl/NXP9SSX4AbBDc1fp7>



04 Yunta

GPS: <https://maps.app.goo.gl/TuKPbNirz11m6h8v9>



08 Thackaringa Hills

GPS: <https://maps.app.goo.gl/j7wMpqWmQYbZN4ut8>



12 Wilcannia

GPS: <https://maps.app.goo.gl/PwfcctgC8eXhMY1f9>



16 Bairds Truck Stop

GPS:





17 Inkerman

GPS: <https://maps.app.goo.gl/5xmUhQURrNNnFimX8>



21 Wilkins Hwy

GPS: <https://maps.app.goo.gl/MUvhodZ9fxWHH9nV7>



18 Port Wakefield

GPS: <https://maps.app.goo.gl/mjnyJLmNGiF2uQCt9>



19 Hope Gap

GPS: <https://maps.app.goo.gl/YPe27My9iBPJxzLR7>



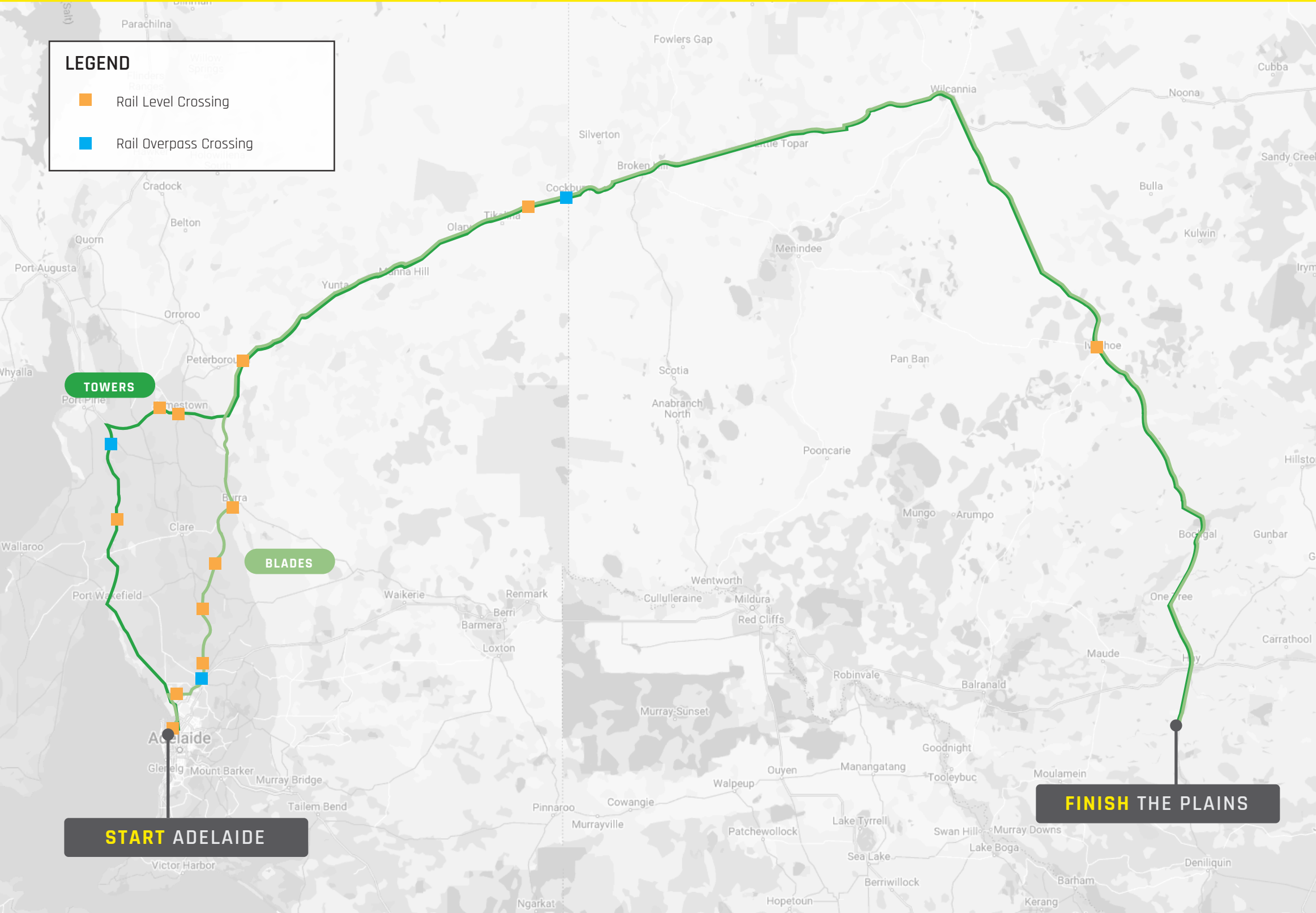
20 Merriton

GPS: <https://maps.app.goo.gl/yd6VKA69r35uDa5j6>



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# Adelaide to The Plains - Rail Crossings



## BLADE ROUTE

| No. | KP  | Rail Crossing Name             |
|-----|-----|--------------------------------|
| 01  | 0.1 | Eastern Pde, Port Adelaide (1) |
| 02  | 0.2 | Eastern Pde, Port Adelaide (2) |
| 03  | 28  | Angle Vale Rd, Angle Vale      |
| 04  | 47  | Northern Expy, Gawler          |
| 05  | 56  | Horrocks Hwy, Roseworthy       |
| 06  | 84  | Horrocks Hwy, Tarlee           |
| 07  | 118 | Barrier Hwy, Manoora           |
| 08  | 157 | Copperhouse Rd, Burra          |
| 09  | 246 | Barrier Hwy, Ucalta            |
| 10  | 429 | Barrier Hwy, Mingary           |
| 11  | 463 | Cockburn Overpass              |
| 12  | 894 | Cobb Hwy, Ivanhoe              |

## TOWER ROUTE

| No. | KP  | Rail Crossing          |
|-----|-----|------------------------|
| 13  | 140 | Augusta Hwy, Snowtown  |
| 14  | 194 | Crystal Brook Overpass |
| 15  | 239 | Wilkins Hwy, Caltowie  |
| 16  | 250 | Appila Rd, Jamestown   |
| 17  | 253 | OD5 Rd, Jamestown      |



01 Eastern Pde, Port Adelaide (1)

GPS: <https://maps.app.goo.gl/NLtkDkxAziDvKZxH9>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Port Flat Track



04 Northern Expy, Gawler (DISUSED)

GPS: <https://maps.app.goo.gl/kHouKukUksSxRjiRA>  
Type: Overpass  
Asset Owner: Aurizon  
Line: Gawler-Kapunda



07 Barrier Hwy, Manoora (DISUSED)

GPS: <https://maps.app.goo.gl/y1WhadV8Q1WWJzxb9>  
Type: Level Crossing  
Asset Owner: Aurizon  
Line: Hamley Bridge-Burra



10 Barrier Hwy, Mingary

GPS: <https://maps.app.goo.gl/SxHYc2JEMAgH7WA8>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



02 Eastern Pde, Port Adelaide (2)

GPS: <https://maps.app.goo.gl/QXV4cxQD7ZDxnNZE9>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Gillman-Eastern Parade 01



05 Horrocks Hwy, Roseworthy (DISUSED)

GPS: <https://maps.app.goo.gl/38LDwxZZiQUSM84F6>  
Type: Level Crossing  
Asset Owner: Aurizon  
Line: Gawler-Kapunda



08 Copperhouse Rd, Burra (DISUSED)

GPS: <https://maps.app.goo.gl/XhTT9H9PTbSxR2jE8>  
Type: Level Crossing  
Asset Owner: Aurizon  
Line: Hamley Bridge-Burra



11 Cockburn Overpass

GPS: <https://maps.app.goo.gl/Hn9NDQ9SJh1bxSDe9>  
Type: Overpass  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



03 Angle Vale Rd, Angle Vale

GPS: <https://maps.app.goo.gl/XzmNkYtGehup7nb8A>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Adelaide-Crystal Brook



06 Horrocks Hwy, Tarlee (DISUSED)

GPS: <https://maps.app.goo.gl/AhQq1kVdXcLsgoY49>  
Type: Level Crossing  
Asset Owner: Aurizon  
Line: Hamley Bridge-Burra



09 Barrier Hwy, Ucolta

GPS: <https://maps.app.goo.gl/dCJrps53zSmsd8DH8>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



12 Cobb Hwy, Ivanhoe

GPS: <https://maps.app.goo.gl/rTktcuGQ8A6di5m36>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Orange-Broken Hill





13 Augusta Hwy, Snowtown

GPS: <https://maps.app.goo.gl/noTPs5VuHYZQUUJJ9>  
Type: Level Crossing  
Asset Owner: Aurizon  
Line: Snowtown-Bute



16 Appila Rd, Jamestown

GPS: <https://maps.app.goo.gl/6eZNpsC3n42zsX5V6>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



14 Crystal Brook Overpass

GPS: <https://maps.app.goo.gl/vMxwDcbXS8kwasXo6>  
Type: Overpass  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



17 OD5 Rd, Jamestown

GPS: <https://maps.app.goo.gl/WCjZUf9xmYH1WP5TA>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill



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15 Wilkins Hwy, Caltowie

GPS: <https://maps.app.goo.gl/CTW6XcAJ19ZdBc8f7>  
Type: Level Crossing  
Asset Owner: ARTC  
Line: Crystal Brook-Broken Hill





Pinch Point

01

RIGHT TURN  
Ocean Steamers Rd  
& Eastern Pde

Blades will have to exit from the existing gate on the north-east side of the Berth 18/20 storage area. This gate will need to be widened or fence made removeable (see red segment on diagram) to accommodate the longer blades. Flinders Port approval will be required for these works. Cargo will have to be stored away from the gate to allow room for blades to manoeuvre.

The turn will need to be made very carefully due to close clearances to traffic furniture on all sides and to be able to straighten up sufficiently for the railway crossing, but no other modifications are required.



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| CUSTOMER:      | Engie              | SIZE:     |
| PROJECT:       | The Plains R.E.P.  | SCALE NTS |
| DRAWING TITLE: | SWEPT PATH DRAWING | SHEET NO: |
| DRAWING NAME:  | Route Survey       | REV       |

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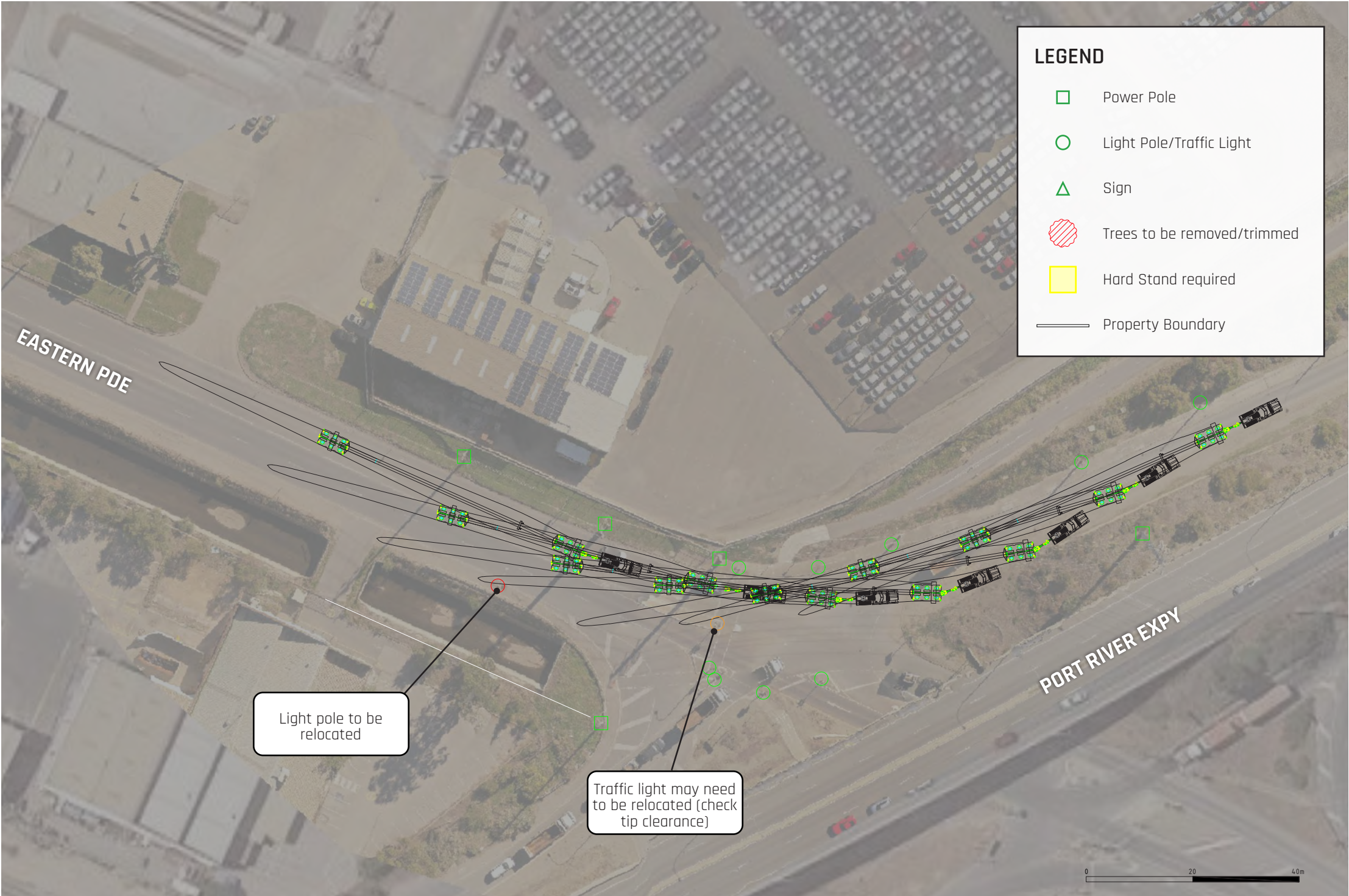
Pinch Point

02

LEFT TURN  
Eastern Pde &  
Port River Expy

The turn onto Port River Expressway is very tight with some tall powerlines and poles in the vicinity which are to be avoided. The rear of the blade trailer will run out very wide onto the opposite footpath, requiring the relocation of one light pole as well as the possible relocation of one of the traffic lights in the intersection.

The blade tip can be kept clear of the trees to the south and will not stray into private property.



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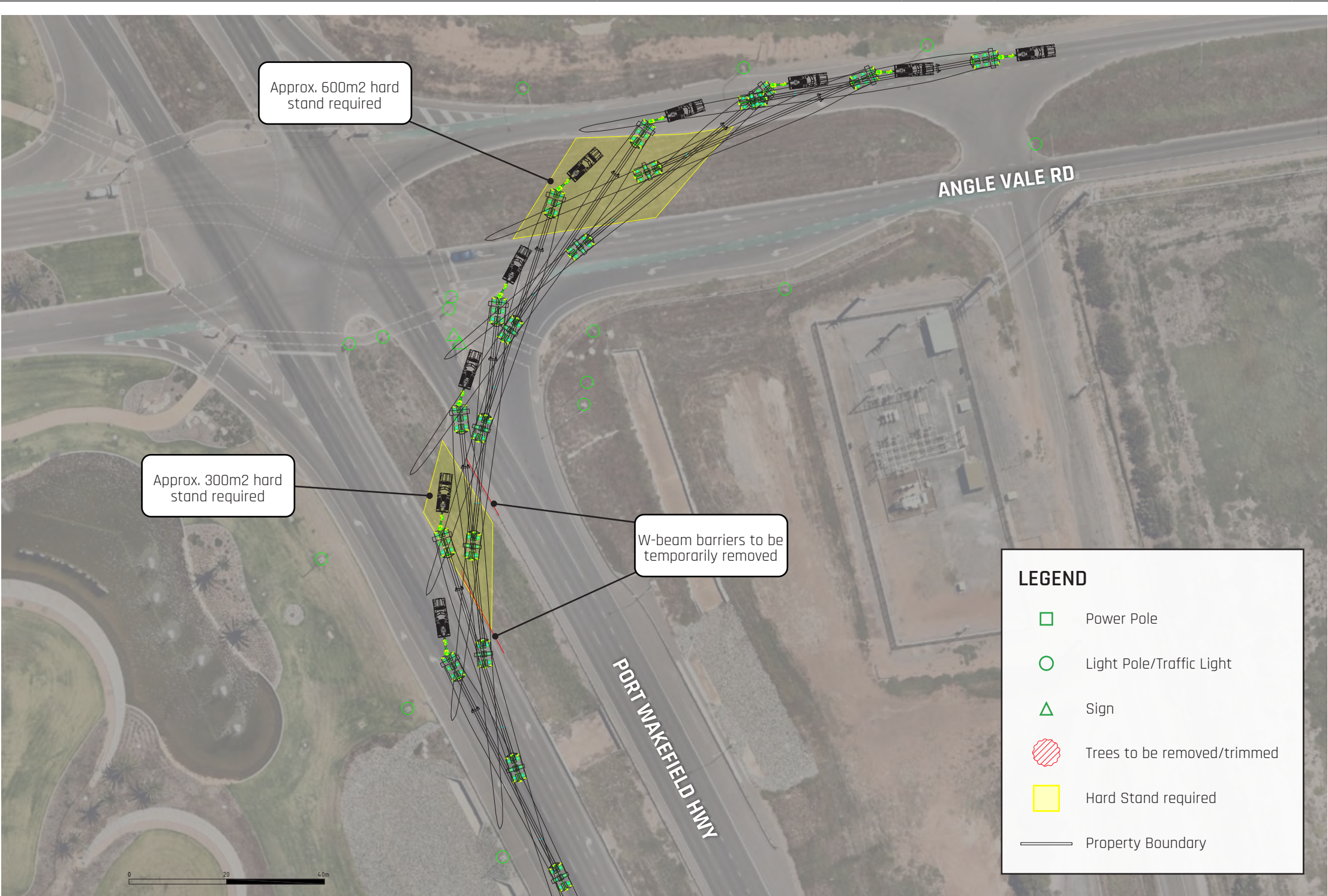
Pinch Point

03

RIGHT TURN  
Port Wakefield Hwy  
& Angle Vale Rd

This intersection has recently been upgraded to make Angle Vale Rd dual carriageway, giving a bit more room for blades making the turn. W-beam barriers will need to be removed along Port Wakefield Hwy to allow blades to cut across the median strip, taking care to avoid the drain in the middle. The blade will then cut across the median strip on Angle Vale Rd to cross over to the correct side of the road.

Minor civil works will be required to make the median strips trafficable for truck and trailer wheels as shown in yellow on the right.



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Pinch Point

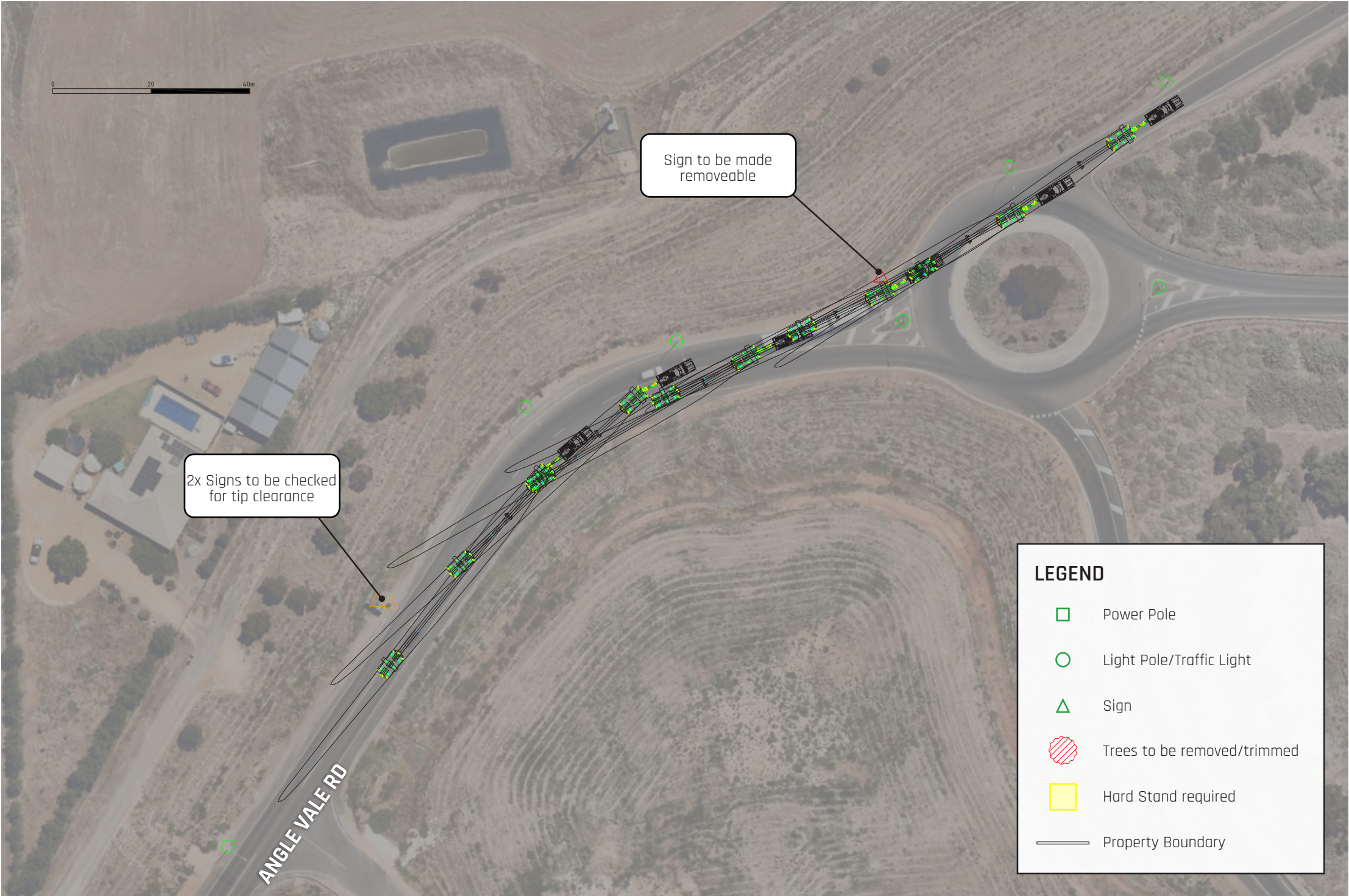
04

LEFT TURN  
Angle Vale Rd  
& North-South Mwy

This combination of corners to get back onto the North-South Motorway is quite tight and will require traffic to be stopped in both directions, but can be done with only minimal modifications.

Care will be required on the approach as there are power poles and trees to the south of Angle Vale Rd which need to be avoided. The rear trailer will have to be manually steered to keep it on the road surface as it navigates around the roundabout and to avoid the light poles.

A sign will need to be made removeable and another two (in orange) checked during a trial run for blade tip clearance.



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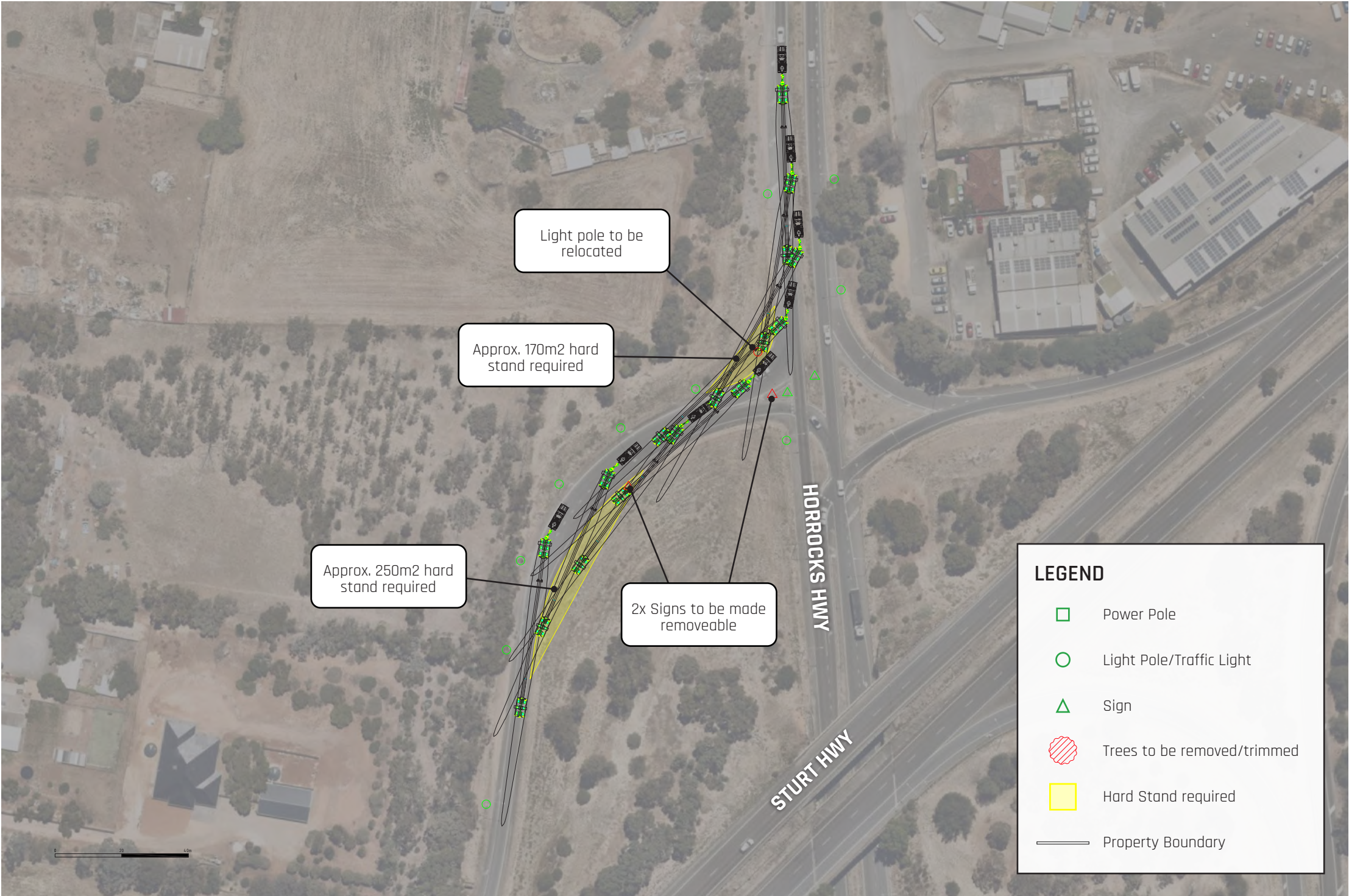
05

LEFT TURN  
Sturt Hwy &  
Horrocks Hwy

The offramp into this intersection has a moderate downhill gradient with embankments on either side. The blade trailer's rear wheels will have to travel on the eastern embankment, meaning hard stand material will need to be put down with possible earthworks required to level the ground. Further hardstand is required on the inside of the corner merging onto Horrocks Hwy.

Rear tip clearance with the ground will need to be checked during a trial run, if this is an issue the tip frame can be put onto spacers for additional clearance.

One light pole and a few signs will need to be relocated or removed.



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| PROJECT:          | The Plains R.E.P.  | SCALE<br>NTS |
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| DRAWING<br>NAME:  | Route Survey       | REV          |

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Pinch Point

# 06

LEFT TURN  
Horrocks Hwy,  
Tarlee

There is a left hand turn at the town of Tarlee on the Horrocks Hwy to cross a disused railway line. This can be taken by blades conventionally with no issues, however the police escorts will have to hold oncoming traffic whilst the blade completes the turn as the combination will take up both lanes.

Tree trimming is likely required on overhanging branches leading up to this turn (not shown).



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CUSTOMER: Engie

SIZE:

PROJECT: The Plains R.E.P.

SCALE  
NTS

DRAWING  
TITLE: SWEPT PATH DRAWING

SHEET  
NO:

DRAWING  
NAME: Route Survey

REV

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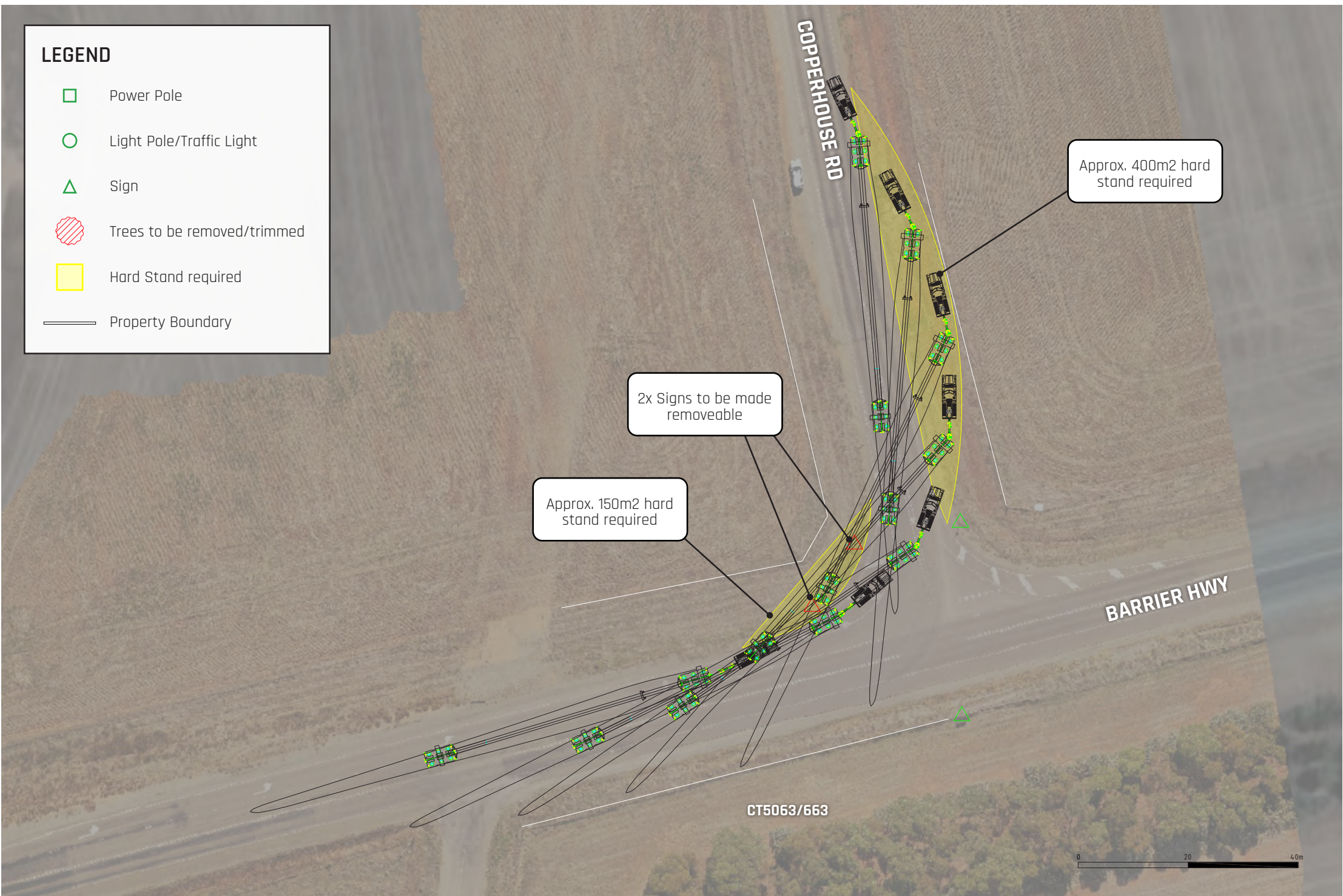
Pinch Point

07

LEFT TURN  
Barrier Hwy &  
Copperhouse Rd

The heavy vehicle bypass of Burra town is via Copperhouse Rd. It is primarily designed for B-double traffic and more work will be required to get the blades around.

Loads will have to hug the inside fenceline on turning in, then swing out as wide as possible to the other side of the road. Hard stand material will need to be placed where the wheels run off the existing road surface. Two signs will need to be made removeable.



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Pinch Point

08

LEFT TURN  
Copperhouse St  
& West St

The left turn at the Bon Accord Hotel on the Burra bypass route will present some problems due to the large rear overhang. Taking this turn conventionally will require tree trimming and/or removal to the south, with the tip swing intruding into private property (CT6105/151).

Some hard stand material is required where the truck and trailer wheels leave the existing road surface. The transport combination may also need permission to travel on private property (Bon Accord Hotel).



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Pinch Point

# 09

MAJOR TOWN  
Route Options  
through Broken Hill

Getting through the town of Broken Hill is a major challenge for this project. Cargo will arrive from the south-west via the Barrier Hwy and needs to exit via the Silver City and Barrier Hwys to the north-east. ARES assessed three main options to get blades through Broken Hill:

- **New Bypass Option:** Build new track turning off the Barrier Hwy west of Broken Hill which roughly follows existing dirt tracks and links up with Gaffney St
- Two options through the town itself were assessed but found to be non-feasible due to swept path issues.

As going through the town itself is not feasible with the sheer length of the blades, the only realistic option is to build a new bypass track.

## LEGEND



Pinch Point (See following pages for analysis)



New Track Required



BROKEN HILL  
SOLAR PLANT



Pinch Point

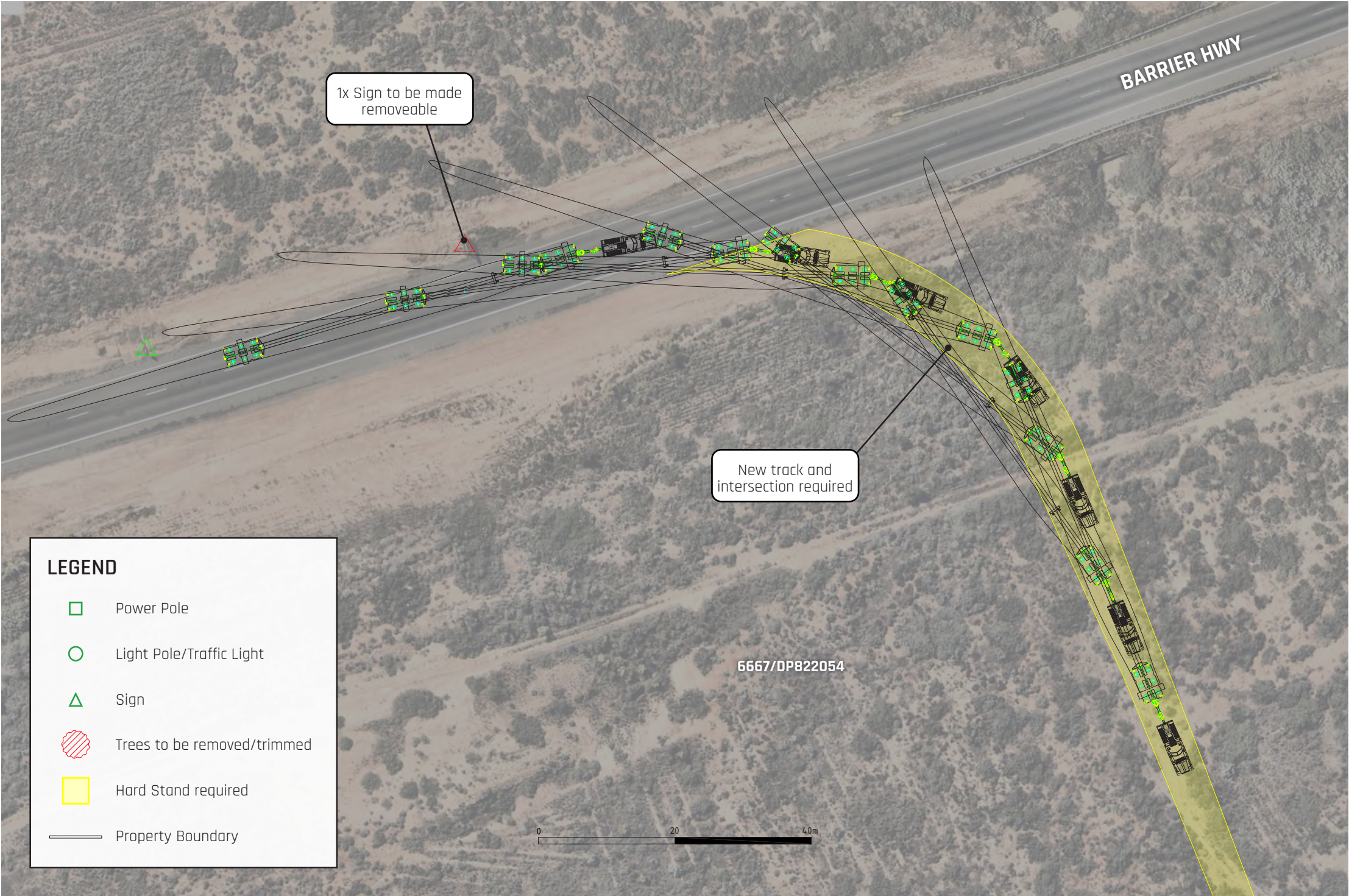
09A

RIGHT TURN  
Barrier Hwy approx.  
2.4km from Broken Hill

The proposed bypass makes use of existing tracks which come off the Barrier Hwy at around 2.4km west of Broken Hill town. There is no existing intersection and a new one will have to be designed and constructed.

The swept path analysis on the right shows the extent of civil works required for the 86m blade to make this turn. One sign will need to be made removeable.

As the Barrier Hwy is a state-controlled road, the design and construction of this intersection will require a Works Authorisation Deed (WAD) and approvals from Transport for NSW.



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DRAWN DATE:

CHECKED BY:

CUSTOMER: Engie

PROJECT: The Plains R.E.P.

DRAWING TITLE: SWEPT PATH DRAWING

DRAWING NAME: Route Survey

SIZE:

SCALE NTS

SHEET NO:

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ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115



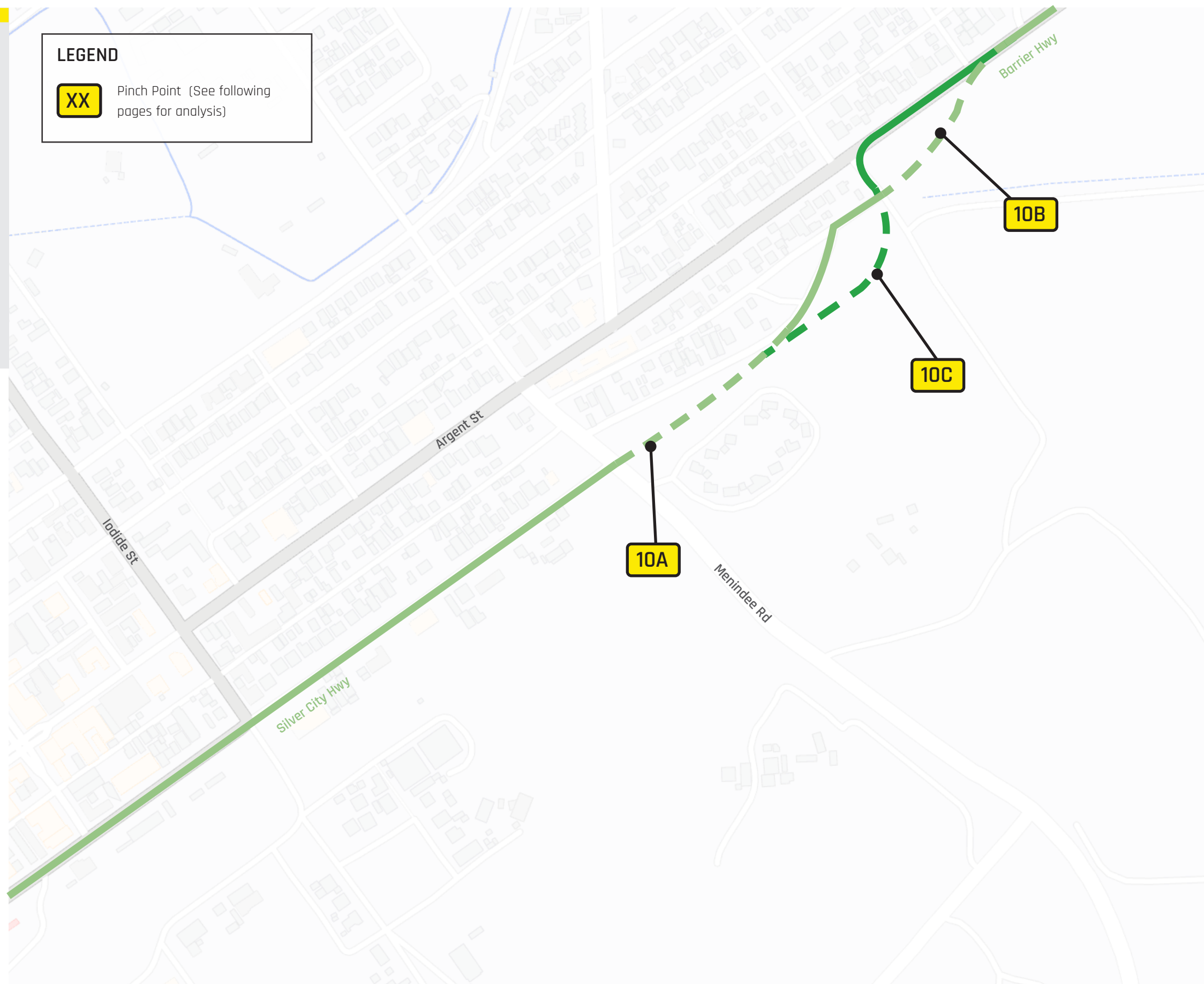
Pinch Point

# 10

RIGHT TURN  
Silver City Hwy &  
Barrier Hwy

Regardless of which option is chosen from Pinch Point 09, to get back onto the Barrier Hwy to the north-east will require a new track to be built to Sturt St (Pinch Point **10A**), and then a couple of options to get back onto the Barrier Hwy (Pinch Points **10B** and **10C**).

The pinch points are explored in detail in the following pages.





Pinch Point

10A

RIGHT TURN  
Crystal St  
& Sturt St

The blades will require a temporary track to link the end of Crystal St with Sturt St across Menindee Rd. This will pass through Crown land and will require a moderate amount of civil works to make the surface suitable for a road base.

There is a power pole which can be avoided, and the road sign can be relocated away from the path of the transporter.



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Pinch Point

# 10B

RIGHT TURN  
Chettle St  
& Barrier Hwy

A temporary track will need to be built to link the end of Chettle St to the Barrier Hwy/Argent St. This will pass through Crown land near the Perilya Mine, which is non-operational.

The terrain is relatively flat and suitable for a temporary road. There is an existing double gate at the end of Chettle St which may be utilised to access the property. A new gate will have to be put in at the exit point into Barrier Hwy/Argent St.



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Pinch Point

10C

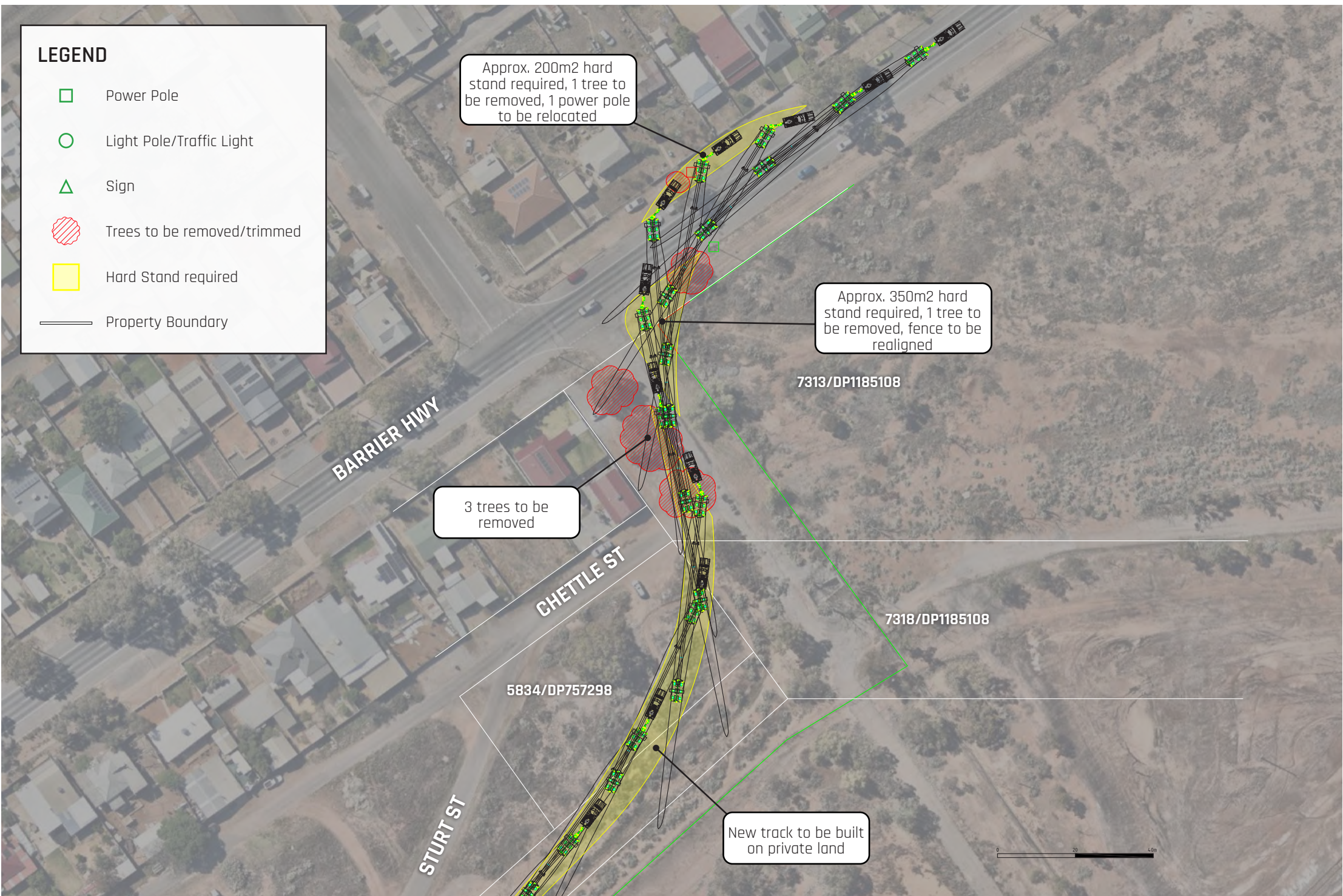
RIGHT TURN  
Sturt/Chettle St  
& Barrier Hwy

As an alternative to Pinch Point 10B, blades can take a sharper turn to avoid entering into the Perilya Mine-affiliated property (Lot 7313 of DP1185108) as much as possible. Significantly more civil works are required to extend a track from Sturt St, and also at Barrier Hwy.

4-5 trees will also need to be removed, and a power pole will need to be moved.

The track from Sturt St will pass through a separate private property (Lot 5834 of DP757298). Permission will be required from this landowner to build on and transport through their land.

The Perilya Mine property cannot be avoided entirely but the impact will be limited to a small corner of the lot. The fence should be realigned to allow blades to pass through.



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Pinch Point

11

ROUNDAABOUT  
Cobb Hwy  
& Sturt Hwy

The roundabout south of Hay will require a moderate amount of work prior to blade transport. Three light poles will need to be removed or relocated, and a number of signs made removeable.

The blade swing slightly overpasses the private property to the east (Lot 100 of DP1283323) which is a proposed service station currently under development. ARES reviewed the development plans and the blade tip should miss the 12m high signboard indicated on the plans.

There is also an option to take the wrong side of the roundabout, but after assessment this results in a similar amount of modifications but with a contraflow movement, which is not desirable. We recommend using the correct side as shown.



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# List of Affected Landowners

The lots which either need to be accessed directly by trucks and trailers, or which are in the blade swept path, are listed below.

As part of our scope of work, we have run title searches on all properties or lots that will be affected by the transport route, as noted in the individual Pinch Points on preceding pages. South Australian Certificates of Title were obtained from the SA Integrated Land Information System (SAILIS). New South Wales Certificates of Title were obtained from the NSW Land Registry Services via Infocert.

Land owners are a mixture of the Crown, corporations and individuals.

All Certificates of Title will be provided separately to this report as an Appendix.

## South Australia

| Title Reference | Address                  | Pinch Point | Owner(s)                                    |
|-----------------|--------------------------|-------------|---------------------------------------------|
| CT5063/663      | 19 Springbank Rd, Burra  | 07          | Hichick Breeding Company P/L                |
| CT6105/151      | 44 Copperhouse St, Burra | 08          | SA Government (DIT)                         |
| CT5419/54       | LOT98 West St, Burra     | 08          | Colin Alfred Phillips<br>& Pauline Phillips |
| CT5695/294      | LOT98 Cooper St, Burra   | 08          | Regional Council of Goyder                  |

## New South Wales

| Title Reference | Address                   | Pinch Point | Owner(s)              |
|-----------------|---------------------------|-------------|-----------------------|
| 6667/DP822054   | Pinnacles Rd, Broken Hill | 09A         | State of NSW          |
| 302/DP1242250   | Barrier Hwy, Broken Hill  | 09          | Willyama Common Trust |
| 7307/DP1179131  | Barrier Hwy, Broken Hill  | 09          | State of NSW          |
| 7400/DP1179151  | Kanandah Rd, Broken Hill  | 09          | State of NSW          |
| 7401/DP1179151  | Kanandah Rd, Broken Hill  | 09          | State of NSW          |
| 7320/DP1185108  | Menindee Rd, Broken Hill  | 10A         | State of NSW          |
| 7313/DP1185108  | Menindee Rd, Broken Hill  | 10A/10B/10C | State of NSW          |



| Title Reference | Address                  | Pinch Point | Owner(s)     |
|-----------------|--------------------------|-------------|--------------|
| 5658/DP757298   | Chettle St, Broken Hill  | 10B         | State of NSW |
| 7318/DP1185108  | Menindee Rd, Broken Hill | 10C         | State of NSW |
| 5834/DP757298   | Chettle St, Broken Hill  | 10C         | State of NSW |
| 100/DP1283323   | 397 Moama St, Hay South  | 11          | APC Hay P/L  |

In the course of our searches we also noted a number of lots which seemed to be historical as they laid across existing roads. We have not performed title searches on these but have listed them for completeness below.

| Title Reference                | Address                            | Pinch Point |
|--------------------------------|------------------------------------|-------------|
| CT6144/634                     | 12 Bishopstone Rd, Davoren Park    | 04          |
| CT6144/635                     | 12 Bishopstone Rd, Angle Vale      | 04          |
| CT6144/636                     | LOT603 Angle Vale Rd, Angle Vale   | 04          |
| CT5431/458                     | LOT1 Gawler North Ramp to Adelaide | 05          |
| Lots 5653 to 5657,<br>DP757298 | Sturt St, Broken Hill              | 10A/10B     |





# 03

## Conclusion

### Warradarge WF

A convoy of 3 blades leaves Henderson Port early in the morning on its way to site.

# Conclusion

A brief outline of the report's major findings and any recommendations for actions to progress with the transport feasibility study.

## Summary

Following our physical survey and swept path analysis, ARES believe that transport of turbine components including 86m GW86 blades and 6.31m towers is feasible from the **Port of Adelaide** to The Plains Renewable Energy Park.

Blades can be transported using state highways (Horrocks, Barrier and Cobb Hwys) with only minor detours. Modifications will be required at a number of pinch points, and some private land access will be required especially in the Broken Hill area, but there is no physical impediment to the blades along this route when using a conventional blade trailer setup.

For the tower sections, the overheight route from Adelaide is clear of any non-bypassable overhead structures. Overhead powerlines will need to be surveyed to gain an understanding of the quantity of lines requiring permanent lifting.

From a width perspective, travelling at 6.3m wide for such large distances will present challenges, but the quality of the roads being taken (overtaking lanes, rest areas, etc.) will mitigate these risks as much as reasonably practicable.

The Port of Adelaide is well suited to host the components for the project, having processed a number of significant wind projects in the recent past, including



...transport of 86m blades and 6.31m towers is feasible to The Plains R.E.P.”

Goyder Wind Farm currently. Storage space is sufficient and the only concern would be if multiple wind projects were arriving into the port at the same time.

From the Stage 1 Desktop Assessment, Adelaide stood out as the best single-port solution for The Plains turbine components, and the physical survey and analysis has confirmed that it is an excellent option.

## Next Steps

Based on the findings in this route survey, we recommend the following actions:

- Engage with transport authorities (DIT and TfNSW) for preliminary feedback on proposed routes
- Engage power authorities to perform overhead surveys in their respective jurisdictions
- Liaise with land owners affected by proposed routes
- Liaise with local councils along routes

# Summary of Road Modifications

The following table lists all required modifications to allow transport of wind turbine components to take place.

| Pinch Point | Road/Intersection                  | Modifications Required                                                                                                                                                                                                                                                                          | Risk      |
|-------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 01          | Oceam Steamers Rd & Eastern Pde    | Gate to be widened at storage area exit.                                                                                                                                                                                                                                                        | Low       |
| 02          | Eastern Pde & Port River Expy      | 1 light pole and possibly 1 traffic light to be relocated (subject to blade tip positioning)                                                                                                                                                                                                    | Medium    |
| 03          | Port Wakefield Rd & Angle Vale Rd  | Sections of W-beam barrier removed or replaced with removeable bollards, temporary hardstand to be laid down on median strips (approx. 900m2 total)                                                                                                                                             | Medium    |
| 04          | Angle Vale Rd & N-S Mwy            | 1 sign to be made removeable, 2 others to be checked for tip clearance                                                                                                                                                                                                                          | Low       |
| 05          | Sturt Hwy & Horrocks Hwy           | 2 signs to be made removeable and 1 light pole to be relocated. Approx. 420m2 of temporary hardstand required.                                                                                                                                                                                  | High      |
| 06          | Horrocks Hwy                       | Minor tree trimming south of Tarlee                                                                                                                                                                                                                                                             | Low       |
| 07          | Barrier Hwy & Copperhouse Rd       | 2 signs to be made removeable, approx. 550m2 of temporary hardstand to be laid down                                                                                                                                                                                                             | Medium    |
| 08          | Copperhouse St & West St           | Tree trimming and/or removal, approx. 150m2 of temporary hardstand to be laid down                                                                                                                                                                                                              | High      |
| 09A/09B     | Barrier Hwy @ BHSP                 | Construction of new temporary gravel bypass track to Gaffney St (approx. 5.5km). Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading.                                                                                                           | High      |
| 09C         | Barrier Hwy 2.4km from Broken Hill | Construction of new temporary gravel bypass track to Gaffney St (approx. 3.7km). Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. New intersection off Barrier Hwy required. 1 sign to be moved.                                            | Very High |
| 10A         | Crystal St & Sturt St              | Temporary gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. 1x sign to be made removeable.                                                                                                    | High      |
| 10B         | Chettle St & Barrier Hwy           | Temporary gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. An egress gate to be installed on Barrier Hwy.                                                                                    | Very High |
| 10C         | Sturt/Chettle St & Barrier Hwy     | Temporary gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. Multiple trees to be removed. 1 power pole to be relocated. Approx. 550m2 of temporary hardstand required. Fence to be realigned. | Very High |
| 11          | Cobb Hwy                           | 3 light poles to be relocated, and 3 signs to be made removeable, 300m2 of temporary hardstand to be laid down                                                                                                                                                                                  | High      |



# 04

## Appendices

### **Murra Warra WF**

Deliveries to Murra Warra included towers up to 5.8m in diameter - the largest ever at the time.



# ARTC Rail Crossing Requirements

**From:** [ODL Permits](#)  
**To:** [Gillian Etherington](#)  
**Cc:** [Jan Wong](#); [ODL Permits](#)  
**Subject:** RE: OSOM Rail enquiry for ARES / JMI  
**Date:** Friday, 1 March 2024 2:06:06 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[ARTC Tower Route-Rail-Level-Crossing-Permit-Application-Form.pdf](#)  
[ARTC Blade Route-Rail-Level-Crossing-Permit-Application-Form.pdf](#)

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Hi Gill

As discussed, ***this information is subject to change***, but as a guide I have listed the crossings being considered for this project and the dimensions limits that may make a difference to the necessary protection requirements from ARTC for the individual crossings.

| Road Name                    | Area / Suburb | ALCAM No. | Track km | Line                           |
|------------------------------|---------------|-----------|----------|--------------------------------|
| Eastern Pde / Grand Trunkway | Gillman       | 1887      | 6.768    | Dry Creek - Port Flat          |
| Wilkins Hwy                  | Caltowie      | 854       | 60.795   | Crystal Brook - Cockburn       |
| Appila Rd                    | Jamestown     | 863       | 71.703   | Crystal Brook - Cockburn       |
| OD5 Rd                       | Jamestown     | 865       | 73.481   | Crystal Brook - Cockburn       |
| Angle Vale Rd                | Virginia      | 72        | 36.815   | Adelaide - Crystal Brook       |
| Barrier Hwy                  | Ucolta        | 901       | 124.645  | Crystal Brook - Cockburn       |
| Barrier Hwy                  | Mingary       | 938       | 309.699  | Crystal Brook - Cockburn       |
| Cobb Hwy                     | Ivanhoe       | 1040      | 816.098  | Goobang Junction - Broken Hill |

## Height

There are no overhanging assets at the above listed ARTC level crossings to be considered

## Width

The maximum width before requiring a Rail Safety Worker (RSW) present is 6.45m. If you exceed this width, there will be certain crossings listed above that will be required to have a RSW in attendance each time to traverse.

## Length

The length varies for each crossing, depending on their current settings. The length increments that may affect the safety requirements are 26m, 30m, 36.5m. Any loads 40m and above will require a RSW in attendance each time you traverse.

## Weight

The level crossings listed above are ok for loads up to 150 tonnes, however the maximum axle weight should also be considered. Anything above 16 tonnes per axle will need closer assessment.

Please note that the longer loads (e.g. blades) will be required to provide a Travel Management Plan to ARTC with their permit application, outlining how they intend to traverse each level crossing (e.g. swept path, approach and exit angles)

Please note that if a Stop & Report permit is issued, the loads need to consider a safe location where they can make the call to our network control to gain clearance to traverse the crossings. ARTC are not responsible for these locations, but this needs to be considered when planning so the loads are not blocking the roads while awaiting approval from ARTC Network Control.

Warm Regards

Suzanne Marshall  
Project Administrator  
Third Party Works





---

**General Enquiries:**

P. 08 8112 0300

E. [Admin.TPW@artc.com.au](mailto:Admin.TPW@artc.com.au)

**Direct:**

P. 08 8217 4435

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**ODL Permit Applications:**

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E. [ODL.permits@artc.com.au](mailto:ODL.permits@artc.com.au)

**Australian Rail Track Corporation**

11 Sir Donald Bradman Drive

Keswick Terminal

Mile End SA 5031

[artc.com.au](http://artc.com.au)



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**From:** Gillian Etherington <[gill@millarinvestments.com.au](mailto:gill@millarinvestments.com.au)>

**Sent:** Thursday, 29 February 2024 4:17 PM

**To:** ODL Permits <[ODL.permits@ARTC.com.au](mailto:ODL.permits@ARTC.com.au)>

**Cc:** Ian Wong <[ian.wong@aresgroup.com.au](mailto:ian.wong@aresgroup.com.au)>

**Subject:** [EXT] RE: OSOM Rail enquiry for ARES / JMI

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Hi Suzanne,

As discussed, this project has been approved but is still in planning stage.

There will be up to 226 wind turbines, transported in sections from Port of Adelaide to Booroorban, near Hay in NSW.

Please see attached application forms.

One for the Tower high load route – Route ID 1HG7Q-6 v2

One for the Blade long load route – Route ID 1HG7Q-6 v1

Our client is seeking an in-principal approval and/or written advice as to any special requirements (e.g supervision). There are some smaller loads within gazette dimensions also (5m wide, 5m high and 30m long).

Thank You

# Aurizon Rail Crossing Requirements

**From:** [Gillian Etherington](#)  
**To:** [Ian Wong](#)  
**Subject:** FW: [EXTERNAL SENDER] OSOM Rail enquiry - ARES / JMI  
**Date:** Monday, 18 March 2024 4:37:28 PM  
**Attachments:** [image003.png](#)  
[image004.png](#)  
[image005.png](#)

---

Hi Ian,

Please see below from Aurizon.

Only two crossings.

One on Ocean Steamers Rd, pending which berth loads are imported from.

One at Snowtown for the towers up to 50m.

Stop and Report required when exceeding 50 metres.

Kind Regards,



Follow us:



GILLIAN ETHERINGTON

**ARES GROUP**

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**From:** Sims, Mark <Mark.Sims@aurizon.com.au>  
**Sent:** Monday, March 18, 2024 4:12 PM  
**To:** Gillian Etherington <gill@millarinvestments.com.au>  
**Subject:** RE: [EXTERNAL SENDER] OSOM Rail enquiry - ARES / JMI

Hi Gillian,

Depending on what berth you are departing from on Ocean Steamers road, we have one level crossing that runs into Viterra that may or may not affect your passage.

If you are on the North side and traverse over it then we will need to put in a stop and report in place before crossing as your blade lengths are over 50 meters.

The other active Aurizon level crossing is at Snowtown that will be traversed by your 50 meter towers this is on the limit but should be fine.



**Mark Sims**

Service Coordinator Bulk South

Bulk

Bulk Central

T 0419032139 / M

1 Kidman Rd , Dry Creek, South Australia 5094

[Mark.Sims@aurizon.com.au](mailto:Mark.Sims@aurizon.com.au) / [aurizon.com.au](http://aurizon.com.au)



I know  
I choose **Safe**



**From:** Gillian Etherington <[gill@millarinvestments.com.au](mailto:gill@millarinvestments.com.au)>

**Sent:** Wednesday, 28 February 2024 8:56 AM

**To:** Sims, Mark <[Mark.Sims@aurizon.com.au](mailto:Mark.Sims@aurizon.com.au)>

**Subject:** [EXTERNAL SENDER] OSOM Rail enquiry - ARES / JMI

You don't often get email from [gill@millarinvestments.com.au](mailto:gill@millarinvestments.com.au). [Learn why this is important](#)

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Hi Mark,

As recently discussed,  
We have been engaged to assist with transport enquiries for a state significant renewable energy project.  
We have researched most suitable routes for various oversize components from Port of Adelaide to The Plains, via Broken Hill..  
Can you please advise of the Aurizon rail crossing requirements for the routes below?

**Route 1** – required for overheight components. Overall width 6.31m, overall height 6.31m, overall length up to 50m.

Ocean Steamers Rd – Rail at Port of Adelaide  
Eastern Parade  
Port River Expy A9  
Salisbury Hwy A9  
Port Wakefield Rd/ Princes Hwy A1  
Princes Hwy / Augusta Hwy A1- Rail at Snowtown  
Wilkins Hwy B79 – Rail at Caltowie  
Detour at Jamestown  
    Via Apilla Rd – Rail  
    Boundary Rd, Princes Hwy, RM Williams Rd  
    OD 5 Rd - Rail  
Wilkins Hwy B78  
Jamestown Whyte-Yarcowie Rd  
Whyte Road  
Barrier Hwy A32 to Wilcannia - Rail at Ucolta, and Mingary  
Cobb Hwy B75 to Booroorban, NSW – Rail at Ivanhoe

**Route 2** – required for length. Overall width 5m, overall height 5m, overall length up to 100m.

Ocean Steamers Rd – Rail at Port of Adelaide  
Eastern Parade  
Port River Expy A9  
Northern Connector  
Port Wakefield Rd/ Princes Hwy A1  
Angle Vale Rd – Rail at Virginia  
Northern Expy M2  
Horrocks Hwy / Main Nth Rd B82 – Disused Rail at Roseworthy,  
Barrier Hwy A32 – Disused Rail at Tarlee  
Detour at Burra  
    Via Copperhouse Rd, West St – Disused Rail  
Barrier Hwy A32 to Wilcannia – Rail at Ucolta, and Mingary  
Cobb Hwy B75 to Booroorban, NSW – Rail at Ivanhoe

I'll also be contacting ARTC.  
If you need further information please let me know

Thank You

Kind Regards,

|



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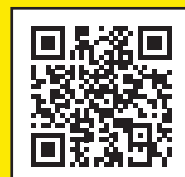
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